Effects of Twitter Multimodal EWOM Content Approaches on Product purchase intention in Saudi Arabia

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Doctor of Philosophy

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Abstract

This study tests the influence of multi-visual dimensions and textual features of electronic word-of-mouth (EWOM) on its perceived helpfulness and on purchase intention, on a sample from Saudi Arabia. This investigation is conducted in the context of Twitter through an online factorial experiment. The design incorporates a 3 (visual inclusion to text: with product photo, with product and face photo, without product photo) × 3 (EWOM valence: positive, positive and negative, and negative) between-subjects experiment (n = 540). Because the study featured two manipulated variables, the implementation necessitated a between-subjects design, with the product type forming the within-subjects design. It is concluded that when evaluating EWOM helpfulness, Tweets with pictures do in fact contribute substantial value. For females, this effect is more pronounced when the EWOM is two-sided. However, this finding is confirmed only for conspicuous and high-involvement products. Further, visuals do not significantly contribute to greater purchasing intention. In fact, Tweets containing no images are crucial in influencing customers to buy both conspicuous and non-conspicuous high-involvement products. Thus, this study adds to the body of existing theories by arguing that two-sided EWOM with a photo of a conspicuous and high-involvement product is seen as the most helpful for consumers, especially females. Consequently, the buying intention increases in proportion to how helpful the positive and mixed EWOM are. Negative EWOM is helpful in the decision not to purchase.

Declaration of Authenticity

I, Mohammed Alhumaid, declare that the PhD. thesis entitled ‘Effects of Twitter Multimodal EWOM Content Approaches on Product Purchase Intention in Saudi Arabia’ is no more than 49,941 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

I have conducted my research in alignment with the Australian Code for the Responsible Conduct of Research and Victoria University’s Higher Degree by Research Policy and Procedures.

Ethics Declaration

All research procedures reported in the thesis were approved by the Human Research Ethics Committee with the Approval Number: HRE21-155.

Signature: Date: 20 February 2023

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List of Abbreviations

ANOVA	Analysis of variance
ELM	Elaboration Likelihood Model
EWOM	Electronic word-of-mouth
TWOM	Traditional word-of-mouth
WOM	Word-of-mouth

Chapter 1: Introduction

1.1 Introduction

Word-of-mouth (WOM) has long been considered a persuasive marketing instrument (Verma et al., 2023; Schindler & Bickart, 2005). The growth of social media platforms has accelerated the spread of WOM (Powell, Stavros, & Dobele, 2021). Recently, the use of electronic word-of-mouth (EWOM) through social media has become dominant because users can share their consumption-related advice or opinions with their friends and acquaintances (Erkan & Evans, 2018; Filieri, Lin, Pino, Alguezaui & Inversinu, 2021). EWOM can increase sales by an average of 18% and are 12 times more trustworthy than manufacturer-provided descriptions (Ismagilova, Dwivedi, Slade & William, 2017a). Also, EWOM has significant effects not only on product sales, but also on brand image (Verma et al., 2023). However, there is a need to cast light on the forms and types of EWOM in social media and how they relate to the helpfulness and purchase intention. There is a gap in knowledge about whether emphasising visual features in EWOM has a greater impact than textual EWOM formats on outcomes such as the perceived helpfulness of EWOM and purchase intention. To the researcher's knowledge, this is the first time such issues have been investigated in the Middle Eastern social media context. According to the literature, EWOM studies have primarily focused on the Western world (Park & Jeon, 2018). However, the Eastern half of the globe has received little attention. This gap in the literature provides a chance to further investigation. Saudi Arabia was chosen because it allowed for comparison with existing Western empirical results. The recent study discovered that male and female consumers behaved differently in a variety of settings. This study's findings would also assist the online business community to gain a deep

understanding of the role of textual and visual EWOM communication in social media when consumers see their friends' posts about products.

This chapter provides pertinent background to the topic detailed in Section 1.2. Section 1.3 presents the research objective and hypotheses. Section 1.4 provides justification for the research. Section 1.5 summarises the research methodology. Section 1.6 provides the delimitations. The theoretical and practical contributions of the research are briefly discussed in Section 1.7. Finally, the research structure is outlined in Section 1.8.

1.2 Background

With the prevalence of internet usage, one means by which customers can share their consumption-related advice or opinions is by engaging in online activities. This is referred to as EWOM (Elseidi & El-Baz, 2016). EWOM is defined as 'any positive or negative statement made by potential, actual or former customers about a product or a company, which is made available to a multitude of people and institutions via the internet' (Hennig-Thurau, Gwinner, Walsh, & Gremler, 2004, p. 39). EWOM communications can be classified as positive, negative or neutral. The classification of messages as positive, negative or mixed is known as 'EWOM valence' (Park & Jeon, 2018). In positive EWOM valence, consumers share their opinion online by transmitting positive experiences of consuming products or services. In contrast, negative EWOM is communication shared online by dissatisfied consumers. Neutral EWOM, also referred as 'two-sided EWOM', is any communication shared online by a consumer that contains both positive and negative information about a particular product or service.

EWOM communications have been perceived as a necessary source of circulating information among internet users (Verma et al., 2023; Erkan et al., 2018). Further,

EWOM communications have been found to be superior to commercial communications, such as companies advertising on the Internet (Steffes & Burgee, 2009). This is owing to the supposed lack of commercial bias of EWOM; thus, EWOM is perceived as credible (Charlton, 2015). In addition to EWOM messaging being more engaging than commercial advertising, EWOM has enhanced consumers' purchase intention (Sa'ait, Kanyan, & Nazrin, 2016; Yan, Shah, Zhai, Khan, & Shah, 2018). The online environment is considered a primary platform for EWOM, with people sharing their experiences regarding products and services via the Internet. The term 'social media platforms' has been defined as 'a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content' (Kaplan & Haenlein, 2010, p. 61). Users of social media are given an opportunity to open an account through which they can share their content in form of texts, photos or videos (Erkan & Evans, 2018; Evans & Erkan, 2015). The users can generate personal content, reinforced visually, or can share information about any product, thus providing an open source for other users to interact with the information related to the brand (Canhoto & Clark, 2013). Ideas and comments shared through pictures, videos and written comments in social media make EWOM more attractive and appealing than the use of traditional WOM (TWOM). WOM is a verbal communication between friends and family (Yan et al., 2018). It has been understood that tie strength within TWOM communications is strong because of the circulation of the information among family and friends (Bachleda & Berrada-Fathi, 2016; Reingen & Kernan, 1986). In contrast, tie strength within EWOM communications can revolve around those who are socially connected by social media platforms (Evans & Erkan, 2015; Schindler & Bickart, 2005), but also around those who are considered to have a weak tie strength, like anonymous reviewers on a

shopping website (Chatterjee, 2001; Evans & Erkan, 2015; Sen & Lerman, 2007). The research suggests that tie strength can drive receivers to acquire EWOM (Cheng & Zhou, 2010). Moreover, EWOM information from senders whose views are compatible with receivers are conceived as more credible (Brown, Broderick, & Lee, 2007; Fan & Sun, 2012; as cited in Ismagilova, Dwivedi, Slade & William, 2017a).

EWOM communications have been studied by various researchers (Evans & Erkan, 2015; Hennig-Thurau et al., 2004). Studies on textual EWOM have been largely examined in recent literature and have been concluded to have diverse effects on consumer behaviour (Roy, Datta, Mukherjee, & Basu, 2021; Y. Sun, Gonzalez-Jimenez, & Wang, 2021). However, visual forms of EWOM and their effects on customers have not been fully examined (Lin, Lu, & Wu, 2012; Roy et al., 2021; Serrano & Ramjaun, 2018). It remains unclear whether visual features of EWOM have greater impact than textual forms of EWOM.

While it is important to comprehend the effects of both textual and visual EWOM, it is equally important to consider how these combined effects influence both male and female consumers. Gender integration is essential to promote gender equality and produce inclusive research results, as well as to help marketers with decision-making and segmentation strategies (Krishnapillai & Ying, 2017; Tannenbaum, Greaves, & Graham, 2016). Additionally, understanding the differences between males and females helps the research community accurately portray how male and female participants interact with visual and textual EWOM. Social customs in Saudi Arabia are distinctive and frequently stem from religious practice (Alsadaan, Jones, Kimpton & DaCosta, 2021). For instance, an adult female cannot be a close friend of an adult male other than their spouse (Syed, Ali, & Hennekam, 2018). To fully understand the impact of both visual and textual EWOM, it is necessary to analyse the views of both men and

women. This will add a new perspective to the literature by illuminating how men and women participants behave in various scenarios requiring different levels of product involvement and conspicuousness, which means publicly visible consumption.

1.3 Research Objective and Hypotheses

The primary objective of this research is to examine the effect of visual and textual features of EWOM on its perceived helpfulness and on purchase intention. The following questions were posed to achieve the objective of the research:

- RQ1: To what extent does the interrelationship between EWOM type and visual format, when considering gender, affect (1) helpfulness and (2) purchase intention?
- RQ2: Which visual format has greatest impact on (1) EWOM perceived helpfulness and on (2) purchase intention: the image of the product only, the image of the product with the person shown, or text only (no image)?
- RQ3: Which EWOM type (valence) has greatest impact on (1) EWOM perceived helpfulness and on (2) purchase intention: positive EWOM, mixed EWOM or negative EWOM?
- RQ4: How do consumers rate the helpfulness and their purchase intention according to the levels of involvement and conspicuousness of the four products?

Several hypotheses were developed in light of these research questions. The hypotheses were based on an extensive review of the literature in the area of EWOM communication, which is to be found in Chapter 2. These hypotheses are presented in Table 1.1.

