



# The Effect of Electronic Word of Mouth Communications on Intention to Buy: A Meta-Analysis

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## Abstract

The aim of this research is to synthesise findings from previous studies by employing weight and meta-analysis to reconcile conflicting evidence and draw a “big picture” of eWOM factors influencing consumers’ intention to buy. By using the findings from 69 studies, this research identified best (e.g. argument quality, valence, eWOM usefulness, trust in message), promising (e.g. eWOM credibility, emotional trust, attitude towards website) and least effective (e.g. volume, existing eWOM, source credibility) predictors of intention to buy in eWOM research. Additionally, the effect size of each predictor was calculated by performing meta-analysis. For academics, understanding what influences consumers’ intention to buy will help set the agenda for future research directions; for practitioners, it will provide benefit in terms of practical guidance based on detailed analysis of specific factors influencing consumers’ intention to buy, which could enhance their marketing activities.

**Keywords** Electronic word of mouth (eWOM) · Intention to buy · Meta-analysis · Weight analysis

## 1 Introduction

Electronic word of mouth (eWOM) is defined as the dynamic and ongoing information exchange process between potential, actual, or former consumers regarding a product, service, brand, or company, which is available to a multitude of individuals and institutions via the Internet (Ismagilova et al. 2017). eWOM is considered as an important source of information influencing human behaviour (Filieri et al. 2018;

Filieri 2015; Floyd et al. 2014; Nam et al. 2018; Wang et al. 2015a; Yan et al. 2015), significantly affecting the way consumers make purchase decisions (Baber et al. 2016; Jeong and Koo 2015; Lee et al. 2017; Lin et al. 2018; Mauri and Minazzi 2013). In recent studies, 93% of consumers indicated that online reviews (a type of eWOM communication) significantly influence their purchase decision (Fullerton 2017; Ruiz-Mafe et al. 2018; Tata et al. 2019).

Several empirical studies have established the effect of eWOM on consumers’ intention to buy products or services (e.g. Chen et al. 2014; Erkan and Evans 2016; Plotkina and Munzel 2016); for example, on purchase intention of cars (Jalilvand and Samiei 2012a), laptops (Aerts et al. 2017; Uribe et al. 2016) and smartphones (Chen et al. 2016), intention to choose tourist destinations (Jalilvand and Samiei 2012b), and intention to book hotels (Agag and El-Masry 2016; Ladhari and Michaud 2015; Sparks and Browning 2011; Teng et al. 2017), to state a few. However, some studies have contradictory results about different characteristics of eWOM influencing buying intention (e.g. Dou et al. 2012; Flanagan et al. 2014; He and Bond 2015; Reimer and Benkenstein 2016; Zainal et al. 2017). For example, He and Bond (2015) found that volume of eWOM communications affects intention to buy, while Flanagan et al. (2014) found this relationship to be non-significant. In terms of the impact of valence on intention to buy, some studies (e.g. Ladhari and Michaud 2015; Mauri and Minazzi 2013) found its effect to be

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significant while others (e.g. Sandes and Urdan 2013; Teng et al. 2017) found it to be non-significant. The different contexts used in the mentioned studies could be one of the reasons for contradictory results.

Collectively, studies (e.g. Kizgin et al. 2018; Shareef et al. 2018) provide valuable insights into factors affecting intention to purchase within the boundaries of the contexts studied but it is difficult to generalise them. Meta-analysis addresses issues of generalisability across contexts by integrating the results of existing studies (Eden 2002; Ismagilova et al. 2019; Pan et al. 2012; Patil et al. 2018; Tamilmani et al. 2019). Meta-analysis is gaining attention from scholars in eWOM research, but most of the existing meta-analysis studies on eWOM communications focus on how eWOM communications affect sales (e.g. Babić Rosario et al. 2016; Floyd et al. 2014; You et al. 2015). For example, Floyd et al. (2014) undertook a meta-analysis of 26 empirical studies considering how eWOM influences sales. They investigated how volume and valence as well as types of reviewers and websites, product types and usage situation affect retailer sales elasticity. Another study by Babic et al. (2016) investigated how platform characteristics, product characteristics, and eWOM metrics influence sales. You et al. (2015) analysed 51 studies to investigate how volume and valence of eWOM affects sales depending on product characteristics, industry characteristics, and platform characteristics. In spite of significant insight provided by previous research on eWOM communications, a consensus regarding the factors affecting consumers' intention to buy is yet to emerge, indicating the need for a systematic integration of this body of work.

In this research, we aim to synthesise findings from previous studies by employing weight analysis and meta-analysis to reconcile conflicting evidence and draw a “big picture” of eWOM factors influencing consumers' intention to buy. For academics, understanding what influences consumers' intention to buy will help set the agenda for future research directions. Based on this study, scholars can deduce the type of variables to be selected for analysing consumers' intention to buy in eWOM research. The outcomes of both weight analysis and meta-analysis for factors affecting intention to buy can be considered as a guideline for future constructs and can be analysed to study their performance. For practitioners it will provide benefits in terms of practical guidance based on detailed analysis of specific factors influencing consumers' intention to buy, which could enhance their marketing activities. In the following section we offer a review of the literature and hypotheses development. Section 3 describes the research methodology employed. After that, Section 4 presents the findings from both types of analysis i.e. weight analysis and meta-analysis. Next, we present the discussion of our findings. The paper is then concluded with an overview of the theoretical and practical implications of this research, followed by limitations and directions for future research.

## 2 Literature Review and Hypotheses Development

In order to understand the antecedents and consequences of eWOM communications previous studies employed Elaboration Likelihood Model (ELM) and Theory of Planned Behaviour (TPB) (Jalilvand and Samiei 2012b; Park and Lee 2008; Teng et al. 2017a; Wang et al. 2015b). ELM separates central and peripheral routes (where individuals use pre-existing ideas and superficial qualities to be persuaded by the message) (Petty and Cacioppo 1984). Individuals use central route when they are motivated and can think about the issues. Peripheral route is used when individuals' ability or motivation to process information is low (Baek et al. 2012; Petty and Cacioppo 1984). An example of central route factors can be argument quality and valence, whereas source credibility and information rating are considered as peripheral route factors. As a result, depending on the motivation to search for eWOM communications, individuals apply different routes of information processing (Filieri and McLeay 2014).

Theory of planned behaviour (TPB) describes how consumer behaviour is formed (Ajzen 1991). Based on TPB an individual's attitude toward behaviour together with subjective norms and perception of behavioural control factors serve to influence their intention to perform a certain behaviour. An example of TPB can be the impact of attitude towards a product on an individual's purchase intention.

### 2.1 Argument Quality

According to the accessibility-diagnostics model, if input information is clear and relevant for consumers in helping them to categorise and interpret products, this input information is perceived as more diagnostic and thus has a higher likelihood to be used in the decision making process (Feldman and Lynch Jr 1988; Herr et al. 1991). Argument quality includes various components such as relevance, timeliness, accuracy, and comprehensiveness (Luo et al. 2014; Tsao and Hsieh 2015). Previous research found that high quality reviews are perceived more credible and helpful than low quality reviews (Cheung 2014; Guo et al. 2009; Park and Kim 2008; Robinson et al. 2012; Tsao & Hsieh). As a result, high quality reviews are considered more effective for consumer decision making. Several studies found that argument quality positively affects purchase intention (Furner et al. 2014; Liu and Zhou 2012; Tsao and Hsieh 2015; Zhang et al. 2014b). For example, Tsao and Hsieh (2015) found that argument quality positively affects purchase intention of smart phones and computer antivirus software by using surveys from 320 students from Taiwan. Thus, it is hypothesised that:

H1. Argument quality of eWOM positively affects purchase intention.

## 2.2 eWOM Credibility

Credibility of information determines how much the receiver of this information learns from and adopts the received information: if the received information is perceived as credible, the receiver will have more confidence to use it for the purchase decision (Sussman and Siegal 2003). Taking into consideration that online information exchanges occur between people who may have no prior relationship, it is essential to consider how perceived credibility of information influences consumer behaviour. Some studies have examined the relationship between eWOM credibility and purchase intention (Koo 2016; Teng et al. 2017; Wang et al. 2015b; Xie et al. 2011). For example, Koo (2016) surveyed 302 students from South Korea and found eWOM credibility to have a significant positive effect on purchase intention of airline tickets, meal at a family restaurant and a skin care service. Thus, it is hypothesised:

H2. eWOM credibility has a positive effect on intention to buy.

## 2.3 eWOM Usefulness

Information is perceived to be helpful when it is useful in making a purchase decision (Davis 1989). It has been found that eWOM has an influence on individuals' evaluation of products and services (Mayzlin 2006). When eWOM communications are useful they significantly affect an individual's purchase intention (Jeong and Koo 2015). Several studies have investigated the relationship between eWOM usefulness and purchase intention (Cheung 2014; Frasquet et al. 2015; Gunawan and Huarng 2015; Huang et al. 2013; Lee et al. 2011; Mafael et al. 2016; Park and Lee 2008, 2009). For example, Huang et al. (2013) used data from 549 respondents from China and found that eWOM usefulness positively affects hotel booking intention. As a result, the following hypothesis can be proposed:

H3. eWOM usefulness has a positive effect on intention to buy.

## 2.4 Existing eWOM

eWOM communications provide consumers with information about products/services. Consumers perceive eWOM communications more credible in comparison with traditional media (Ismagilova et al. 2017). Using eWOM communications during the purchase decision enables consumers to be more confident in understanding products/services, reduces risk of making bad purchase decisions, and helps gain social

approval (Hennig-Thurau and Walsh 2003). It is well established in the literature that eWOM communications significantly affect consumer behaviour. Several studies have investigated the relationship between existing eWOM and its impact on intention to buy (Bhandari and Rodgers 2017; Jalilvand and Samiei 2012b; Lee 2011; Netto et al. 2016; Saleem and Ellahi 2017; Torlak et al. 2014; Vermeulen and Seegers 2009). For example, Jalilvand et al. (2013) conducted surveys with 189 tourists and found that existing eWOM communications significantly affect individuals' intention to travel to Iran. Thus, based on the previous discussion the following is hypothesised:

H4. Existing eWOM positively affects intention to buy.