Table 1.1

Research Hypotheses

No.	Hypothesis
H1	Female consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed, and this will be more so than for males.
H2	Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed.
H3	Females will consider product-only images to be more helpful than will males.
H4	Females will consider mixed EWOM more helpful than will males.
H5	Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM.
H6	Consumers will consider product-only images to be more helpful than product with face images and text-only.
H7	Male and female consumers will differ in their rating of helpfulness in EWOM.
H8	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed for males but not for females.
H9	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed.
H10	Product-only image will lead to a higher purchase intention than product with face image and text-only for males than it will for females.
H11	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM for males than will females.
H12	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM.
H13	Product-only image will lead to a higher purchase intention than product with face image and text-only.
H14	Male and female consumers will differ in purchase intention.
H15	EWOM featuring a product of high-involvement/high-conspicuous will be perceived as more helpful than for a high-involvement/low-conspicuous product, low-involvement/high-conspicuous product, and low-involvement/low-conspicuous product.
H16	EWOM featuring high-involvement/high-conspicuous product will lead to a higher purchase intention than high-involvement/low-conspicuous product, low-involvement/high-conspicuous product and low-involvement/low-conspicuous product.

1.4 Justification for the Research

The present study researches the joint visual and textual features of EWOM for several reasons. Doing so will aid our understanding of the role of the visual in enhancing memory and recall, and the impact of visuals in changing individuals' attitude toward products. It will also redress the lack of research on visual EWOM communication to date. The next section discusses these issues from a multi-disciplinary perspective.

1.4.1 Visual information Enhances Memory and Recall

Photos are widely used in advertising, and it is argued that visual advertising is better remembered than words (Starch, 1966). This phenomenon is called 'the picture superiority effect'. While recall may not be immediately related to purchase intention, the finding from Starch's study was that a printed advertisement containing a picture was better remembered than an advertisement without a picture. Shepard (1967) agreed with this point and found that consumers seem to recall visual ads better than verbal ads. Another study concluded that when visual and verbal information in an advertisement were similar, consumers had a greater possibility of recalling the content (Childers & Houston, 1984). Therefore, the reason that many have reinforced the move to picture advertising is that it tends to yield greater attention, and influence preferences and recall (Childers & Houston, 1984; Childers, Houston, & Heckler, 1985; Keller, 1987; Wyer, Hung, & Jiang, 2008).

Multimedia learning theory offers research-based strategies for generating effective communication and education when applying technology (Ramlatchan, 2019). This principle states that 'students learn better from words and pictures than from words alone' (Mayer, 2003, p. 125). The potential of multimedia learning is that when pictures and words are combined, students can develop deeper learning and understanding. This

application reduces cognitive load and hence increases the possibility that information will be comprehended (Mayer, 2003; Paivio, 1990). In fact, many researchers have suggested that when instructors design multimedia presentations with verbal and visual content, students learn deeply and perform well in tests compared with designing verbal presentations only (Schnotz & Kulhavy, 1994; Sweller, 1999; Van Merriënboer, 1997). Further support exists from dual-coding theory that visual information along with verbal information boosts individuals' understanding and recall (Paivio, 1990). Moreover, associative network theories about memory (Anderson & Reder, 1979) show that the parts of brain that deal with memory contains nodes holding information. This means that when two items of information are associated (i.e. image and text), individuals can conceptualise existing connections between them, forming associated information networks (Romaniuk & Sharp, 2004). To summarise, the utilisation of visuals and verbal information in educating students boosts both understanding and recall.

1.4.2 Visuals Change Individuals' Attitudes

Early research explored how visual and verbal information affect consumers' attitudes (Holbrook, 1978; Mitchell & Olson, 1981). One study discovered that print advertisements featuring images evoked consumers' positive attitude towards products more than advertisements featuring no images (Mitchell & Olson, 1981). This was because of the power of visuals that positively changed consumers' attitudes and generated intention of purchasing such products (Chau, 2017). In line with these findings, recent advertising literature has found that pictures attached to textual content have a tendency to be better evaluated by consumers, resulting in a positive attitude towards products (Lin et al., 2012; Miniard, Bhatla, Lord, Dickson, & Unnava, 1991; Shin et al., 2019). Usually, text comprehension requires substantial cognitive effort (Petty & Cacioppo, 1986), but visuals tend to enhance the understanding of the content.

Other scholars support this view and conclude that visual information is vital to receivers' cognitive attitudes, motivations and intentions (Adelaar, Chang, Lancendorfer, Lee, & Morimoto, 2003; Sojka & Giese, 2006).

In the field of politics, visual information in news content has been covered in recent literature (Brenes Peralta, Wojcieszak, Lelkes, & de Vreese, 2017; Powell, Boomgaarden, De Swert, & de Vreese, 2018; T. E. Powell, van der Meer, & Peralta, 2019). At first, news utilised visuals in some materials to assist those with low literacy (Zaret, 2021). Scholars found that people process visuals quicker than processing words (Barry, 1997). This is because processing visuals requires less cognitive effort (Bargh, 2015; Damasio, 2006). T. E. Powell et al. (2019) agree with the point raised by Scharrer and Blackburn (2015), Findlay and Gilchrist (2003) and Garcia and Stark (1991) that visuals with graphic content and social cues also seem to attract the attention of readers.

Visuals are also influential in triggering an emotional response (Iyer & Oldmeadow, 2006). For example, Powell et al. (2019) found that news visuals were emotionally stimulating, raising heart rates (see also Lang, Newhagen, & Reeves, 1996). Another study found that the impact of compelling negative images in news media surpasses that of verbal information (Newhagen & Reeves, 1992). Consistent with this, Gartner (2011) and Scharrer and Blackburn (2015) reveal that news visuals of conflict may trigger support for war. However, this may depend on readers' pre-existing interest in such an issue (Gibson & Zillmann, 2000; Zillmann, Gibson, & Sargent, 1999). Further support exists from Pfau et al. (2006) that a photo with a caption tends to evoke emotional responses as well as a change in opinion.

1.4.3 Lack of Research on Visual EWOM

According to a literature review, the vast majority of the research interested in visual information was limited to the fields of advertising, education and politics. In

fact, there is limited research in the context of EWOM about visuals, owing methodological difficulties (Shin et al., 2019) that are described in Chapter 2. The lack of prior research on visual EWOM experimental design and the methods of developing the visual stimuli has led to the current research, which is based mainly on research in advertising and political science.

1.5 Research Methodology

To address the research questions, this thesis adopts a positivist paradigm. The primary reason for conducting this research was to examine the effects of visual and textual features of EWOM on its perceived helpfulness and on purchase intention. Thus, a quantitative approach was utilised. Specifically, the research employed an online factorial experiment that was embedded in Qualtrics software. The factorial experiment comprised a systematic variation of independent variables to explore the causal relationship between factors (Cook, Campbell, & Shadish, 2002; Perdue & Summers, 1986). The experiment was a 3 (visual inclusion to text: with product photo, with product and face photo, without product photo) × 3 (EWOM valence: positive, positive and negative, and negative) full factorial design. The two manipulated variables acted as a between-subjects design, while the product type acted as a within-subjects design. The manipulation of the variables was developed as visual stimuli which were tweets presented to the participants in the survey, using the format of the social media platform Twitter. The stimuli of the current study incorporated textual information as well as visual information. These manipulations are discussed extensively in Sections 3.4.2.1. and 3.4.2.2. This design produced nine scenarios in total as shown in Figure 1.1.

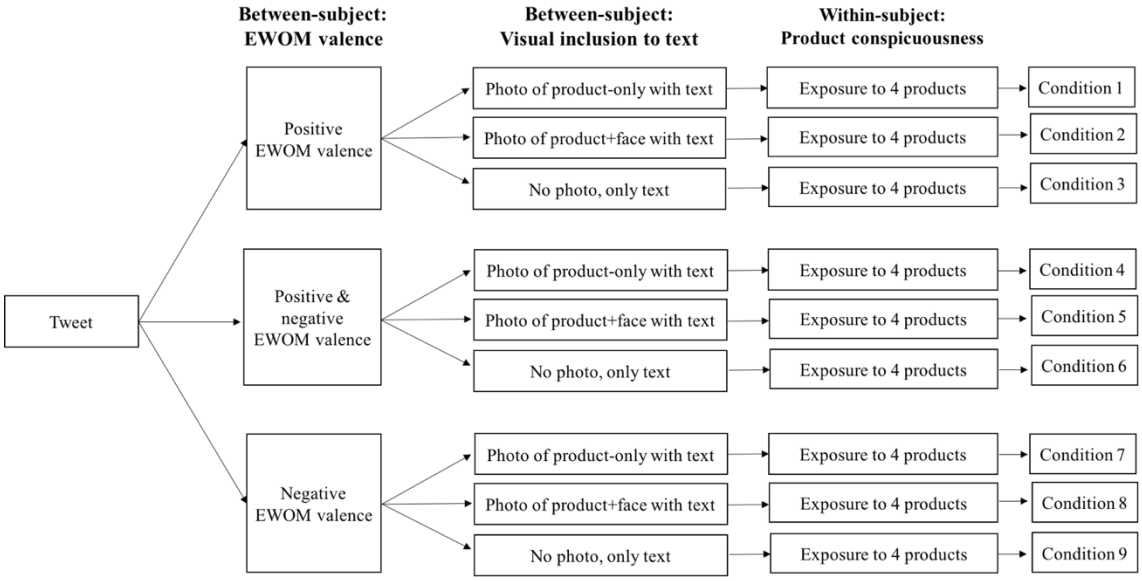

Figure 1.1. The experimental design flow. *Source: developed for this study.*

The study recruited 540 Saudi college students—270 males and 270 females—to take part in a survey. A convenience sampling technique was used to select participants. Subjects of each gender were randomly assigned to the nine conditions. The respondents were male and female undergraduates enrolled in two Saudi universities located in Riyadh. After obtaining approval, the universities distributed the survey link to its students. The survey was professionally translated from English to Arabic language utilising a conceptual translation technique (McKay et al., 1996). The survey was made available in two languages, English and Arabic, and participants were able to select their desired language for completing the survey, in line with Aljlayel (2021). The questionnaires used clear introductions as well as organised questions that used simple language (Sekaran & Bougie, 2016). The items in the questionnaire were adopted according to an extensive literature review. Chapter 3 explains the research methodology in detail.

1.6 Delimitations

The present research was limited in several respects. The current study was limited to the Middle East, especially Saudi Arabia, because of the lack of research in this region. The study used university students as samples in a cross-sectional method. The context of the study was also limited to Twitter as the social media platform. However, this platform permitted the posting of both textual and visual information, unlike other platforms, and this was considered advantageous in many respects. Moreover, the study examined the role of visual EWOM on two product categories. The first category comprised two conspicuous products, in which earbuds required high involvement, and vitamin water low involvement. The second category had two non-conspicuous products, in which the electric toothbrush represented a high-involvement product, and vitamin supplements a low-involvement product.

While the definition of EWOM provided in Section 1.2 does not take into account perceived social relationships between the sender and the receiver (i.e. anonymous or known), the current research confines itself to social relationships among friends. This delimitation is because of the credibility that people place on individuals with strong ties (Brown et al., 2007), such as friends. Information coming from strong ties on the internet has been confirmed to be perceived as more credible (Brown et al., 2007; Pan & Chiou, 2011).

1.7 Research Significance

This study of the role of visual and textual features of EWOM on its perceived helpfulness and on purchase intention contributes new knowledge to the field of EWOM in several ways, as explained in the following two sections.

1.7.1 Theoretical Contributions

The current study provides theoretical contributions to the field of EWOM by integrating the sidedness and valence of EWOM and by investigating the influence of various visual dimensions on perceived helpfulness and purchase intention while also taking gender into account as a third factor. The development of a robust experimental design comprising 18 groups tested for high- and low-involvement products advances the body of knowledge on EWOM. This design can be used to gain a thorough understanding of the role of EWOM valence and the visual dimension in other factors in different contexts such as engagement and likability on different social media platforms. This study is underpinned by different theories grounded in an extensive literature.

Dual-coding theory (Paivio, 1969, 1971, 1990) and multimedia learning theory (Mautone & Mayer, 2001; Mayer & Mayer, 2005; Mayer & Moreno, 2003) both support the concept that visual information is more effective when combined with verbal information than is text alone. This also is associated with several advertising studies that have emphasised the superior effect of visual information (Childers & Houston, 1984; Childers et al., 1985; Keller, 1987; Shin et al., 2019; Wyer et al., 2008). Although trustworthiness was not specifically measured in this study, it was presupposed that there was some degree of established trust among friends on social media (Twitter). Users would therefore be more likely to accept information from friends than from strangers (King, Racherla, & Bush, 2014). Another contribution is the study's emphasis on gender rather than using it as a control variable. Various researchers have examined the impact of EWOM without taking gender into account (Krishnapillai & Ying, 2017). As a result, understanding how females and males differ from one another assists the research community to accurately depict how male and female members interact with visual and textual EWOM.

The study also examined several products utilising various theories. The Elaboration Likelihood Model (ELM) served as the foundation for choosing the products according to the levels of involvement. The majority of previous studies performed involved high-involvement products (Schau, Muñiz, & Arnould, 2009). This research enhanced its product classification to include high and low product involvement, with each one representing high and low-conspicuous products. The study also adds a new viewpoint to the literature by examining how men and women participants behave in various scenarios requiring different levels of involvement and conspicuousness. Further, this research focused on an overlooked Middle Eastern culture, Saudi Arabia. As the vast majority of publications deal with Western societies, it is vital to shed light on a new geographical location to generalise such results and reveal cultural aspects encountered. In fact, several cultural issues were encountered and navigated while implementing the study reflecting the unique language and Saudi social norms often resulting from religious practice. Further details about cultural aspects are given in Sections 3.4.2.1 and 3.4.2.2.

1.7.2 Practical Contributions

Marketers believe that customers are very important assets for each firm (Villanueva, Yoo, & Hanssens, 2008). The former should understand how the presence of visuals in consumers' communication influences potential consumers' perception, and in what visual and textual dimensions the EWOMs are effective. Thus, EWOM marketing strategies that provide more specialised information and aid in decision-making can be improved using the study's findings. The study's findings are beneficial for both consumers and businesses since they offer some insightful views from the perspective of social media users. By evaluating the impact of textual and visual EWOM regarding high- and low-involvement products on consumers of different

genders, marketers can determine whether they need a marketing segmentation strategy according to gender. Considering both high and low involvement, marketing managers should employ different strategies for each gender, according to these findings. Furthermore, consumers, particularly women in the case of high-involvement products, prefer the usage of visual EWOM in addition to text. Therefore, brand managers responsible for high and low levels of involvement should employ gender-specific policies. Further, the study provides marketers and online business communities with evidence to assist in managing and controlling their social media content. Marketers and brand managers should encourage their current users to share visually and textually their experience of consuming and to post it to social media platforms to help other customers and sustain customer loyalty (Jamal, 2019). This may not only aid in facilitating consumers' decision-making process, but also in expediting sales and in meeting customer needs (Villanueva et al., 2008).

1.8 Research Structure

This thesis is organised into six different chapters (Figure 1.2). This first chapter has outlined the background and the research problems, before providing the research objective and questions. After that, a summary of the research methodology and significance was presented. Finally, the research structure is given.

Chapter 2 provides a review of studies on TWOM and EWOM in relation to the problem investigated. It not only includes discussion about EWOM valence and visual EWOM in relation to helpfulness, but also in relation to purchase intention. Finally, it identifies the gaps in the literature, and how this thesis contributes to the body of knowledge.

Chapter 3 details the study's methodology by summarising the research process and outlining the research paradigm. It also provides greater details about experimental

design as well as survey design, sampling and validity. Finally, this chapter discusses ethical considerations.

Manipulation checks, demographic profile, main and interaction effects are presented in Chapter 4 for each product studied. In Chapter 5, discussion is offered. Chapter 6 concludes with a summary of the research, the answers to the research questions, and the theoretical and practical contributions of the study. Limitations and directions for future research are discussed, before a concluding statement is provided.

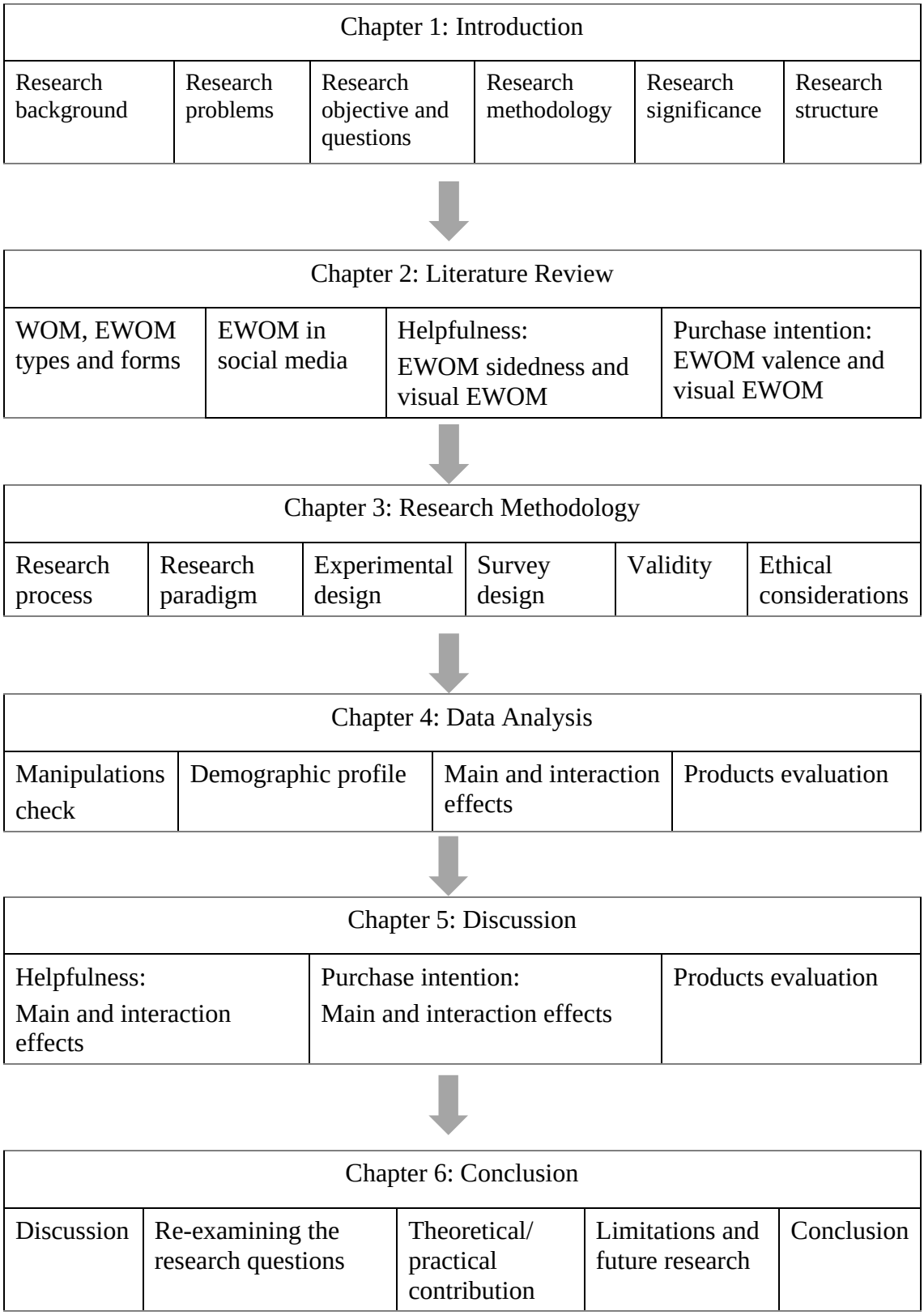

Figure 1.2. The research structure.

Chapter 2: Literature Review

2.1 Introduction

Marketers have full control over advertisements that are simply passed onto consumers, reflecting a form of commercial advice (East, Singh, Wright, & Vanhuele, 2016). However, WOM communications are driven by consumers. WOM communications have been perceived as a necessary source of circulating information among people. Consequently, the role of TWOM in stimulating consumers' decision-making has been entrenched in the literature (Ismagilova, Dwivedi, Slade, & Williams, 2017b). Further, TWOM communications were found to be superior compared with commercial communications (Steffes & Burgee, 2009). With the relatively recent rise of the internet and social media, TWOM has evolved into electronic EWOM, hereafter EWOM (Cheung & Thadani, 2012; Hussain, Song, & Niu, 2019). While TWOM is known to direct friends and acquaintances, EWOM can affect online users. EWOM has been argued to be more influential than TWOM (Hennig-Thurau et al., 2004).