## 2.5 Trust in Message

Trust in message refers to an individual's perception that information in the message can be trusted (Ho and Chien 2010). Studies have found a link between trust in message and purchase intention (Ho and Chien 2010; Hsu et al. 2013; Huang et al. 2013; Ladhari and Michaud 2015; Saleem and Ellahi 2017; Xiaoping and Jiaqi 2012). For example, an empirical study conducted by Ho and Chien (2010) with 471 respondents from Taiwan identified that trust in message positively affects intention to buy. As a result, based on the above discussion the following hypothesis is proposed:

H5. Trust in message positively affects intention to buy.

## 2.6 Valence

eWOM communications vary in valence (positive vs. negative information). It is considered that positive evaluations are likely to include pleasant, vivid and romanticised descriptions of products or services, while negative eWOM communications usually include complaints and unpleasant descriptions (Sparks and Browning 2011). Previous studies investigated the link between valence of eWOM and purchase intention (Bigne et al. 2016; Hamby et al. 2015; Hu et al. 2012; Jones et al. 2009; Ladhari and Michaud 2015; Lee and Youn 2009; Mauri and Minazzi 2013). For example, Mauri and Minazzi (2013) conducted experiments with 570 students from Italy and found that positive online reviews about hotels increase intention to book. Thus, it is hypothesised:

H6. Valence has a positive effect on intention to buy.

## 2.7 Volume

When consumers search for eWOM, the number of eWOM messages makes information more observable (Cheung and Thadani 2010). The volume of eWOM indicates the popularity of the product or service. It was found by previous studies that the number of eWOM communications have a positive effect on purchase intention (Flanagin et al. 2014; He and Bond 2015; Hu et al. 2012; Liu and Zhou 2012). For example, by using an experimental survey with 192 respondents, He and Bond (2015) found that volume of eWOM positively influences purchase intention in the context of movies. Based on the above discussion the following hypothesis is proposed:

H7. Volume of eWOM communications has a positive effect on intention to buy.

## 2.8 Age

Age accounts for how old the receiver of eWOM communications is. Age affects people's attitude and behaviour (Beatty and Smith 1987). As people get older they become more cautious and seek greater certainty in their purchase decisions (Akhter 2003). Some studies investigated the effect of age on purchase behaviour (Frasquet et al. 2015; Tseng et al. 2013; Tseng et al. 2014; Wang et al. 2015b). For example, Frasquet et al. (2015) found that age has an effect on purchase intention. Thus, the following hypothesis is proposed:

H8. Age of the eWOM communications receiver affects intention to buy.

## 2.9 Attitude towards Online Shopping

The way in which consumers evaluate online shopping can influence their behaviour (Hsu et al. 2013). Researchers found that purchase intention can be influenced by attitude towards online shopping (Hsu et al. 2013; Lee et al. 2011). For instance, by conducting an empirical study with 327 blog readers from Taiwan, Hsu et al. (2013) found that consumers who have a positive attitude towards online shopping will have higher purchase intention. Thus, it is hypothesised that:

H9. Attitude towards online shopping positively affects intention to buy.

## 2.10 Attitude towards Product

Attitude is defined as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour” (Eagly and Chaiken 2007, p. 582). Studies have found that eWOM communications can have a strong impact on attitude towards product/service (Chih et al. 2013; Ladhari and Michaud 2015), which in turn can influence intention to purchase (Baber et al. 2016; Chih et al. 2013; Liao et al. 2016; Teng et al. 2017; Xiaofen and Yiling 2009). For example, by using experiments with 193 undergraduate students from Taiwan, Liao et al. (2016) found that positive attitude towards a product positively affects purchase intention in the context of phones, digital cameras and tablet devices. Thus, the following is hypothesised:

H10. Attitude towards product has a positive effect on intention to buy.

## 2.11 Attitude towards Website

Another group of studies found that attitude towards website significantly affects individuals' purchase intention (Chih et al. 2013; Lee et al. 2011). For example, Lee et al. (2011) used surveys of 104 respondents living in Hong Kong and found that positive attitude toward online shopping website has a positive influence on purchase intention of products. Thus, based on the above discussion it is hypothesised that:

H11. Attitude towards website has a positive effect on purchase intention.

## 2.12 Emotional Trust

Emotional trust refers to “trustors' attitude and emotional feeling, such as feeling secure and comfortable, about relying on trustees” (Zhang et al. 2014a, p. 90). Individuals' emotional trust can be developed based on consumers' cognitive perceptions towards online retailers (Sun 2010). Based on TPB (Ajzen and Fishbein 1975), several studies have proposed and tested a positive effect of emotional trust on purchase intention (Cheung et al. 2009; Zhang et al. 2014a). For example, using experiments with 100 participants from Hong Kong, Zhang et al. (2014a) found that emotional trust has a significant positive effect of intention to buy watches. Thus, the following is hypothesised:

H12. Emotional trust positively affects intention to buy.

### 2.13 Intention to Engage in eWOM

Intention to engage in eWOM communications refers to the willingness of an individual to provide eWOM communications (Ismagilova et al. 2017). Researchers have found that people who engage in eWOM communications have the following motivations: altruism (Tong et al. 2013; Zhang and Lee 2012), self-enhancement (Wang et al. 2014; Yap et al. 2013), venting feelings (Yen and Tang 2015), social benefits (Munzel et al. 2014), and economic incentives (Ahrens et al. 2013). Several studies have investigated the relationship between intention to engage in eWOM communications and intention to buy (Alhidari et al. 2015; Husnain and Toor 2017; Indiani et al. 2015). For example, Husnain and Toor (2017) conducted an empirical study with 243 existing users of social networking websites in Pakistan and found that consumer engagement in eWOM positively affects intention to buy. Thus, the following is hypothesised:

H13. Intention to engage in eWOM positively affects intention to buy.

### 2.14 Involvement

Involvement refers to the degree of psychological identification and strength of emotional ties the receiver of the information has with a product or service (Cheung and Thadani 2010). Individuals with low involvement have low information need, while individuals with high involvement look for information which provides added value to their purchase decision (Doh and Hwang 2009). Several studies investigated a link between involvement and purchase intention (Alhidari et al. 2015; Park et al. 2006; Saleem and Ellahi 2017; Xue and Zhou 2011; Yang et al. 2015). For example, Xue and Zhou (2011) conducted an experiment with 142 students and found that product involvement positively affects purchase intention in the context of fast food restaurants and laptops.

H14. Involvement has a positive effect on intention to buy.

### 2.15 Perceived Ease of Use of the Online Channel

Perceived ease of use of the online channel refers to the degree to which the consumer believes using the internet for shopping will require little effort. Some studies investigated the link between perceived ease of use of the online channel and purchase intention (Frasquet et al. 2015; Parry et al. 2012). For example, Frasquet et al. (2015) used information from 1533 retail shoppers in the UK and Spain and found that there is a

significant positive relationship between perceived ease of use of the online channel and purchase intention. Thus, based on the above discussion the following is hypothesised:

H15. Perceived ease of use of the online channel positively affects purchase intention.

### 2.16 Tie Strength

Tie strength refers to the depth of a relationship between the source of information and the information seeker (Cheng and Zhou 2010). It is believed that information from strong ties tends to be perceived as more credible, in comparison with information from weak ties (Brown et al. 2007), and affects consumer decision making. Several studies investigated the link between tie strength and intention to buy (Koo 2016; Ng 2013; Wu et al. 2014; Yang et al. 2015). For example, by collecting information from 284 Facebook users, Ng (2013) found that tie strength positively influences purchase intention in the context of online communities. Thus, it can be proposed that:

H16. Tie strength has a positive effect on intention to buy.

### 2.17 Source Credibility

Source credibility refers to consumers' overall perception regarding the credibility of an eWOM source rather than the content of the message. Source credibility is considered to be a basic factor, which helps individuals to judge eWOM communications (Akyuz 2013). The evaluation of a source is often made in terms of expertise, trustworthiness, credentials and attractiveness. Several studies have explored the relationship between source credibility and purchase intention (Akyuz 2013; Nekmat and Gower 2012; Yang et al. 2015; Zhang et al. 2014b). For example, by conducting surveys with 378 respondents from China, Yang et al. (2015) found that information coming from a source perceived as credible positively affects intention to buy. As a result, the following can be hypothesised:

H17. Source credibility has a positive effect on intention to buy.

### 2.18 Source Expertise

Source expertise is considered as a main mechanism in reducing uncertainty of using eWOM communications in the decision making process (Casalo et al. 2008). Expertise refers to “the extent to which a source is

perceived as being capable of providing correct information” (Bristor 1990, p. 73). The degree of expertise is connected to the experience or training of the information source (Racherla and Friske 2012). Source expertise can be assessed by the context of the review, the duration of a reviewer’s membership of the platform, and the number of reviews posted (Racherla and Friske 2012; Weiss et al. 2008). Previous studies have investigated the influence of source expertise on intention to buy (Dou et al. 2012; Park and Kim 2008; Saleem and Ellahi 2017; Zainal et al. 2017). For example, using an online survey of 280 respondents from Malaysia, Zainal et al. (2017) found that source expertise significantly affects intention to book a hotel room. The expertness of an individual is an important factor for making eWOM communications more persuasive and it increases intention to buy. As a result, the following hypothesis can be proposed:

H18. Source expertise has a positive effect on intention to buy.