This chapter provides an overview of current definitions of TWOM and discusses its characteristics in Sections 2.2 and 2.2.1 Next, EWOM is considered and its significance discussed in Sections 2.3 and 2.3.1. After this, the use of EWOM in social media is justified in Section 2.4. Then, a review of research on visual information is given in Section 2.5. Finally, the dependent variables, helpfulness and purchase intention, are discussed in Sections 2.6 and 2.7 in relation to the independent variables: the EWOM sidedness (i.e., valence), visual information and gender. The level of product involvement and product conspicuousness related to the products' classification are also reviewed in Sections 2.8 and 2.9.

2.2 Defining TWOM

First mentioned in 1533, WOM was early used as tool for exchanging news (Ismagilova et al., 2017b). Nowadays, TWOM is still a significant channel of circulating information among individuals. The literature has well recognised the influence of TWOM on consumers. Previous research has shown that TWOM is seen as trustworthy as well as persuasive compared with traditional advertising (Cheung & Thadani, 2012). One of the earlier authors on the topic, Arndt, defined TWOM as 'oral, person-to-person communication between a perceived non-commercial communicator and a receiver concerning a brand, product or a service offered for sale' (1967, p. 190). Nyilasy (2006) splits Arndt's definition into different aspects. The first highlights TWOM communications as interpersonal, which differentiates it from other types of communications. Second, the conversations among individuals are concerning products or services. The final aspect of TWOM is the lack of commercial bias when a communicator transmits information to the receivers (Nyilasy, 2006, as cited in Ismagilova et al., 2017b). Recent definitions in the literature consider TWOM as information passed orally and privately from one consumer to another (Berger, 2014). As two-way communication, TWOM is then the passing of advice between people, allowing for interaction and exchange of views (Littlejohn & Foss, 2010). Ismagilova et al. (2017a) proposed a comprehensive definition summarising the qualities of TWOM as 'oral, person-to-person communication between a receiver and a communicator, whom the receiver perceives as non-commercial, concerning a brand, product, service, or organization' (Ismagilova et al., 2017a, p 7).

2.2.1 Features of TWOM

The literature has identified several qualities relating to TWOM. First, TWOM communications can be classified as either positive or negative (East, Hammond &

Lomax, 2008). Positive WOM can be the result of customer satisfaction related to a consumed brand, whereas negative WOM can be a response to an unpleasant experience (Buttle, 1998). Accessibility and exchange of information is yet another characteristic of TWOM. The private setting of TWOM not only facilitates interaction in real time between two consumers; it also facilitates the exploration and deeper understanding of the recommendations (Berger, 2014; Joinson, 2001). Through TWOM interactions, engagement supports greater clarity of consumer views germane to a given situation (Porter, 2017).

Berger (2014) highlights that face-to-face interaction reduces ambiguity, enabling communicators to form a clear picture by sharing additional information needed in the decision-making process. It also enables greater depth of communication, with body language and eye contact playing an important role in its facilitation. TWOM comes in the form of face-to-face communication, telephone and video conferencing (Chung & Park, 2012). Video conferencing as form of TWOM has some features that are similar to face-to-face communication in terms of time of connection, however it differs in terms of space. Video conferencing is more comparable to face-to-face communication than it is using the telephone because it displays the communicators, showing both eye contact and body language (Chung & Park, 2012). In general, TWOM is shared in real time between friends and individuals who know one another, and are therefore socially connected (Huete-Alcocer, 2017).

Credibility of the source of information has a great impact on consumers' behaviour regarding purchasing products or services (Huete-Alcocer, 2017). TWOM is cited as a credible source of information. TWOM has been found credible because it takes place among families, relatives, friends as well as acquaintances (King et al., 2014). Usually, there is an established level of trust among individuals who know each

other; thus, the acceptance of the information can be higher than for receiving information from strangers (King et al., 2014). However, East, Hammond & Lomax, (2008) found this impact is weak, while Carl (2008) claimed that there might be a commercial bias of TWOM, others argue that the lack of commercial bias of a TWOM sender is another quality, making TWOM communications more credible as well as more reliable than information that comes from marketers (De Matos & Rossi, 2008; Herr, Kardes, & Kim, 1991; Ismagilova et al., 2017a).

2.3 Defining EWOM

The definition of EWOM as referring to 'any positive or negative statement made by potential, actual or former customers about a product or a company, which is made available to a multitude of people and institutions via the internet' (Hennig-Thurau et al., 2004, p. 39) has been widely cited in the literature (Trenz & Berger, 2013). Ismagilova et al. (2017a) proposed the following revised definition: 'EWOM is 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 people and institutions via the Internet' (Ismagilova et al., 2017a, p. 18). The definition highlights EWOM information as dynamic because it is circulated via an online environment. Moreover, it classifies both the content and the source of the information (Ismagilova et al., 2017a). With regards to the source, EWOM communication can occur either through customer-generated websites, such as online discussion forums, customer review sites, weblogs and social media platforms, or though marketer-generated websites such as corporate webpages (Cheung & Lee, 2012; Erkan & Evans, 2018). It has been stated that more than 90% of consumers seek online reviews, and about 60% of them tend to buy from a certain website featuring reviews written by former consumers (Charlton, 2015). EWOM communication in online

communities is perceived as more credible than information offered by marketers, and tends to stimulate sales (Charlton, 2015, as cited in Ismagilova et al., 2017a).

2.3.1 Features of EWOM

EWOM communication has differing characteristics from TWOM (Cheung & Lee, 2012). Speed of diffusion, accessibility, persistence, volume and credibility are discussed among researchers as features setting EWOM apart from TWOM, and reflect its online and social media environments. Through these media, as a consequence of the instantaneous publishing of text and visual reviews, ratings and statements, views are available anytime and circulated rapidly with numerous amounts of information from various platforms and websites (Hennig-Thurau et al., 2004; Herr et al., 1991; Hung & Li, 2007; Lee, Park, & Han, 2008; Park & Lee, 2008; Sen, 2008). Therefore, the information can be easily accessed and reached by potentially millions of consumers around the world in a short moment. Whereas TWOM occurs in a private setting, EWOM is not private, nor constrained to the moment of its communication. It enables mass dissemination of information, with exposure possible at any point post publishing (Cheung & Thadani, 2012). EWOM therefore has additional functionality in allowing the public to use it as a checking tool, by researching previous consumer experiences.

Unlike TWOM, both consumers and businesses are able to observe EWOM content anytime. These significant features benefit not only potential consumers, but also aid businesses to better understand the needs of consumers (Huete-Alcocer, 2017). In contrast, TWOM interactions tend to be less accessible and take more time to spread because they occur between relatively small groups (Avery, Resnick, & Zeckhauser, 1999; Dellarocas, 2003; Li & Hitt, 2008; Steffes & Burgee, 2009). Berger (2014) notes that information published online is permanent and accessible at any time, whereas TWOM messages are more inclined to be temporary.

It is true that TWOM is viewed as trustworthy because it is shared between family and friends, but this view underestimates EWOM. Despite the fact that some EWOM reviews are suspicious, the current literature establishes EWOM is worth trusting by virtue of a lack of commercial bias, and capability to genuinely manage and control EWOM content (Huete-Alcocer, 2017; Hussain, Ahmed, Jafar, Rabnawaz, & Yang, 2017; O'Connor, 2010; Sotiriadis & Van Zyl, 2013).

Although many of the EWOM studies have overlooked perceived social relationships between the sender and the receiver and focused on anonymous or known sources, the current research focuses on social relationships among friends. This is because of the credibility that people place on individuals with strong ties (Brown et al., 2007), such as friends. Information coming from strong ties on the internet has been confirmed to be perceived as more credible than information coming from unknown sources (Brown et al., 2007; Pan & Chiou, 2011). EWOM is also cited as a credible and more powerful source of information, influencing purchase intentions for restaurants, airlines and some other services (Chen, Wang, & Xie, 2011; Hussain et al., 2017; Koo, 2016; Sotiriadis & Van Zyl, 2013; Teng, Khong, Chong, & Lin, 2017; S. Wang, Cunningham, & Eastin, 2015). This is especially powerful when experts share their knowledge of a product or service (Hussain et al., 2019). Some studies investigating review helpfulness and review enjoyment argue that the inclusion of consumer pictures of the purchased product along with text may amplify perceptions of trustworthiness, credibility and improve message quality (Filieri & McLeay, 2014; Jeong & Jang, 2011; Kim & Lennon, 2008). This effect is bolstered when reviewers share their location or profile photo, which may be interpreted as indicating an evaluation that is free of commercial bias (Dou, Walden, Lee, & Lee, 2012; Hussain et al., 2019; Karimi & Wang, 2017; Park & Kim, 2008; Saleem & Ellahi, 2017; Sotiriadis & Van Zyl, 2013;

Willemsen, Neijens, Bronner, & De Ridder, 2011; Zainal, Harun, & Lily, 2017). Furthermore, EWOM is argued to be more measurable than TWOM because of its availability on the internet, large quantity and the many forms it takes (Lee et al., 2008; Park & Kim, 2008). Table 2.1 summarises the key differences between TWOM and EWOM.