## 2.19 Source Trustworthiness

A receiver of information doubts its credibility if they perceive that the source of this information is untrustworthy (Sparkman Jr and Locander 1980). The source is considered trustworthy if the statement is considered as valid, honest and up to the point (Hovland and Weiss 1951). Source trustworthiness is considered an important predictor of the persuasiveness of eWOM communications (Cheung et al. 2009; Hu et al. 2008). Using theories of planned behaviour and reasoned action, Lis (2013) suggests that trust in the source leads to purchase intention (Saleem and Ellahi 2017). Cheung et al. (2009) found that source trustworthiness positively influences behavioural intention by conducting laboratory experiments with 40 participants. Another study by Saleem and Ellahi (2017) found that trustworthiness of the message provider affects the buying intention on social media websites in the context of fashion products. Therefore, the following hypothesis is proposed:

H19. Source trustworthiness has a positive effect on intention to buy.

Based on the above hypotheses, Fig. 1. Presents the proposed research model.

## 3 Research Method

As the aim of this research was to synthesise the findings from existing studies of the effects of eWOM on

intention to buy, a combination of review and meta-analysis approaches was employed (Dwivedi et al. 2017; King and He 2006; Rana et al. 2015). In order to identify articles for this research, we started with a search for the articles related to eWOM research. The first step of this study was collecting peer-reviewed journal articles and conference papers on eWOM communications, which was achieved by performing keyword based searches, such as “Electronic word-of-mouth” OR “Electronic word of mouth” OR “eWOM” OR “Internet word-of-mouth” OR “Internet word of mouth” OR “iWOM” OR “Online word-of-mouth” OR “Online word of mouth” OR “Virtual word-of-mouth” OR “vWOM” OR “Virtual word of mouth”, in numerous bibliographic databases such as Scopus, Web of Science and EBSCO to avoid exclusion of any relevant peer-reviewed article. The search resulted in more than 590 articles published between 2000 and 2017. The second step involved selecting articles directly relevant to this study from the aforementioned initial pool based on the following criteria: empirical nature of the study; focus on eWOM affecting intention to buy; and the presence of relevant statistical details (Pearson correlations, sample size, and significance of the relationships) to perform weight and meta-analysis of the relationships. As a result, 69 studies were identified, which were used for weight analysis and meta-analysis. One hundred and fifteen factors affecting intention to buy were identified but only 28 factors were examined three or more times. Of these 28 factors, required statistics were available for 19; hence, 19 factors were subject to analysis performed in this study. Some variables had various names in different studies, discovered through close examination of the measurement scales. For example, eWOM credibility was also labelled information credibility and credibility of the message. Table 1 offers the description of these variables by providing a definition, different names of the variables used across the studies in eWOM research, and examples of some studies including the construct. The variables are divided into characteristics of eWOM message, receiver of eWOM, and source of eWOM.

Prior research shows that meta-analysis is a valuable tool for synthesising previous findings (Dwivedi et al. 2017; Floyd et al. 2014; Purnawirawan et al. 2015; Rana et al. 2015). Weight analysis enables scrutiny of predictive power of independent variables in studied relationships and the degree of effectiveness of the relationships (Jeyaraj et al. 2006; Rana et al. 2014, 2015). Weight analysis was undertaken through division of the number of significant relationships between two constructs by the total number of all relationships between these two constructs. Meta-analysis was

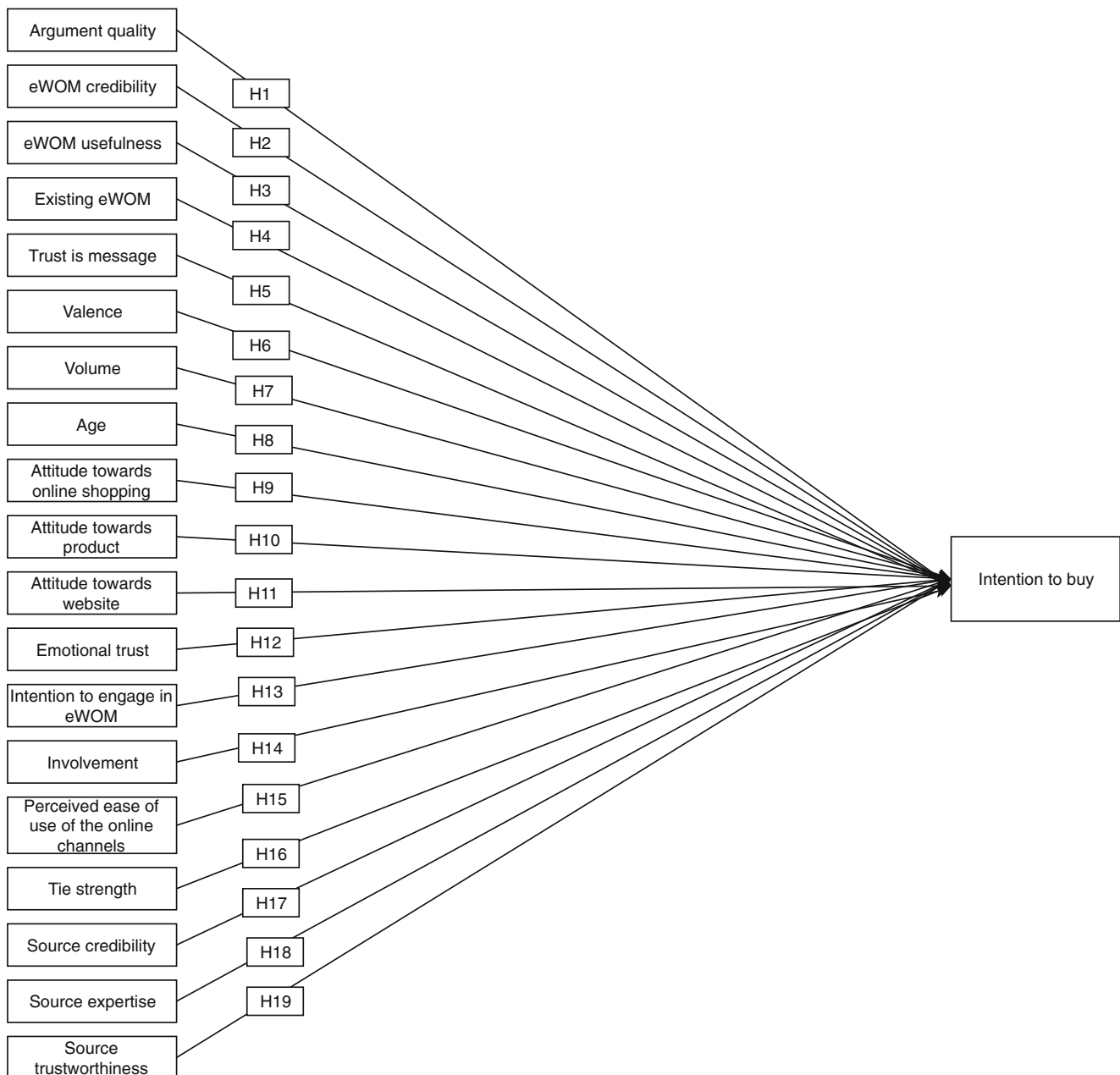


Fig. 1 Research model

performed using a trial version of the Comprehensive Meta-Analysis Software, which was previously successfully used by researchers (e.g. Rana et al. 2015). This software not only generates a cumulative correlation coefficient but also provides relevant statistics for the effect size (*p* value) and Z-value. Meta-analysis was performed by using the correlation coefficient between each pair of constructs and sample size. Following previous studies on meta-analysis and weight analysis (Dwivedi et al. 2017; Jeyaraj et al. 2006; Rana et al. 2015), constructs for this research were only chosen when the relationships between

independent and dependent variables had been examined three or more times by previous studies. This was done to enable sufficient correlation coefficients to be obtained.

#### 4 Analysis and Findings

This section presents findings of weight analysis, reliability and meta-analysis of all factors affecting intention to buy across 69 studies on eWOM communications.

**Table 1** Variables investigated in weight analysis and meta-analysis

| Construct                                    | Definition   | Representative studies   |
|--|--|--|
| eWOM message                                 | Perceived relevance, timeliness, accuracy, and comprehensiveness of the information. Variables included: argument quality, quality, strength. The degree to which an individual perceives the recommendation from others   | Fumer et al. (2014), Liu and Zhou (2012), Teng et al. (2017), Tsao and Hsieh (2015), Zhang et al. (2014b) Koo (2016), Teng et al. (2017), Wang et al. (2015b), Xie et al. (2011)   |
| eWOM usefulness                              | as believable, true, or factual. Variables included: perceived eWOM credibility, information credibility, credibility of eWOM message. The degree to which the information assists consumers in making their purchase decisions. Variables included: information usefulness, helpfulness, diagnosticity. | Cheung (2014), Frasquet et al. (2015), Gunawan and Huang (2015), Huang et al. (2013), Lee et al. (2011), Mafael et al. (2016), Park and Lee (2008), Park and Lee (2009), Parry et al. (2012), Pöyry et al. (2012), Wang et al. (2015b)   |
| Existing eWOM                                | Previous eWOM communications available regarding the product/service. Variables included: existing eWOM, eWOM among tourists.  | Bhandari and Rodgers (2017), Jalilvand and Samiei (2012a, b), Jalilvand et al. (2013), Lee (2011), Netto et al. (2016), Saleem and Ellahi (2017), Torlak et al. (2014), Vahdati and Mousavi Nejad (2016), Vermeulen and Seegers (2009)   |
| Trust in message                             | The perception that information in the message can be trusted. Variables included: trustworthiness, message trust, information-based trust.  | Ho and Chien (2010), Hsu et al. (2013), Huang et al. (2013), Ladhari and Michaud (2015), Saleem and Ellahi (2017), Xiaoping and Jiayi (2012)   |
| Valence                                      | Whether message is positive or negative. Variables included: valence, tone.  | Bigne et al. (2016), Hamby et al. (2015), Hu et al. (2012), Jones et al. (2009), Ladhari and Michaud (2015), Lee and Youn (2009), Lee et al. (2014), Mauri and Minazzi (2013), Park et al. (2007), Reimer and Benkenstein (2016), Sandes and Urdan (2013), Sparks and Browning (2011), Teng et al. (2017), Tsao et al. (2015), Vermeulen and Seegers (2009), Wang et al. (2015b), Xue and Zhou (2011), Yang et al. (2015), Ziegele and Weber (2015); |
| Volume                                       | Total number of posted online reviews. Variables included: volume, number of reviews, and quantity of reviews.   | Flanagin et al. (2014), He and Bond (2015), Hu et al. (2012), Liu and Zhou (2012), Park and Kim (2008), Park et al. (2006), Park et al. (2007), Teng et al. (2017), Tsao et al. (2015), Zhang et al. (2014b)   |
| Age  | The demographic variable stating how old the receiver of the eWOM communications is.   | Frasquet et al. (2015), Tseng et al. (2013), (2014), Wang et al. (2015b)   |
| Attitude towards online shopping             | Evaluation of the online shopping.   | Hsu et al. (2013), Lee et al. (2011)   |
| Attitude towards product                     | Evaluation of the reviewed object. Variables included: attitude towards the product/service, product/service evaluation, review impression, movie evaluation.  | Baber et al. (2016), Chih et al. (2013), Jalilvand and Samiei (2012b), Jalilvand et al. (2013), Koo (2015), Liao et al. (2016), Teng et al. (2017), Xiaofen and Yiling (2009)  |
| Attitude towards website                     | Evaluation of the website. Variables included: attitude towards website, attitude towards platform.  | Chih et al. (2013), Lee et al. (2011)  |
| Emotional trust                              | Trustors' attitude and emotional feelings about relying on trustees, such as feeling secure or comfortable. Variables included: emotional trust, affective trust.  | Cheung et al. (2009), Zhang et al. (2014a)   |
| Intention to engage in eWOM                  | Willingness of the individual to provide eWOM communications.  | Alhidari et al. (2015), Husnain and Toor (2017), Indiami et al. (2015)   |
| Involvement                                  | The degree of psychological identification and emotional ties the receiver has with the product/service. Variables included: involvement, involvement level.   | Alhidari et al. (2015), Park et al. (2006), Saleem and Ellahi (2017), Xue and Zhou (2011), Yang et al. (2015)  |
| Perceived ease of use of the online channels | Degree to which the consumer believes using the Internet for shopping will require little effort.  | Frasquet et al. (2015), Parry et al. (2012)  |
| Tie strength                                 | The depth of a relationship between source and information seeker.   | Koo (2016), Ng (2013), Wu et al. (2014), Yang et al. (2015)  |
| Source of eWOM                               | Consumers' overall perceptions regarding the credibility of the message communicator.  | Akyuz (2013), Nekmat and Gower (2012), Yang et al. (2015), Zhang et al. (2014b)  |
| Source expertise                             | The degree to which the message communicator is able to provide the correct information.   | Dou et al. (2012), Park and Kim (2008), Saleem and Ellahi (2017), Zainal et al. (2017)   |
| Source trustworthiness                       | Recipient's degree of trust in the message communicator.   | Dou et al. (2012), Reimer and Benkenstein (2016), Zainal et al. (2017)   |



### 4.1 Weight Analysis

In order to perform weight analysis, the number of significant relationships was divided by the total number of analysed relationships between independent variable and dependent variable (Jeyaraj et al. 2006; Rana et al. 2014, 2015). For example, the weight for the relationship between volume and intention to buy is calculated by dividing 7 (the number of significant results) by 11 (the total number of times the relationship has been tested), which equals 0.636. Table 2 presents description of the 19 most frequently utilised predictors of intention to buy in eWOM research. This table includes the number of significant results, number of non-significant results, total number of times the relationship between the dependent and independent variable has been tested, and the weight for each relationship. The coefficient of weight shows the strength of a predictor variable. Weight analysis provides results about predictive power of an independent variable in a given relationship between two variables (Jeyaraj et al. 2006; Rana et al. 2015), which facilitates comparison of the effectiveness of the relationships.

Predictors are classified in the following ways: ‘well-utilised’ predictors have been examined in five or more relationships, whereas those examined less

than five times are ‘experimental’. In order to be a ‘best predictor’, a variable should have a weight equal or great than 0.8 and be well-utilised (Jeyaraj et al. 2006). Based on the weight analysis it was found that eight of 19 predictors were well-utilised. Of the well-utilised independent variables, attitude towards product (examined 14 times), eWOM usefulness (examined 16 times), and valence (examined 21 times) are the most utilised. Among well-utilised predictors, it was found that best predictors for intention to buy are attitude towards product (examined 14 times, significant 14 times), eWOM usefulness (examined 16 times, significant 13 times); trust in message (examined 6 times, significant 6 times); argument quality (examined 5 times, significant 4 times), and valence (examined 21 times, significant 18 times).

The analysis of variables used across the most frequently examined relationships indicate that the well-utilised predictors of intention to buy, such as attitude towards product (examined 14 times, significant 14 times) and trust in message (examined 6 times, significant 6 times), were found to be significant across all the investigations. Thus, their weight is equal to 1, according to the techniques used by Jeyaraj et al. (2006) and Rana et al. (2015), and as a result they hold significant place in eWOM research.

**Table 2** Results of weight analysis

|                  | Independent variable                         | Dependent variable | Number of significant results | Number of non-significant results | Total number of tests | Weight |
|------------------|--|--------------------|-------------------------------|-----------------------------------|-----------------------|--------|
| eWOM message     | Argument quality                             | Intention to buy   | 4                             | 1                                 | 5                     | 0.800  |
|                  | eWOM credibility                             |                    | 4                             | 0                                 | 4                     | 1.000  |
|                  | eWOM usefulness                              |                    | 13                            | 3                                 | 16                    | 0.813  |
|                  | Existing eWOM                                |                    | 8                             | 3                                 | 11                    | 0.705  |
|                  | Trust in message                             |                    | 6                             | 0                                 | 6                     | 1.000  |
|                  | Valence                                      |                    | 18                            | 3                                 | 21                    | 0.857  |
|                  | Volume                                       |                    | 7                             | 4                                 | 11                    | 0.636  |
| Receiver of eWOM | Age  |                    | 1                             | 3                                 | 4                     | 0.250  |
|                  | Attitude towards online shopping             |                    | 3                             | 0                                 | 3                     | 1.000  |
|                  | Attitude towards product                     |                    | 14                            | 0                                 | 14                    | 1.000  |
|                  | Attitude towards website                     |                    | 3                             | 0                                 | 3                     | 1.000  |
|                  | Emotional trust                              |                    | 3                             | 0                                 | 3                     | 1.000  |
|                  | Intention to engage in eWOM                  |                    | 2                             | 1                                 | 3                     | 0.667  |
|                  | Involvement                                  |                    | 2                             | 3                                 | 5                     | 0.400  |
|                  | Perceived ease of use of the online channels |                    | 1                             | 2                                 | 3                     | 0.333  |
| Source of eWOM   | Tie strength                                 |                    | 4                             | 0                                 | 4                     | 1.000  |
|                  | Source credibility                           |                    | 3                             | 1                                 | 4                     | 0.750  |
|                  | Source expertise                             |                    | 3                             | 1                                 | 4                     | 0.750  |
|                  | Source trustworthiness                       |                    | 2                             | 2                                 | 4                     | 0.500  |

Some experimental predictors, such as eWOM credibility (examined 4, significant 4), emotional trust (examined 3 times, significant 3 times), attitude towards website (examined 3, significant 3), attitude towards online shopping (examined 3 times, significant 3 times), and tie strength (examined 4 times, significant 4 times), have a weight of “1” and are considered as promising predictors of intention to buy. Even though these relationships were found to be significant each time they were examined, it is suggested by previous researchers that these experimental variables need more testing to be qualified as best predictors of intention to buy. Thus, researchers are encouraged to examine these predictors in their future studies.

Even though none of the relationships were found to have a weight of 0, which would make them non-significant, some of the well-utilised predictors are considered as least effective predictors, such as existing eWOM (examined 11 times, significant 8 times), involvement (examined 5 times, significant 2 times) and volume (examined 11 times, significant 7 times). According to Jeyaraj et al. (2006) it is suggested that research should find convincing reason to continue investigating these kinds of predictors. However, excluding these relationships in the context of eWOM research based on this alone may be irrational. First, eWOM research into the predictors of intention to buy is still developing. Out of the total 19 most frequently used relationships on intention to buy only 8 have been found to be investigated five or more times. This indicates that eWOM empirical research is still not well developed. Second, just using weight analysis is not a sufficient condition to exclude variables from further analysis. In this case it is wise to use meta-analysis.

#### 4.2 Meta-Analysis

Some researchers consider meta-analysis as a good alternative to a qualitative and descriptive literature analysis (Rosenthal and DiMatteo 2001; Rosenthal 1991; Wolf 1986). Meta-analysis is defined as a method to statistically synthesise existing literature in order to visualize the research background by combining and investigating the quantitative results of different empirical studies (Glass 1976). Table 3 shows the results of meta-analysis of the 19 relationships. The table presents independent and dependent variables, number of times a particular relationship was studied, cumulative correlations (Avg ( $r$ )), effect sizes ( $p$ (ES)), standard normal deviations (Z-value), and 95% lower and upper confidence interval levels.

The meta-analysis indicates that 18 out of 19 relationships are significant. There are particularly strong correlations between intention to buy and eWOM credibility ( $r=0.482$ ), attitude towards product ( $r=0.580$ ), emotional trust ( $r=0.651$ ), eWOM usefulness ( $r=0.623$ ), argument quality ( $r=0.468$ ), attitude towards online shopping ( $r=0.604$ ), existing eWOM ( $r=0.521$ ), involvement ( $r=0.494$ ), source credibility ( $r=0.512$ ), intention to engage in eWOM ( $r=0.556$ ), and attitude towards website ( $r=0.631$ ). Other correlations between intention to buy and trust in message ( $r=0.342$ ), volume ( $r=0.388$ ), valence ( $r=0.241$ ), tie strength ( $r=0.282$ ), perceived ease of use ( $r=0.341$ ), source trustworthiness ( $r=0.378$ ) and source expertise ( $r=0.383$ ) are weaker and together explain only 33.6% of the variance on intention to buy. The correlation between intention to buy and age was the only one found to be non-significant.