Table 2.1

Key Differences between TWOM and EWOM

Features	TWOM	EWOM	Citations
Form	Verbal with face expressions	Written texts and visuals	(King et al., 2014; Steffes & Burgee, 2009; Vignardi, 2018)
Network scope	Communications are shared within small groups and communities	Information is shared online to all the world	(Avery et al., 1999; Brown & Reingen, 1987; Dellarocas, 2003; Steffes & Burgee, 2009)
Context	Offline/Face-to-face	Online environment: corporate website (e.g. Apple.com), independent website (e.g. customer reviews), e-commercial third-party website (e.g. Amazon.com), social media platform (e.g. Facebook)	(Erkan & Evans, 2018; Filieri, 2016; King et al., 2014)
Tie strength	Communications occur among family, friends and acquaintances	Information can occur between strangers, anonymous or identified and known people	(Bianchi & Andrews, 2018; Erkan & Evans, 2018; Evans & Erkan, 2015; King et al., 2014)
Privacy and anonymity	Conversations are typically private but not anonymous	Information is not private but can be	(Erkan & Evans, 2018; Evans & Erkan, 2015; King et al., 2014; Kozinets, De Valck,

		both anonymous and known	Wojnicki, & Wilner, 2010; Pan & Zhang, 2011; Trenz & Berger, 2013)
Diffusion speed	Low speed diffusion	High speed transmission	(Avery et al., 1999; Cheung & Thadani, 2012; Dellarocas, 2003; Hung & Li, 2007; Hennig-Thurau et al., 2004; Li & Hitt, 2008; Steffes & Burgee, 2009)
Accessibility	Less accessible and persistent	More accessible and persistent	(Cheung, Lee, & Rabjohn, 2008; Hennig-Thurau et al., 2004; Herr et al., 1991; Hung & Li, 2007)
Measurability	Measurable	Easier to measure	(Cheung et al., 2008; Cheung & Thadani, 2010; Park & Kim, 2008)
Volume	Large	Very large in quantity	(Chatterjee, 2001; Y. Pan & Zhang, 2011; Sen, 2008)
Credibility	More credible	Argued to be credible, especially from known sources.	(Bianchi & Andrews, 2018; Filieri, 2016; Huete-Alcocer, 2017; Luzzani & Gorostegui Obanoz, 2015; Nam, Baker, Ahmad, & Goo, 2020b)

Note. Adapted from Ismagilova et al. (2017a).

2.4 EWOM In Social Media

Social media platforms have originated relatively recently, fundamentally changing the way individuals exchange information. Users of social media are given an opportunity to open accounts through which they can share their content in form of texts, photos or videos (Erkan & Evans, 2018; Evans & Erkan, 2015). The users can generate personal content, reinforced visually, or can share information about any brand, thus providing an open source for other users to interact with the information

related to the brand (Canhoto & Clark, 2013; Chu & Kim, 2011; Dessart, Veloutsou, & Morgan-Thomas, 2015; Tsimonis & Dimitriadis, 2014).

The literature reveals that social media platforms have also been utilised by consumers seeking information to solve brand unfamiliarity (Baird & Parasnis, 2011; Goodrich & De Mooij, 2014; Naylor, Lamberton, & West, 2012; Schivinski & Dabrowski, 2016). Brand managers have taken advantage of social media platforms in connecting with their clients, while many other brand firms have adopted the same strategy in approaching, acquiring and retaining their customers' share to ensure loyalty and high satisfaction (Constantinides, 2014; de Araújo & Zilber, 2016; Hahn, Scherer, Basso, & dos Santos, 2016; Kacker & Perrigot, 2016; Pinho & Soares, 2015). Further, social media are seen as instruments for building a strong relationship between customers and their brand, ultimately leading to customer retention and users feeling they belong to the brand (de Lima, Mainardes, & Cavalcanti, 2019). It has been reported that exchanging information among users in the social media platforms can strengthen brands. Customers indicating support for a brand on the platforms can be perceived as more positive than the brand's self-promotion (Hahn et al., 2016; de Lima et al., 2019). Therefore, social media platforms have provided consumers with valued, useful sources of information about products and services in the form of EWOM (Erkan & Evans, 2018).

The EWOM information within these platforms facilitates communication among users and followers. In contrast to e-commerce websites, social media platforms promote the exchange of users' views and their history of involvement with brands. Users can be either friends or acquaintances (Trusov, Bodapati, & Bucklin, 2010). Consequently, some authors argue that social media platforms are seen as more valuable and helpful in providing EWOM with real identities (Chu & Choi, 2011; Erkan &

Evans, 2018; Evans & Erkan, 2015; Gillin, 2007; Moran & Muzellec, 2017; Park, Lee, & Han, 2007; Wallace, Walker, Lopez, & Jones, 2009), making the information more credible and influential than that on e-commerce websites.

Unlike offline contexts, a high level of credibility is essential in the online setting because users' familiarity with the information's source is limited (Bianchi & Andrews, 2018; Corbitt, Thanasankit, & Yi, 2003; Filieri, 2016). Customers highly appreciate users who disclose their personal identities (Xie, Miao, Kuo, & Lee, 2011). A study found that revealing elements of personal identification such as real name, user photo and location has a positive effect on the perceived credibility of EWOM in the eyes of receivers (Xie et al., 2011). Social media platforms like Facebook and Twitter enable users to connect with other familiar people seeking knowledge about new brands. Comments, tweets or posts created by users of social media platforms are mostly perceived as objective, unbiased and reliable, compared with information given by users controlled by firms (Wilson, Murphy, & Fierro, 2012). Thus, the independence users have and their easy access to social media platforms has made the latter a more influential source of information than corporate and e-commerce third-party websites (Litvin, Goldsmith, & Pan, 2008). It appears that the issue of anonymous reviews and credibility is less of a concern with social media than with commercial websites because it enables users to have full control over the content (text, visual and video), making it similar in function to TWOM (Evans & Erkan, 2015).

In previous research, lack of credibility has been found as a great concern for online shoppers, especially on e-commerce sites (Bianchi & Andrews, 2018; Filieri, 2016; Grabner-Kräuter & Kaluscha, 2003). Consumers refrain from interacting with brands online in some communities because of an absence of credibility (Bianchi & Andrews, 2018; Eastlick, Lotz, & Warrington, 2006; Filieri, 2016; Gefen, Karahanna, &

Straub, 2003; Pavlou & Fygenson, 2006). Thus, credibility of information offered by users in different online communities is vital to reinforce purchase decisions (Bianchi & Andrews, 2018). Studies have also found that anonymity in online reviews tends to have a negative impact on the credibility of a post (Luo, Luo, Schatzberg, & Sia, 2013). Certainly, Luo et al. (2013) found that credibility of EWOM on the context of the tourism industry is negatively impacted by anonymity. It is assumed that this may be because of the possibility that these reviews are edited or revised, hence giving false information (Walther, 2011). It has been stated that the quality of EWOM has become challenging to discern owing to some marketers and brand owners attempting to influence online buyers by compensating them for sharing positive EWOM recommendations on their websites, which can give retailers full control over posting consumers' reviews (Chatterjee, 2001; Mira Lee & Youn, 2009). Sen and Lerman (2007) argued that EWOM reviews tend to have less impact if identity is not disclosed. In fact, a causal link does appear to exist between recommendations made by identified consumers, and an increase in purchase probability, owing to the persuasiveness of trust (Porter, 2017). Thus, some consumers keep seeking a range of different reviews and websites to determine the quality of EWOM (Greer, 2003; Mira Lee & Youn, 2009).

According to Brown et al. (2007), greater similarity between the sender and the receiver online is anticipated to boost the perceived credibility and persuasiveness of a message and affect behaviour intention (De Bruyn & Lilien, 2008; Prendergast, Ko, & Siu Yin, 2010). In short, familiarity, which is often a quality on social media platforms, may make EWOM appear more accurate and trustworthy (Chu & Choi, 2011; Wallace et al., 2009). The current research focuses on the social media platform of Twitter because of the credibility between close friends. As credibility is established with strong ties, the current research assumed that there would be an established level of trust

among friends on social media. Accordingly, these users would be more likely to accept information received from friends than to accept information from strangers (King et al., 2014). As this area has been little explored (Pihlaja, Saarijärvi, Spence, & Yrjölä, 2017), the current study aims at extending the literature on EWOM and visual information among friends on Twitter by investigating its impact on perceived helpfulness and purchase intention.

2.5 Visual Information

Text EWOM has been explored in recent literature (Filieri & McLeay, 2014; Mudambi & Schuff, 2010; Nam et al., 2020a; Nam et al., 2020b; Roy et al., 2021; Y. Sun et al., 2021), however, visual forms and their impact on customers have not been fully studied (Lin, et al. 2012; Roy et al., 2021; Serrano & Ramjaun, 2018). 'Visual information' refers to any picture, photo or video representing a product (Kim & Lennon, 2008). Due to the fact that they minimise information asymmetries between vendors and shoppers in online environments, consumer images are seen to provide highly diagnostic information (Filieri et al., 2021). Consumers' product images are regarded being more reliable than brand-generated photos because retailers frequently utilise manipulated product images to increase sales (Filieri et al 2016). Additionally, they enable customers to more accurately assess the product's features (Filieri et al., 2021). Recent research has shown that the product images on e-commerce websites affect the sales of men's clothes. (Xia, Pan, Zhou & Zhang, 2020). When researching how images affect people, there are typically two lines of research (Lin et al., 2012). The first line focuses on the impact of image on memory, and the second on attitudinal responses.

Regarding memory, visual information has been argued to be remembered better than words (Starch, 1966). It is asserted through dual-coding theory (Paivio, 1969,

1971, 1990) and multimedia learning theory (Mautone & Mayer, 2001; Mayer & Mayer, 2005; Mayer & Moreno, 2003) that visual information along with verbal information boosts individuals' understanding and recall (Lenzner, Schnotz, & Müller, 2013).Visual cues draw attention to certain information and can display additional detail, giving viewers a better framework through which to assess the information being presented (Lee & Song, 2010). Further support comes from the associative network theory of memory (Anderson & Reder, 1979). The theory shows that parts of brain that deal with memory contains nodes holding information. When two items of information are associated, individuals can conceptualise connections between two of them, forming an associated information network (Romaniuk & Sharp, 2004). Usually, text comprehension requires substantial cognitive effort, yet visuals, if attached, tend to enhance the understanding of the content (Petty & Cacioppo, 1986).

With respect to the second line of attitudinal responses, studies within the traditional media context have revealed the importance and effectiveness of images for advertising (Pieters, Wedel, & Batra, 2010; Smith, 1991; Teixeira, Wedel, & Pieters, 2012; Wu et al., 2016). Earlier research on advertising literature found that pictures attached to textual content tend to be better evaluated by consumers, resulting in a positive attitude towards products (Lin et al., 2012; Miniard et al., 1991; Phillips, 2000; Shin et al., 2019). Further support from a case study on TripAdvisor was presented by Gonzalo (2014), revealing that reviews with pictures generated more booking queries than those without pictures. Many have reinforced the move to picture advertising because it tends to yield stronger attention, preference and recall (Childers et al., 1985; Hirschman, 1986; Keller, 1987; Wyer et al., 2008). Researchers call for further investigation to understand how customers interact with texts and photos, and why

some forms are seen as more valuable and informative than others (Lin et al., 2012; Ma, Xiang, Du, & Fan, 2018; Roy et al., 2021; Serrano & Ramjaun, 2018).