Figure 2 presents the corresponding relationships between investigated dependent and independent variables. The combined correlation of the constructs has been provided in the figure with respect to the individual values of the constructs.

#### 4.3 Reliability of Factors Affecting Intention to Buy

Reliability is a measure of internal consistency that demonstrates the extent to which all measurement items on a scale measure the same concept or construct (Tavakol and Dennick 2011). Cronbach's alpha is the most widely used coefficient to measure the internal consistency of a scale (Fornell and Larcker 1981; Nunnally 1978). The value of Cronbach's alpha ranges from 0 to 1; an acceptable value of alpha is above 0.70 (Bland and Altman 1997). A low Cronbach's alpha can occur because of a low number of questions, poor inter-relatedness between items, or heterogeneous constructs (Tavakol and Dennick 2011).

Table 4 depicts descriptive statistics of Cronbach's alpha values for different constructs across eWOM studies used for weight and meta-analysis. It should be noted that constructs with a single measurement item have a value of Cronbach's alpha equal to 1 and thus are excluded from the analysis. It is required to have at least two items to calculate Cronbach's alpha for a construct as internal consistency measures item-to-total correlation (King and He 2006). Table 4 shows that all studied constructs are reliable as their Cronbach's alpha values are above 0.7. Existing eWOM had the lowest average alpha of 0.8045 and eWOM credibility had the highest average Cronbach's alpha of 0.9084. Intention to engage in eWOM and source expertise had the lowest minimum value of

**Table 3** Results of meta-analysis

|                        | IV                               | DV                 | Total number of tests | Avg (r) | p(ES) | Z-Value | 95% L(r) | 95% H(r) |
|------------------------|----------------------------------|--------------------|-----------------------|---------|-------|---------|----------|----------|
| eWOM message           | Argument quality                 | Intention to buy   | 8                     | 0.468   | 0.000 | 6.161   | 0.333    | 0.585    |
|                        | eWOM credibility                 |                    | 3                     | 0.482   | 0.001 | 3.352   | 0.215    | 0.682    |
|                        | eWOM usefulness                  |                    | 14                    | 0.623   | 0.000 | 8.346   | 0.507    | 0.717    |
|                        | Existing eWOM                    |                    | 4                     | 0.521   | 0.000 | 4.156   | 0.296    | 0.691    |
|                        | Trust in message                 |                    | 5                     | 0.342   | 0.001 | 3.413   | 0.15     | 0.508    |
|                        | Valence                          |                    | 3                     | 0.241   | 0.000 | 5.449   | 0.156    | 0.323    |
|                        | Volume                           |                    | 3                     | 0.388   | 0.008 | 2.66    | 0.107    | 0.612    |
| Receiver of eWOM       | Age                              |                    | 3                     | 0.063   | 0.076 | 1.775   | -0.007   | 0.132    |
|                        | Attitude towards online shopping |                    | 3                     | 0.604   | 0.000 | 6.132   | 0.443    | 0.727    |
|                        | Attitude towards product         |                    | 10                    | 0.58    | 0.000 | 11.255  | 0.498    | 0.651    |
|                        | Attitude towards website         |                    | 3                     | 0.631   | 0.000 | 15.744  | 0.573    | 0.684    |
|                        | Emotional trust                  |                    | 3                     | 0.651   | 0.000 | 13.269  | 0.58     | 0.713    |
|                        | Intention to engage in eWOM      |                    | 3                     | 0.556   | 0.000 | 5.551   | 0.385    | 0.691    |
|                        | Involvement                      |                    | 4                     | 0.494   | 0.000 | 6.387   | 0.359    | 0.609    |
|                        | Perceived ease of use            |                    | 6                     | 0.341   | 0.000 | 8.564   | 0.267    | 0.411    |
|                        | Tie strength                     |                    | 3                     | 0.282   | 0.021 | 2.308   | 0.044    | 0.491    |
|                        | Source of eWOM                   | Source credibility |                       | 7       | 0.512 | 0.000   | 23.094   | 0.476    |
| Source expertise       |                                  |                    | 5                     | 0.383   | 0.000 | 5.038   | 0.242    | 0.509    |
| Source trustworthiness |                                  |                    | 5                     | 0.378   | 0.000 | 5.045   | 0.239    | 0.503    |

Avg Average, DV Dependent variable, ES Effect size, IV Independent variable, H(r), Higher correlation, L(r) Lower correlation

Cronbach’s alpha of 0.73; involvement and eWOM credibility had the highest maximum Cronbach’s alpha value of 0.95.

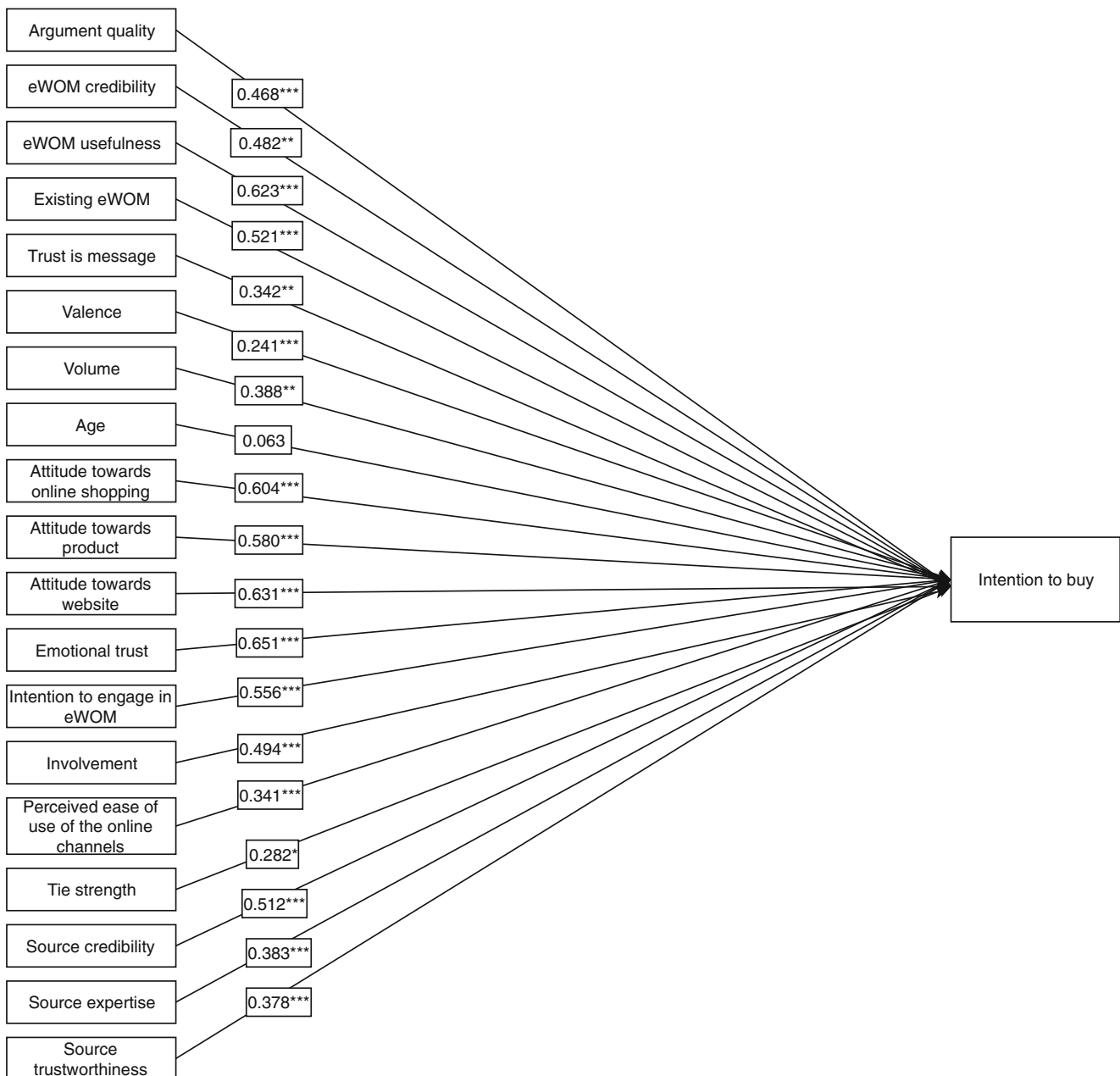
While some studies in eWOM research applied Cronbach’s alpha to measure internal consistency, some studies used composite reliability. Composite reliability is similar to Cronbach’s alpha as a measure of internal consistency, except that composite reliability presumes that each indicator of a construct contributes equally. Some researchers argue that Cronbach’s alpha does not show the full picture and other techniques such as composite reliability should be used (Fornell and Larcker 1981). For reliability to be acceptable, composite reliability should be greater than 0.70 (Fornell and Larcker 1981; Nunnally 1978), which indicates good agreement among respondents in terms of the meaning of each set of indicators belonging to a particular variable.

Table 5 provides descriptive statistics of construct reliability of studied constructs. It can be seen that all constructs are reliable since their average construct reliability is above the recommended value of 0.70. Valence had the highest average reliability across all constructs with a value of 0.927 and perceived ease of use had the lowest average value of 0.8376. eWOM

usefulness and valence have the highest maximum reliability value of 0.99; involvement had the lowest minimum reliability value of 0.76.

### 5 Discussion

Taking into consideration the growing number of studies in eWOM research it becomes important to discuss and analyse their collective findings. There is a close relation between two types of analysis employed by this research, i.e. weight analysis and meta-analysis, for determining relationships between predictors and their corresponding dependent variables. The greater the weight of a predictor, the higher the likelihood that the relationships between two studied variables would be significant while performing meta-analysis (Rana et al. 2015). This correlation has occurred quite often for some specific relationships. For example, the best predictors, such as attitude towards product and trust in message, demonstrated the perfect weight of 1 while being analysed across eWOM research. Their effect sizes were found to be significant and combined these variables demonstrated a variance of 46.1% which is



**Fig. 2** Construct correlations. Note:  $p^* < 0.05$ ;  $P^{**} < 0.01$ ;  $P^{***} < 0.001$

strong. More than that, the 95% confidence interval for attitude towards product on intention to buy was 0.498–0.651, which is concise enough to provide confidence for the cumulative variance, which was calculated for this predictor. However, the 95% confidence interval for trust in message on intention to buy was found to be extremely large ranging from 0.15 to 0.508. The reason for this could be due to large scale heterogeneity in the individual correlation coefficients of a considerable number of studies (Rana et al. 2015). The findings from the analysis on the rest of

the best predictors such as eWOM usefulness, argument quality, and valence on intention to buy demonstrated consistent results while performing both types of analyses (i.e. weight and meta-analysis). Thus, based on the results of the analysis H1, H3, H5, H6 and H10 are accepted. The findings are in line with some previous studies (Baber et al. 2016; Cheung 2014; Frasquet et al. 2015; Furner et al. 2014; Ho and Chien 2010; Hsu et al. 2013, Hu et al. 2012; Huang et al. 2013; Jalilvand and Samiei 2012b; Koo 2015; Ladhari and Michaud 2015; Liu and Zhou

**Table 4** Summary of Cronbach’s alpha

| Construct                   | Average Cronbach’s alpha | Minimum | Maximum | Variance |
|-----------------------------|--------------------------|---------|---------|----------|
| Attitude towards product    | 0.8475                   | 0.83    | 0.87    | 0.001    |
| eWOM credibility            | 0.9084                   | 0.83    | 0.95    | 0.002    |
| Existing eWOM               | 0.8045                   | 0.80    | 0.81    | 0.000    |
| Intention to buy            | 0.8323                   | 0.75    | 0.91    | 0.002    |
| Intention to engage in eWOM | 0.8854                   | 0.73    | 0.93    | 0.004    |
| Involvement                 | 0.8800                   | 0.83    | 0.95    | 0.002    |
| Source expertise            | 0.8388                   | 0.73    | 0.92    | 0.004    |
| Source trustworthiness      | 0.8493                   | 0.80    | 0.90    | 0.003    |
| Tie strength                | 0.8390                   | 0.74    | 0.89    | 0.003    |
| Trust in message            | 0.8480                   | 0.77    | 0.93    | 0.004    |

2012; Mauri and Minazzi 2013; Park et al. 2007; Pöyry et al. 2012; Saleem and Ellahi 2017; Tsao and Hsieh 2015; Xiaoping and Jiaqi 2012).

While it was found that all best predictors were significant when performing meta-analysis, the investigation of least effective predictors, which are analysed five or more times with weight less than 0.8, produced some interesting results. It was found that two of the least effective predictors of intention to buy - volume (with weight 0.556) and existing eWOM (with weight 0.705) - demonstrate significant relationships in meta-analysis. Their cumulative variance was 45.45% which is quite high. Also, it was found that the effect of involvement (with weight 0.400) on intention to buy was also significant. The result of meta-analysis supports hypotheses H4, H7, and H14. The findings are in line with some previous studies (Bhandari and Rodgers 2017; He and Bond

2015; Liu and Zhou 2012; Park and Kim 2008; Park et al. 2006; Saleem and Ellahi 2017; Xue and Zhou 2011). As a result, it is advised to continue further exploration of these predictors through their validation by using primary data in order to assess their continued performance. Both types of analysis revealed that there were no variables classed as worst predictors and also had non-significant effects on the dependent variable, otherwise it would have been advised to discard these predictors from further analysis.

The analysis of less frequently used predictors has shown that no firm conclusion can be drawn with their outcomes being significant or non-significant. Promising predictors with significant meta-analysis outcomes are more likely to qualify as best predictors and can be considered for future analysis (Rana et al. 2015). Out of 11 experimental predictors, one was found to be non-significant. There are five promising

**Table 5** Summary of composite reliability

| Construct                        | Average reliability | Minimum | Maximum | Variance |
|----------------------------------|---------------------|---------|---------|----------|
| Argument quality                 | 0.9087              | 0.80    | 0.98    | 0.002    |
| Attitude towards online shopping | 0.9117              | 0.89    | 0.94    | 0.001    |
| Attitude towards product         | 0.8565              | 0.80    | 0.95    | 0.003    |
| Attitude towards website         | 0.8913              | 0.86    | 0.91    | 0.001    |
| Emotional trust                  | 0.8903              | 0.88    | 0.90    | 0.000    |
| eWOM credibility                 | 0.9063              | 0.82    | 0.96    | 0.003    |
| eWOM usefulness                  | 0.9115              | 0.87    | 0.99    | 0.001    |
| Intention to buy                 | 0.8975              | 0.79    | 0.96    | 0.003    |
| Involvement                      | 0.8758              | 0.76    | 0.93    | 0.004    |
| Perceived ease of use            | 0.8376              | 0.78    | 0.90    | 0.003    |
| Source trustworthiness           | 0.9165              | 0.91    | 0.94    | 0.000    |
| Tie strength                     | 0.9250              | 0.89    | 0.96    | 0.002    |
| Trust in message                 | 0.8930              | 0.84    | 0.93    | 0.001    |
| Valence                          | 0.9270              | 0.80    | 0.99    | 0.012    |

predictors - eWOM credibility, emotional trust, attitude towards website, attitude towards online shopping, and tie strength - which performed satisfactorily under meta-analysis. The results of meta-analysis support hypotheses H2, H9, H11, H12, H13, H15-H19. The findings are in line with some of the previous studies (Akyuz 2013; Chih et al. 2013; Frasquet et al. 2015; Hsu et al. 2013; Husnain and Toor 2017; Koo 2016; Lee et al. 2011; Ng 2013; Saleem and Ellahi 2017; Yang et al. 2015; Zainal et al. 2017; Zhang et al. 2014a, b) and can be explained by ELM and TPB. Some predictors which had low weights, such as source trustworthiness (with weight 0.500), source expertise (with weight 0.750), and intention to engage in eWOM (with weight 0.667), but all demonstrated significant cumulative correlation above 0.63. Age (with weight 0.250) performed unsatisfactorily for weight analysis and meta-analysis with non-significant correlation of 0.063. Thus, hypothesis H8 was rejected. The findings are in line with Wang et al. (2015b), Tseng et al. (2014), and Tseng et al. (2013). Also, other studies on consumer behaviour found that age did not influence consumer behaviour such as attitude and purchase intention (Brackett and Carr 2001; Haghirian and Madlberger 2005). The results can be explained by the fact that elderly consumers are becoming more familiar with the Internet and social media (Eastman and Iyer 2004), so their behaviour does not vary significantly from younger consumers. However, it is too early to label the discussed experimental predictors as worst or best, thus their further investigation is encouraged.

While analysing reliability of factors affecting intention to buy, it was found that average Cronbach's alpha values ranged between 0.8045 and 0.9084, and average composite reliability ranged between 0.8376 and 0.9165. All of the reliability values were above recommended thresholds of 0.70. However, researchers recommend the reliability values to be below 0.9. It is argued that constructs with too high reliability values should be used with caution as some of their measurements could be redundant so need testing with different wordings (Tavakol and Dennick 2011). Some of the values were slightly above 0.9 with an average composite reliability of 0.9165 and average Cronbach's alpha of 0.9084. As a result, researchers should apply them with caution.

## 6 Conclusion

This study aimed to perform weight and meta-analysis of existing empirical findings in eWOM research. To

achieve this aim, we collected and analysed data from 69 studies which focused on intention to buy. Based on the results, the following conclusions can be drawn from this study. Analysis revealed that out of 19 relationships identified and used for weight and meta-analysis, only 10 were found to perform satisfactorily under both weight analysis and meta-analysis, which can limit the generalizability of the findings from previous studies. The least effective predictors, such as volume, existing eWOM, and involvement, which showed significant meta-analysis outcomes require further analysis and validation through the use of primary data to evaluate their real performance. More than that, it is difficult to provide a firm conclusion for 11 predictors (eWOM credibility, emotional trust, attitude towards website, source trustworthiness, source expertise, attitude towards online shopping, tie strength, source credibility, age, perceived ease of use, intention to engage in eWOM and involvement) of intention to buy, which have been examined less than five times. Nevertheless, promising predictors with significant meta-analysis results and strong correlations (e.g. eWOM credibility, emotional trust, attitude towards website, and attitude towards online shopping) are more likely to qualify as best predictors and should be included in future eWOM research.

### 6.1 Implications for Theory and Practice

The findings from this study provide several implications for research and practice. Based on this study, scholars can deduce the type of variables to be selected for analysing consumers' intention to buy in eWOM research. The outcomes of both weight analysis and meta-analysis for factors affecting intention to buy can be considered as a guideline for future constructs and can be analysed to study their performance. Findings from weight and meta-analysis also allow researchers to visualize the point of convergence and divergence, which will allow developing further questions for investigation in the general context. For instance, this research highlights issues of the worst predictors (e.g. volume, existing eWOM) which showed an overall significant impact on their corresponding dependent variables in meta-analysis.