2.5.1 Social Media Brand Imagery

Nowadays, customers lean towards delivering their communications with visual content on social media platforms. Over 6.5 billion photos are shared daily on social networking sites like Facebook, Twitter, and Instagram (Hartmann, Heitmann, Schamp, & Netzer, 2021). According to Hartmann's study, brand logos appear in around 65 million posts daily. Based on the Pew Internet and American Life Project (2009), 46% of online users upload pictures to platforms in order to share knowledge with other users (Lin et al., 2012). Besides self-standing product images, Hartmann et al. (2021) identify brand pictures on social media as constituting two categories of selfies: 'consumer selfies', which feature brands and consumers' faces, and 'brand selfies', a rising trend featuring invisible consumers holding a branded product. Theoretically, the presence of a face in consumer selfies is predicted to cause consumers to think more about others than themselves (Hartmann et al., 2021). According to self-reference theory, viewers' self-referential thinking is inhibited by the presence of other 'ordinary consumers' in advertising, as they contemplate how they might relate to the person in the image (Debevec & Romeo, 1992; To & Patrick, 2021).

On social media, viewers often have a greater level of familiarity with the sender and may even have shared experiences, which makes the effect more noticeable than it would be with a stranger appearing in an advertisement (Hartmann et al., 2021). In contrast, brand selfies taken from the perspective of the viewer may promote brand-specific, self-related thinking (Hartmann et al., 2021). Self-reference theory holds that consumers who are able to connect a brand more readily to their own unique experiences in brand selfies exhibit higher degrees of cognitive processing and mental

inclination towards brand consumption (Bower & Gilligan, 1979; Escalas, 2007). This mental recreation of consuming experiences produces favourable brand-related effects including stronger brand memory, effective brand attitudes and higher buying intentions (Burnkrant & Unnava, 1995; Elder & Krishna, 2012; Escalas, 2007; Meyers-Levy & Peracchio, 1996; Zhao, Hoeffler, & Zauberman, 2011). Therefore, improving self-reference is a pertinent goal for marketers who manage brand engagement and brand memory (Hartmann et al., 2021).

Su, Kunkel, and Ye (2021) examined the impact that conspicuously showing the muscles of male influencers has on consumers' intentions to buy the products they promote. They discovered that a woman's perceived trustworthiness was decreased by conspicuous (vs inconspicuous) exhibition of muscles, which in turn decreased consumers' desire to buy a gender-neutral product. Similarly, Hartmann et al. (2021) examined the effect of consumer selfies, brand selfies and standalone products, and found that brand selfies, featuring invisible consumers holding a product, result in higher brand engagement than consumer selfies. It is thus expected that product images not featuring consumers would be more helpful and lead to a higher purchase intention than consumer selfies.

2.6 Helpfulness

The perceived helpfulness of EWOM has been defined as 'the extent to which a consumer perceives a product review to be useful in performing his/her shopping tasks' (Pan & Zhang, 2011, p. 598). The term 'helpfulness' has been explained variously in the literature as usefulness (Cheung et al., 2008) and as referring to information diagnosticity (Filieri, 2015; Jiang & Benbasat, 2004). However, these terminologies have the identical meaning of providing helpful information to individuals regarding the quality and the characteristics of a product or service in an attempt to decrease doubt

and hesitancy prior to purchasing (Vignardi, 2018). When consumers perceive information as helpful, their buying decision is strengthened (Davis, 1989). Firms see EWOM as a powerful instrument that can be utilised to motivate consumers' assessment of their products and services (Mayzlin, 2006). Thus, EWOM plays a key role in affecting consumers' attitudes and purchase intentions (Ismagilova et al., 2017a).

Vignardi (2018) explained two ways of treating helpfulness in the literature. The first is an approach that measures the quality of helpfulness, and is performed by utilising benchmarks calculating either the total number of votes or the helpful votes ratio (Mudambi & Schuff, 2010; S. Park & Nicolau, 2015, 2016; Racherla & Friske, 2012).

The second approach to evaluating the quality of helpfulness proceeds by self-reporting the perceived helpfulness of EWOM (Vignardi, 2018). This approach is largely applied in experimental studies (Folse, Porter, Godbole, & Reynolds, 2016), surveys (Filieri, 2015; Schindler & Bickart, 2012) and via interviews (Papathanassis & Knolle, 2011). Much of this literature has focused on textual (verbal) EWOM instead of visual EWOM (King et al., 2014). The current research employed the second approach, according to which participants were asked to rate the helpfulness of EWOM in a questionnaire. The next section discusses the textual feature of EWOM, one-sided valence and two-sided valence in relation to helpfulness. Then, visual information in relation to helpfulness is reviewed, along with gender.

2.6.1 EWOM Valence (Sidedness)

EWOM sidedness refers to the way in which the content of a message is written, and whether it is structured as one-sided or two-sided (Chen, 2016). While one-sided EWOM only represents the considerations favouring a specific argument (either positive or negative), two-sided EWOM represents the considerations in favour of and

against the argument (both positive and negative) (Park, Yi, & Kang, 2019). Prior research regarding sidedness is varying. One view is that one-sided EWOM provides a clear suggestion about an object (Lopes, Dens, De Pelsmacker, & De Keyzer, 2020). Cao, Duan, and Gan (2011) found that one-sided EWOM representing strictly positive or negative views received higher helpfulness ratings in comparison to two-sided or mixed views about an object. In support of this evidence, Pentina, Bailey and Zhang (2018) showed that one-sided reviews were deemed more helpful than two-sided reviews. This is probably because they enable the reinforcing of a position regarding a product in comparison with other products (Chen, 2016).

The other view argues that two-sided EWOM is perceived by users to be more helpful than one-sided. Filieri, Hofacker and Alguezaui (2018) show that two-sided reviews containing both arguments are seen as more helpful as this composition of opinions assists individuals to learn the advantages and the disadvantages of a product or service (Lopes et al., 2020). It is claimed that people tend to prefer message content that contains the pros and cons of a product or service, and that including negative aspects may increase the credibility of the information (Bohner, Einwiller, Erb, & Siebler, 2003). Because the literature has mixed results on this issue, this research will examine both one-sided EWOM and two-sided EWOM to contribute to the existing body of knowledge.

2.6.2 Visual Information and Helpfulness

The impact of picture use in relation to helpfulness has not been thoroughly investigated. One empirical study was conducted by Karimi and Wang (2017) to determine whether the presence of a reviewer's profile photo next to their name might affect how helpful a review was deemed to be. They found that a reviewer's profile picture can considerably improve how useful a review is perceived to be by consumers.

Still, there is a need to know how images of products or services may affect consumers' perceptions of helpfulness. Using a deep learning approach, Ma et al. (2018) found that visual information submitted by consumers enhanced the effects of textual review. Their study demonstrated that photos not only offer visual support for thoughts expressed in review texts but may also help to spark original thoughts that directly improve the review. This conclusion appeared to be consistent across several social media channels. However, a drawback to this study is that EWOM valence was not taken into account.

It has been argued that the biggest threat to review sites is loss of credibility and trust (O'Connor, 2010). Filieri (2016) shows that interviewees see consumer pictures of the bought brand as highly useful to enable product evaluation and assess the credibility of both the content as well as the sender. This suggests that forms of EWOM recommendation should not be examined separately (Lo, McKercher, Lo, Cheung, & Law, 2011; Vu, Li, Law, & Ye, 2015) but should be studied together. In fact, one study argues that textual EWOM on its own is considered to be less attractive, yet becomes more effective when combined with visual information (Lee & Tussyadiah, 2016; Wu, Chen, Cavusoglu, & Cobanoglu, 2019). These results in the literature about the role of visual information with respect to helpfulness lack consideration of several elements, including the EWOM valence or sidedness.

2.6.3 Gender and Information Processing

While it is critical to understand the impact of visual and textual EWOM, it is also vital to investigate their combined effects on both male and female consumers. Integrating gender into research is central not only to assist marketers in decision-making and in segmentation strategies but also to contribute to gender equality and generate inclusive research outcomes (Krishnapillai & Ying, 2017; Tannenbaum et al.,

2016). Further, understanding how females and males differ from one another assists the research community to accurately depict how male and female members interact with visual and textual EWOM.

Previous studies indicate that gender may moderate or influence the level of engagement in online environments (Chen & Wells, 1999; Hoffman, Kalsbeek, & Novak, 1996). According to selectivity theory, male consumers may be less likely than female consumers to participate in systematic processing (Meyers-Levy & Maheswaran, 1991; Richard, Chebat, Yang, & Putrevu, 2010), indicating that female consumers tend to engage in extensive information processing. Females are therefore more prone to seek out nonverbal evidence, including visual information, in addition to verbal information (Chau, 2017). This implies that female consumers may find mixed EWOM with a product image more helpful than male consumers.

From the discussion presented thus far, the following hypotheses were developed:

H1: Female consumers will consider mixed (two-sided) EWOM to be more helpful than positive or negative (one-sided) EWOM when the product-only image is disclosed, and this will be more so than for males

H2: Consumers will consider mixed EWOM to be more helpful than positive or negative EWOM when the product-only image is disclosed.

H3: Females will consider a product-only image to be more helpful than will males.

H4: Females will consider mixed EWOM to be more helpful than will males.

H5: Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM.

H6: Consumers will consider product-only images to be more helpful than products with face image and text-only.

H7: Male and female consumers will differ in their ratings of helpfulness of EWOM.

2.7 Purchase Intention

It has been demonstrated that EWOM influences how consumers evaluate products and services (Mayzlin, 2006). When EWOM is helpful, it can lead to purchase intention (Jeong & Koo, 2015). Purchase intention has been defined as the willingness to purchase a product or service (Dodds, Monroe, & Grewal, 1991). According to Cheung and Thadani (2012), the most frequently studied EWOM effect is purchase intention. It represents a person's decision to purchase a particular item following evaluation (Khan, Ghauri, & Majeed, 2012). Thus, it suggests a decision the customer has made based on their overall assessment of purchasing goods or services (Hsu, Yen, Chiu, & Chang, 2006). Purchase intention is used as a tool in marketing not only to forecast sales of both current and future consumer products, but also to predict significant shifts in consumer purchasing patterns, to plan for market segmentation for new products as well as to estimate actual purchase behaviour (Axelrod, 1968; Morrison, 1979; Sewall, 1978).