Based on the results of meta-analysis, marketers can prioritise their focus on the best predictors of intention to buy in order to improve sales, such as eWOM usefulness, attitude towards product, trust in message, argument quality, and valence. The findings from this study showed that valence of eWOM influences consumers' intention to purchase. Managers

can be advised that their effort should be directed towards encouraging consumers to spread positive eWOM communications about product, service and brand (e.g. sending email reminders to write online reviews or offering economic incentives such as money off future purchases, web points or free delivery) and preventing them from spreading negative eWOM communications (Lee et al. 2009). Companies should provide various communication channels for consumers to share their negative experience directly with the company and respond and solve these complaints quickly (Chiou and Cheng 2003). Also, it is important for a company to reply to negative online reviews. A recent survey of 463 American shoppers shows that 53% of customers expect businesses to respond to negative reviews within a week; however, 63% say that a business has never responded to their review (ReviewTrackers 2018). This kind of web care can result in changing of consumers' attitudes towards products and services. Companies are advised to monitor consumers review websites such as Tripadvisor, Trustpilot and community groups on social media to identify negative comments and respond to them. Additionally, companies can encourage someone who wrote a negative online review to update it after their problem has been resolved. The results of previous studies on eWOM demonstrated that this will have a positive impact on consumers' attitude towards products and purchase intention for those who have been exposed to negative eWOM communications (Van Noort and Willemsen 2011). However, it should be noted that retailers should encourage positive eWOM communications without engaging in deceptive and unethical practices (e.g. eWOM manipulations). It is documented that this kind of behaviour can result in reduction of consumers' trust and lead to a negative reaction in the marketplace (Floyd et al. 2014).

To improve argument quality and information usefulness, platform administrators can provide brief guidelines to users on how to write good product reviews (e.g. which product aspects to consider). For instance, for expensive product and search goods, consumers can be advised to provide more detailed information about their experience (Baek et al. 2012). Additionally, retailers can create and provide standardised review forms for consumers to complete in order to make reviews more helpful to readers. Thus, the person who writes the review will provide more relevant and critical information using the form as a guide. Additionally, online platform owners should provide consumers with opportunities to include visual information in their eWOM

communications for certain types of goods and services (Lin et al. 2012). Also, to increase trust in message platforms, administrators can provide information about review writers and a history of their contributions (Levy and Gvili 2015).

## 6.2 Limitations and Directions for Future Research

The current study was conducted in a similar manner to studies by Rana et al. (2015) and King and He (2006) to provide an overview of previous findings scattered across various empirical studies on eWOM research. However, this study has some limitations. Not all published studies on eWOM communications reported enough data to perform meta-analysis and weight analysis, so they could not be included in the analysis. Also, the meta-analysis method applied in this research to analyse performance of the variables may not be a complete solution, due to the fact that this analysis is based only on certain statistics (e.g. Pearson correlation) and does not include results of those empirical studies that are based on other statistical techniques (such as path coefficients, t-statistics etc.). Even though a combination of weight analysis and meta-analysis provides the most profound analysis of constructs in this research, some of the questions remain unanswered. For example, the predictor 'volume' is one of the largely encountered variables on intention to buy but appeared as a worst predictor. The future use of these types of predictors should be explored rationally.

Another limitation of this study is that the studies for this research were collected only from Web of Science, Scopus and EBSCO databases, which limited the number of studies available for weight and meta-analysis. Future research should utilise a wider range of databases. Additionally, this study was not able to conduct meta-analysis on moderating variables affecting intention to buy (e.g. platform type, type of product, gender) in the context of eWOM communications due to insufficient number of studies on moderating effects. Future research with a larger pool of studies should deal with this issue. Despite these limitations, this is the first comprehensive study on factors affecting intention to buy in the context of eWOM communications, providing directions for both academics and practitioners in terms of its application in different contexts. Finally, the proposed research model based on weight and meta-analysis still needs to be validated using the primary data (Rana et al. 2016, 2017). The future research can validate the proposed meta-analysis based model using the survey data gathered for each construct.

## Appendix

**Table 6** Summaries of studies used for weight and meta-analysis

| No | Study                       | Factors investigated  | Method(s) of analysis                                     | Sample                            | Country       | Context   |
|----|-----------------------------|---|---|-----------------------------------|---------------|---|
| 1  | Akyuz (2013)                | Source credibility, experience of online review usage, customer susceptibility to interpersonal influence, intention to buy   | Regression analysis, online survey                        | 251 internet users                | Turkey        | Online reviews  |
| 2  | Alhidari et al. (2015)      | Intention to engage in eWOM, Involvement, belief in self-reliance, risk-taking  | SEM, Online survey  | 247 college students              | United States | SNS   |
| 3  | Baber et al. (2016)         | Attitude towards product, source trustworthiness, source expertise, eWOM use  | SEM, Online survey  | 251 internet users                | Pakistan      | Electronic products   |
| 4  | Bhandari and Rodgers (2017) | Existing eWOM, intention to purchase, brand trust   | Regression analysis, experimental survey                  | 447 undergraduate students        | United States | Laptop, TV  |
| 5  | Bigne et al. (2016)         | Valence, eWOM usefulness, value consciousness, attitude towards label, experience, intention to purchase  | Online surveys, experimental survey, fsQCA                | 303 respondents                   | NA            | Tourism   |
| 6  | Cheung (2014)               | eWOM usefulness, trustworthiness, timeliness and comprehensiveness, quality, relevance, purchase intention  | Online survey, SEM  | 100 online community members      | Hong Kong     | Online customer communities   |
| 7  | Cheung et al. (2009)        | Emotional trust, cognitive trust, purchase intention  | Laboratory experiment, PLS                                | 40 participants                   | NA            | Watch   |
| 8  | Chih et al. (2013)          | Attitude towards product, attitude towards website, eWOM credibility, purchase intention, source credibility, website reputation, social orientation through information, obtaining buying-related information                            | Online survey, SEM  | 353 online discussion forum users | Taiwan        | Fashion products, online discussion forum                               |
| 9  | Dou et al. (2012)           | Source expertise, source trustworthiness, external attribution, internal attribution, attitude towards vide, attitude towards product, purchase intention   | Experimental survey, ANOVA, regression analysis           | 249 undergraduate students        | USA           | Kindle 2- Amazon's e-book reader  |
| 10 | Flanagin et al. (2014)      | Volume, rating, product quality, purchase intention   | Experimental surveys, ANOVA, MANCOVA, regression analysis | 2139 participants                 | USA           | Online reviews from <a href="https://www.amazon.com">amazon.com</a>     |
| 11 | Frasquet et al. (2015)      | Brand trust, brand attachment, length of brand relationship, enjoyment, security, age, gender, country of residence, product category, WOM intention, eWOM intention usage, eWOM usefulness, perceived ease of use of the online channels | Online survey, Regression analysis                        | 1533 multichannel retail shoppers | UK and Spain  | Apparel and consumer electronics  |
| 12 | Fumer et al. (2014)         | Argument quality, mobile self-efficacy, eWOM credibility, purchase intention  | Simulation based experiments, regression analysis, t-test | NA                                | USA           | Hotel   |
| 13 | Gunawan and Huarng (2015)   | eWOM usefulness, argument quality, source credibility, social integration, social influence, subjective norm, perceived risk, purchase intention  | Online survey, SEM, fsQCA                                 | 118 SNS users                     | NA            | NA  |
| 14 | Hamby et al. (2015)         | Valence, review format, product type  | Online survey, SEM  | 216 undergraduate students        | USA           | Bars, deserts, office suppliers, automotive services                    |
| 15 | He and Bond (2015)          | Volume, rating, purchase intention, dispersion of ratings, causal attribution   | Experiment, ANOVA   | 192 users of mTurk                | USA           | Desk lamps, flash drive, painting, music album, movies, audio speakers, |



**Table 6** (continued)

| No | Study                        | Factors investigated   | Method(s) of analysis                   | Sample   | Country     | Context   |
|----|------------------------------|--|---|--|-------------|---|
| 16 | Ho and Chien (2010)          | Trust in message, source expertise, source trustworthiness, source attractiveness, purchase intention  | Survey, regression analysis             | 471 respondents  | Taiwan      | car mechanics, night clubs<br>Food blog                               |
| 17 | Hsu et al. (2013)            | Attitude towards online shopping, trust in message, purchase intention, eWOM usefulness  | Online survey, SEM                      | 327 blog readers   | Taiwan      | Online blogs  |
| 18 | Hu et al. (2012)             | Valence, volume, eWOM type, purchase intention   | Experiment, t-test                      | 436 university students                                      | China       | Catering services, microblogging                                      |
| 19 | Huang et al. (2013)          | eWOM usefulness, trust in message, openness, relationship strength, atmosphere characteristic, authority, interests, interaction, tone, recommendation intention, purchase intention | Survey, SEM                             | 549 respondents  | China       | Hotel   |
| 20 | Husnain and Toor (2017)      | Intention to engage in eWOM, social network marketing, purchase intention  | Online survey, SEM                      | 243 existing users of social network marketing websites      | Pakistan    | NA  |
| 21 | Indiani et al. (2015)        | Intention to engage in eWOM, website quality, online visibility, purchase intention, perceived risk, actual purchase, trust  | Survey, SEM                             | 286 travellers   | Indonesia   | Hotels  |
| 22 | Jalilvand and Samiei (2012a) | Existing eWOM, brand image, purchase intention   | Survey, SEM                             | 341 respondents  | Iran        | Cars  |
| 23 | Jalilvand and Samiei (2012b) | Existing eWOM, Attitude towards product, subjective norms, perceived behavioural control, purchase intention   | Survey, SEM, ANOVA                      | 296 tourists   | Iran        | Tourism   |
| 24 | Jalilvand et al. (2013)      | Existing eWOM, Attitude towards product, purchase intention  | Survey, SEM                             | 189 tourists   | Iran        | Tourism   |
| 25 | Jones et al. (2009)          | Valence, attitude towards brand, ad cognitions, beliefs, purchase intention  | Experiment, MANOVA                      | 385 undergraduate students                                   | USA         | Tourism   |
| 26 | Koo (2015)                   | Attitude towards product, valence, tie strength, service type, purchase intention  | Experiment, MANCOVA                     | 616 students   | South Korea | CDs, books, airline ticketing, perfumes, wines, family restaurants    |
| 27 | Koo (2016)                   | eWOM credibility, tie strength, purchase intention   | Experiment, MANCOVA                     | 302 students   | South Korea | Airline ticket, a meal at a family restaurant, or a skin care service |
| 28 | Ladhari and Michaud (2015)   | Trust in message, valence, quality of website, purchase intention  | Experimental survey, MANOVA             | 800 students   | Canada      | Hotels  |
| 29 | Lee and Youn (2009)          | Valence, eWOM platform, purchase intention, eWOM scepticism, causal attributions   | Experimental survey, MANCOVA            | 247 undergraduate students                                   | USA         | Apartment   |
| 30 | Lee (2011)                   | Existing eWOM, product attribute information, purchase intention   | Survey, regression analysis             | 268 respondents with online shopping experience              | NA          | Tourism   |
| 31 | Lee et al. (2011)            | eWOM usefulness, existing eWOM, attitude towards online shopping, attitude towards website, perceived ease of use  | Survey, SEM                             | 104 respondents  | Hong Kong   | Online shopping website   |
| 32 | Lee et al. (2014)            | Valence, product knowledge, promotion price, purchase intention  | Survey, t-test                          | 209 who bought medical cosmetics                             | Taiwan      | Medical cosmetics   |
| 33 | Liao et al. (2016)           | Attitude towards product, risk perception, purchase intention  | Experiment, regression analysis, t-test | 193 undergraduate students                                   | Taiwan      | Phone, digital camera, tablet   |
| 34 | Liu and Zhou (2012)          | Argument quality, volume, sequence of online reviews, purchase intention, product perception   | Experiment, ANOVA                       | 120 college students   | China       | Notebook computer   |
| 35 | Mafael et al. (2016)         | eWOM usefulness, attitude towards brand, purchase intention  | Experiment, ANOVA,                      | Study 1 = 538, Study 2 = 262, Study 3a = 131, Study 3b = 124 | NA          | Abercrombie & Fitch, Apple, McDonald's,                               |

**Table 6** (continued)

| No | Study                         | Factors investigated  | Method(s) of analysis                                 | Sample  | Country              | Context                                  |
|----|-------------------------------|---|---|---|----------------------|--|
| 36 | Mauri and Minazzi (2013)      | Valence, purchase intention, level of expectation   | Experiment, regression analysis, correlation analysis | 570 students  | Italy                | Miracle Whip and Starbuck Hotels         |
| 37 | Nekmat and Gower (2012)       | Source credibility, level of disclosure, organization credibility, product attitude, purchase intention                 | Experiments, ANOVA                                    | 180 students  | USA                  | Apartments                               |
| 38 | Netto et al. (2016)           | Existing eWOM, perceived value, perceived risk, source reputation, purchase intention                                   | Online survey, PLS-SEM                                | 405 Facebook users  | NA                   | Facebook                                 |
| 39 | Ng (2013)                     | Tie strength, culture, trust in community, purchase intention   | Online survey, SEM                                    | 284 Facebook users  | Taiwan and Guatemala | Online communities                       |
| 40 | Park and Kim (2008)           | Volume, source expertise, type of reviews, purchase intention   | Experiments, MANOVA                                   | 222 students  | USA                  | Portable multimedia player               |
| 41 | Park and Lee (2008)           | eWOM usefulness, type of review, volume, product popularity, valence, purchase intention                                | Experiments, ANOVA                                    | 334 students  | South Korea          | Portable Multimedia Player               |
| 42 | Park and Lee (2009)           | eWOM usefulness, consumer susceptibility, internet shopping experience, usage frequency                                 | Survey, SEM, ANOVA, multi group analysis              | 452 Korean consumers and 434 USA consumers                      | USA and South Korea  | NA                                       |
| 43 | Park et al. (2006)            | Volume, Involvement, review type, purchase intention  | Experiment, ANOVA, MANOVA                             | 334 college students  | South Korea          | Online reviews                           |
| 44 | Park et al. (2007)            | Valence, volume, review quality, product information, perceived product popularity, purchase intention                  | Experiment, ANOVA, ANCOVA                             | 342 college students  | South Korea          | Portable multimedia player               |
| 45 | Parry et al. (2012)           | eWOM usefulness, Perceived ease of use of the online channels, purchase intention, age                                  | Surveys, SEM  | 600 respondents   | Japan                | Blu-ray DVD recorders and smart phones   |
| 46 | Pöyry et al. (2012)           | eWOM usefulness, hedonic information search, utilitarian information search, use of eWOM, purchase intention            | Survey, t-test, correlation analysis                  | 98 travel agency customers                                      | Europe               | Tourism                                  |
| 47 | Reimer and Benkenstein (2016) | Valence, source trustworthiness, review argumentation, review scepticism, purchase intention                            | Experiment, ANOVA, regression analysis                | Study 1 = 195 university students, Study 2 = 158 respondents    | Germany              | Restaurant and dental services           |
| 48 | Saleem and Ellahi (2017)      | Existing eWOM, trust in message, involvement, source expertise, homophily, Facebook usage intensity, purchase intention | Survey, regression analysis                           | 503 respondents   | Pakistan             | Fashion products                         |
| 49 | Sandes and Urdan (2013)       | Valence, brand image, purchase intention, company's response  | Experiment, ANOVA                                     | 168 students  | Brazil               | Online stores, clothing, cosmetics       |
| 50 | Sparks and Browning (2011)    | Valence, framing, rating, purchase intention  | Experiment, ANOVA                                     | 554 community members   | Australia            | Hotel                                    |
| 51 | Teng et al. (2017)            | Argument quality, eWOM credibility, Valence, Volume, Attitude towards product, involvement, purchase intention          | Experiment, ANOVA                                     | Study 1 = 146 students, Study 2 = 150 students                  | China                | Studying abroad                          |
| 52 | Torlak et al. (2014)          | Existing eWOM, brand image, purchase intention  | Survey, SEM   | 248 students  | Turkey               | Mobile phone                             |
| 53 | Tsao and Hsieh (2015)         | Argument quality, valence, platform, product type, purchase intention   | Experiment, ANCOVA                                    | 320 students  | Taiwan               | Smart phone, computer antivirus software |
| 54 | Tsao et al. (2015)            | Valence, volume, purchase intention   | Experiment, ANOVA                                     | 142 respondents   | Taiwan               | Tourism                                  |
| 55 | Tseng et al. (2013)           | Age, gender, education, income, valence, involvement of ads, purchase intention   | Survey, regression analysis                           | 290 respondents   | Taiwan               | Virtual communities                      |
| 56 | Tseng et al. (2014)           | Age, gender, valence, type of ads, purchase intention   | Survey, regression analysis                           | 141 respondents for transaction virtual communities and 149 for | Taiwan               | Virtual communities                      |

**Table 6** (continued)

| No | Study                            | Factors investigated   | Method(s) of analysis                  | Sample                     | Country     | Context   |
|----|----------------------------------|--|--|----------------------------|-------------|---|
| 57 | Vahdati and Mousavi Nejad (2016) | Existing eWOM, brand personality, brand equity, purchase intention   | Survey, SEM                            | 394 bank customers         | Iran        | Banking services  |
| 58 | Vermeulen and Seegers (2009)     | Existing eWOM, valence, hotel familiarity, reviewer expertise, purchase intention, hotel attitude  | Experiment, ANOVA                      | 168 respondents            | Netherlands | Hotels  |
| 59 | Wang et al. (2015b)              | eWOM credibility, eWOM usefulness, valence, age, need-information congruence, concentration of past information provision, peer rating indicator, status indicator         | Experiment, MANOVA                     | 400 students               | Singapore   | Hotels  |
| 60 | Wu et al. (2014)                 | Tie strength, involvement, product type, purchase intention, attitude towards product, intention to click  | Experiment, MANOVA, ANOVA              | 384 respondents            | Taiwan      | Tea, bus ticket   |
| 61 | Xiaofen and Yiling (2009)        | Attitude towards product, message impression, opinion leaders, purchase intention  | Survey, SEM                            | 540 respondents            | China       | Apparel   |
| 62 | Xiaoping and Jiaqi (2012)        | Trust in message, homophile, tie strength, source expertise, expertise of seekers, hedonic motivation, perceived search facility, eWOM actively sought, purchase intention | Survey, regression analysis            | 239 college students       | China       | Virtual communities   |
| 63 | Xie et al. (2011)                | eWOM credibility, personal identifying information, purchase intention   | Experiment, ANOVA, regression analysis | 274 undergraduate students | USA         | Hotels  |
| 64 | Xue and Zhou (2011)              | Valence, involvement, purchase intention, online experience, eWOM credibility, brand interest, forward intention   | Experiment, MANOVA                     | 142 students               | China       | Fast food restaurants and laptops                                 |
| 65 | Yang et al. (2015)               | Valence, involvement, tie strength, source credibility, valence, purchase intention  | Survey, regression analysis            | 378 respondents            | China       | Product   |
| 66 | Zainal et al. (2017)             | Source expertise, source trustworthiness, benevolence, attitude towards eWOM, purchase intention   | Online survey, regression analysis     | 280 respondents            | Malaysia    | Tourism   |
| 67 | Zhang et al. (2014a)             | Emotional trust, cognitive trust, inconsistent reviews, gender, purchase intention   | Experiment, PLS                        | 100 participants           | Hong Kong   | Watch   |
| 68 | Zhang et al. (2014b)             | Argument quality, volume, source credibility, purchase intention   | Online survey, PLS                     | 191 review site users      | China       | Online review site <a href="http://dianping.com">dianping.com</a> |
| 69 | Ziegele and Weber (2015)         | Valence, customer satisfaction, immediate evaluation, quality aspects, recommendation  | Experiment, SEM                        | 487 respondents            | Germany     | Online reviews  |

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