According to Rahman, Haque and Khan (2012), purchase intention encompasses a number of key factors, including consumers' propensity to consider buying, future buying intention and repurchase decisions. In the consumer behaviour literature, it has been recognised and confirmed that a mutual relationship exists between the intention to buy and actual buying behaviour (Cheung & Thadani, 2012; Lin, Wu, & Chen, 2013). This notion has been also supported by the theory of reasoned action (Azjen & Fishbein, 1980) as well as theory of planned behaviour (Ajzen, 1991). Consequently, a great deal of research has shown that EWOM influences customers' purchase intentions. When customers acquire information about goods and services from other consumers, they appear to be affected by what others think and are more

likely to purchase the goods or services when the positive source is reliable (i.e., friends; Haq, 2009; Jamalzadeh, Behravan, & Masoudi, 2012; McKnight, Choudhury, & Kacmar, 2002).

The friends'/consumers' assertions inspire confidence in their competence, honesty and integrity, making them credible and trustworthy (Cheung et al., 2008). As a result, information from these sources will be processed into knowledge, and their normative influence will affect how people view the information presented (Cheung et al., 2008; Priester & Petty, 2003). If the source circulated positive information about a product (i.e. positive EWOM), the intention towards that product will be favourable (Cheung & Thadani, 2012). However, if the source offered negative information, the intention towards the product will be against it. Therefore, customers adopt a positive attitude towards a particular behaviour if they anticipate a favourable outcome from doing so, and a negative attitude if they anticipate a negative outcome (Ajzen, 1991).

Similarly, the orientation of a message affects consumers' intentions to buy. When the communication is positive, the consumer will decide they intend to utilise the service and make more purchases in the future (Erkan & Evans, 2018). When the communication is negative, the consumer will be very reluctant to buy and will not make any more purchases in the future. According to the theory of reasoned action, a customer's intention regarding the product will increase in proportion to how positive the attitude is towards the information (Ajzen, 1991). Likewise, a customer's intention regarding the product will decrease in relation to how negative the attitude is towards the information. Nonetheless, purchase intention can be controlled not only by social norms, but also by perceived behavioural control and attitude (Ajzen, 1991).

With consumers frequently influenced by EWOM advice, it is vital for academics and marketers to understand how this new form of information operates.

Much of the literature in relation to purchase intention has focused on the impact of textual (verbal) EWOM instead of visual EWOM. The next section discusses the textual features of EWOM and valence in relation to purchase intention. Then, the visual information is reviewed, followed by a discussion about gender.

2.7.1 EWOM Valence

The literature on EWOM has shown that the valence of a message can be positive or negative. While positive EWOM represents likable products or services and encourages consumers to purchase them, negative EWOM is a response to unpleasant brands, discouraging prospective consumers from purchasing (Dellarocas, Zhang, & Awad, 2007). Researchers have studied positive and negative expressed beliefs about certain products and services and how these influenced consumer purchasing. It has been stated that the valence of positive and negative beliefs can influence consumer purchasing (Krishnan, 1996). To illustrate, the more positive the beliefs of prospective buyers regarding a brand, the higher the chance they may purchase and the greater the likelihood of becoming loyal to a brand (Romaniuk & Sharp, 2003). Conversely, negative beliefs shift consumer attitudes by making them less likely to purchase the brand. Moreover, when positive beliefs are low rather than high, this may be an indicator of future defection from a brand (Winchester, Romaniuk, & Bogomolova, 2008).

Consumers are more inclined to prioritise negative cues when they acquire information socially, such as through WOM communication, giving more weight to negative information than positive information when forming evaluations (Bebbington, MacLeod, Ellison, & Fay, 2017; Ito, Larsen, Smith, & Cacioppo, 1998; Soroka, Fournier, & Nir, 2019). Researchers have stated that negativity bias exists among those who receive WOM, making negative WOM more influential because of its low

incidence (Herr et al., 1991; Yang & Mai, 2010). As most attitudes are positive, negative information usually contradicts the pre-existing attitude (East et al., 2008). The challenge of preventing, foreseeing and managing the viral diffusion of negative WOM about a brand lies in the narrow understanding of the factors that influence this transmission (Druce, 2020). Powell et al. (2021) showed how brand-related factors (such as product failure) and customer factors (such as social motivations) may both influence negative WOM.

The traditional conception in current literature is that negative WOM recommendations have greater impact than positive WOM (Arndt, 1967; Goodman, Grainer, & Megna, 1979; Hart, Heskett, & Sasser, 1990; Kotler, 1997; Lutz, 1975; Mizerski, 1982; Richins, 1983, 1987; Weinberger & Dillon, 1980; P. Wright, 1974). Maheswaran and Meyers-Levy (1990) studied the framing of opinions and found that readers focusing on the quality of the content during decision-making tend to find negative framing more effective. Despite this, contrary views are also present, arguing for the presence of positivity bias as well as claiming that positive WOM has more accessibility and diagnosticity than negative WOM (Martin, 2017; Rozin & Royzman, 2001; Skowronski & Carlston, 1989). Further, East et al. (2008) and East, Romaniuk, Chawdhary and Uncles (2017) found that positive WOM has more impact than negative WOM.

The literature has mostly paid attention to one-sided valence rather than two-sided; that is, either positive WOM or negative WOM (Chen, Gu, Ye, & Zhu, 2019; Yap, Soetarto, & Sweeney, 2013; Zhang, Craciun, & Shin, 2010). As in the case of WOM, the literature on EWOM has conflicting conclusions on the impact of positive and negative EWOM (Chen et al., 2019; Lee et al., 2008; Nam et al., 2020a; Sen & Lerman, 2007; Sparks & Browning, 2011; Suárez-Álvarez, Río-Lanza, Vázquez-

Casielles, & Díaz-Martín, 2019; Yang & Mai, 2010; Zhang et al., 2010). Sparks and Browning (2011) found that the impact of negative EWOM was greater than positive EWOM on purchase decision, and that consumers had a higher tendency to trust negative EWOM for experience goods more than search goods (Nam et al., 2020a). Therefore, it is vital to reinvestigate the impact of positive and negative EWOM, and to consider mixed (balanced) EWOM as well as visual information.

2.7.2 Visual Information and Purchase Intention

Other studies have shown that visual information is vital to receivers' cognitive attitude, motivation and purchase intention (Adelaar et al., 2003; Sojka & Giese, 2001, 2006). However, the number of pictures analysed in these studies were limited, lacking generalisability (Shin et al., 2019). Additionally, visual information shared by customers has been found to be extremely important to potential customers within the travel industry (Lee & Tussyadiah, 2016; Roy et al., 2021) because it provides valuable information and knowledge, influences customers' perceptions of destinations during the process of decision-making and emphasises the importance of the increasingly digitalised society (Konijn, Sluimer, & Mitas, 2016). Further support has been offered by Shin et al. (2019) in the social media context; the authors stated that both visual and textual content have a significant role in persuasiveness of individuals. Interestingly, social media posts containing images were found to receive more likes as well as shares (Shin et al., 2019). White (2010) has agreed that text and visuals in social media platforms can enhance the decision of prospective travellers. In her focused mixed analysis, ten Facebook users were selected for investigation, each of whom had more than 100 friends who had photo albums with texts from a range of countries exhibited on their profiles. The author concluded that photographs taken by tourists and posted on Facebook might influence the decisions of users who viewed the photos.

Lin et al. (2012) explored how visual content in blogs affects readers' perceptions of message credibility, product interest and buying intention. They discovered that when readers were exposed to visual content, this had significant and favourable effects on product interest and purchase intention. However, this study was limited to only neutral EWOM, lacking comparison between positive and negative EWOM. Further, Kim and Lennon (2008) investigated how various product presentation styles (verbal vs visual) affected consumer attitudes toward the product and purchase intents when making purchases online. They found that both verbal and visual information had fundamental effects on affective and cognitive attitudes towards clothing products, but only verbal information had a significant effect on purchase intention. While EWOM valence was not considered in their study, Kim and Lennon's findings confirmed verbal superiority even though previous literature had indicated the superiority of visual information. This represented a disagreement in the literature about the role of visual information with respect to purchase intention. There is a need to know whether images combined with text lead to a higher purchase intention, or the text only.

2.7.3 Gender and Purchase Intention

Males and females may differ in their response to EWOM in terms of purchase intention. The findings of Sohaib, Hui, and Akram (2018) suggest that men are less likely to seek out information and are more willing to take a risk when making purchases on the basis of social media (Truong, Klink, Fort-Rioche, & Athaide, 2014). This indicates that men typically take more risks while making purchases (Pascual-Miguel, Agudo-Peregrina, & Chaparro-Peláez, 2015; Van Slyke, Comunale, & Belanger, 2002). This conclusion implies that positive EWOM may lead male consumers to have higher purchase intentions than females.

From these findings, it is anticipated that visuals do, in fact, influence consumers' purchase intentions because they allow for more precise evaluations. Owing to the vividness of the visuals, consumers who are exposed to EWOM communications with images will have a higher buying intention than those who are not. The reader's interest is sparked by visual components in a text, which improves their response. Therefore, the following hypotheses are developed:

H8: For males but not females, positive EWOM (one-sided) will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed.

H9: Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed.

H10: Product-only image will lead to a higher purchase intention than product with face image and text-only for males than for females.

H11: Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM for males than for females.

H12: Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM.

H13: Product-only image will lead to a higher purchase intention than product with face image and text-only.

H14: Male and female consumers will differ in purchase intention.

2.8 Product Involvement

Consumer perceptions can vary according to level of product involvement. Product involvement has been used extensively in marketing as an explanatory factor in product selection and decision-making processes (Mittal & Lee, 1989). The term 'product involvement' has been defined as 'how the product fits into that person's life'

(Cushing & Douglas-Tate, 1985, p. 243). De Pelsmacker, Dens, and Kolomiiets (2018) describe product involvement as 'the personal relevance of the product' (p. 342). Thus, involvement is best understood by relating it to the interest of a customer in a particular product (Marshall & Bell, 2004). While involvement can be stimulated by a person's characteristics, such as values and goals, it can also be caused by product characteristics, such as product type, or condition in which the product is utilised (Solomon, 2002). In a context of high product involvement, people will be strongly motivated to seek, process as well as compare information that is related to the product (Im & Ha, 2011). In contrast, in a context of low product involvement consumers tend to dedicate less cognitive effort to choosing the product (Trijp & Meulenberg, 1996).

According to the ELM, high product involvement can produce central processing, which means consumers will be engaged in extensive information processing (Cacioppo, Petty, Kao, & Rodriguez, 1986). In this situation, consumers pay attention to high diagnostic cues, such as information related to product attributes and performance (Dens & De Pelsmacker, 2010b). For example, De Pelsmacker et al. (2018) showed that the impact of review text valence was higher for those who are highly involved, supporting the idea that consumers depend on central route. Conversely, the novelty of the product in a context of low product category involvement may bring poor motivation to process the information. In this case, the peripheral route is likely to be used, in which consumers quickly assess the product depending on conspicuous cues presented in a stimulus (Coulter, 2005; Dens & De Pelsmacker, 2010b). This will ease the purchase decision for the low-involvement consumers as they lean toward decision aids (Mudambi & Schuff, 2010; Todd & Benbasat, 1992). For example, J. Lee et al. (2008) found that consumers who had low involvement with a product seemed to adapt the reviewer's message stated in the review irrespective of its

quality, which confirmed the notion that those consumers depend on peripheral cues (De Pelsmacker et al., 2018). The product categories of the current study were assigned according to the two situations discussed here. Section 3.4.1 broadly addresses this.

2.9 Product Conspicuousness

In his classic *Theory of the Leisure Class*, Thorstein Veblen (1899) was one of the earliest to describe conspicuous consumption. Veblen saw conspicuous consumption as the possession and displaying of high-priced products and services to gain social status (Kumar, Bagozzi, Manrai, & Manrai, 2021). Conspicuous consumption is characterised by indications of wealth, including lavish leisure activities as well as substantial spending on products and services (Trigg, 2001). There has been general agreement among scholars that conspicuous consumption of products involves social and public visibility and exclusivity (Bourne, 1957; Piron, 2000). While visibility means that an object can be clearly seen by people, such as cars, exclusivity refers to an object that few consumers use (Choi, Sung, & Cho, 2018). Usually, publicly visible consumption is more susceptible to being influenced (Bearden & Etzel, 1982). Prior studies have shown that individuals who consume their goods publicly tend to see the goods as representative of themselves and want to be regarded as distinctive by others (Belk, 1988; Trigg, 2001).

The current study considers products that are consumed publicly to be classified as products of high conspicuousness, and products that are utilised privately are identified as being of low conspicuousness (Choi et al., 2018). Therefore, two categories with four products in total were selected. The first category comprised two conspicuous products, in which earbuds required high involvement and vitamin water, low involvement. The second category had two non-conspicuous products, in which an electric toothbrush represented a high-involvement product, and vitamin supplements a

low-involvement product. The classification of products as conspicuous and non-conspicuous in this study was inspired by Graeff (1996), Choi et al. (2018), and Minyoung Lee, Bae and Koo (2021). In addition, the selection was according to the assumption that the earbuds and vitamin water were socially visible and that the electric toothbrush and vitamin supplements were not. On this point, Fisher and Price (1992) assumed that observing the full effect of conspicuous consumption requires public visibility. The current research considers that high and low conspicuousness are potential moderating influences. Section 3.4.1 covers this matter.

From these discussions, the following hypotheses were developed:

H15: EWOM featuring high-involvement/high conspicuous product will be perceived as more helpful than for high-involvement/low conspicuous product, low-involvement/high conspicuous product, and low-involvement/low conspicuous product.

H16: EWOM featuring high-involvement/high conspicuous product will lead to a higher purchase intention than high-involvement/low conspicuous product, low-involvement/high conspicuous product, and low-involvement/low conspicuous product.

2.10 Summary

As consumers often spread their past positive, negative or neutral consumption experience of products or services in the form text or photo, researchers have become interested in discovering which type and form of EWOM has a stronger effect (Assael, 2004; Hornik, Satchi, Cesareo, & Pastore, 2015). Investigating views on the strength and impact of EWOM types and forms among consumers is necessary for researchers and business professionals to maximise the benefit of EWOM. This chapter has offered a review of existing literature on relevant factors and identified gaps in the research.

First, TWOM was defined and its features were discussed, along with EWOM. Next, the discussion cast light on the motivation to receive EWOM and EWOM in social media. Then, visual EWOM was discussed, and gaps were highlighted—namely, the inclusion of visual EWOM to the EWOM valence. EWOM valence and sidedness were examined in relation to the dependent variables (helpfulness and purchase intention). Finally, product involvement and product conspicuousness were reviewed. The next chapter explains the methods and the experimental design employed for testing the hypotheses. Figure 2.1 depicts the conceptual model, and Table 2.2 lists the research hypotheses.

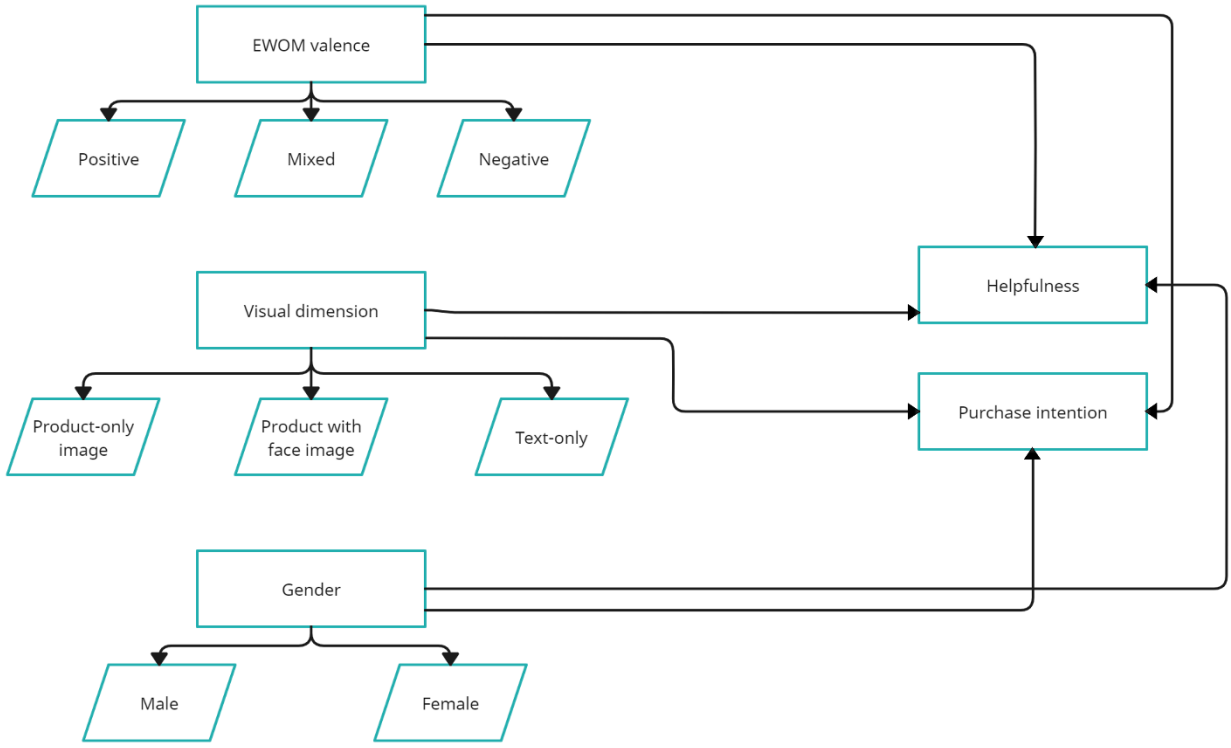

Figure 2.1. The conceptual model.

Table 2.2

Research Hypotheses

No.	Hypothesis
H1	Female consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed, and this will be more so than for males.
H2	Consumers will consider mixed EWOM to be more helpful than positive and negative when the product-only image is disclosed.
H3	Females will consider product-only image to be more helpful than will males.
H4	Females will consider mixed EWOM more helpful than will males.
H5	Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM.
H6	Consumers will consider product-only image to be more helpful than product with face image and text-only.
H7	Male and female consumers will differ in the rating of helpfulness of EWOM.
H8	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed for males but not for females.
H9	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed.
H10	Product-only image will lead to a higher purchase intention than product with face image and text-only for males than will females.
H11	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM for males than for females.
H12	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM.
H13	Product-only image will lead to a higher purchase intention than product with face image and text-only.
H14	Male and female consumers will differ in purchase intention.
H15	EWOM featuring high-involvement/highly conspicuous products will be perceived as more helpful than high-involvement/less conspicuous products, low-involvement/highly conspicuous products, and low-involvement/less conspicuous products.
H16	EWOM featuring high-involvement/highly conspicuous products will lead to a higher purchase intention than high-involvement/less conspicuous products, low-involvement/highly conspicuous products, and low-involvement/less conspicuous products.

Chapter 3: Research Methodology

3.1 Introduction

This research examines the effect of visual and textual features of EWOM on their perceived helpfulness and on purchase intention. The textual features examined are positive, negative or mixed messages, while the visual features examined include the person shown with the product, the product on its own or no picture. The findings will broaden knowledge on the impact of EWOM by looking at the interaction of text and visual features of EWOM messages.

The previous chapter examined current literature in traditional WOM and EWOM communication, senders and receivers of these different communication formats using different channels and responses to these messages. The present chapter discusses the methods used to test the hypotheses formulated in the previous chapter. Moreover, it justifies the research paradigm, the experimental research design, sampling methods, survey and questionnaire design. Finally, validity and ethical considerations are discussed. Figure 3.1 presents a summary of the methods used in this thesis, which are then discussed in more detail in the following sections.

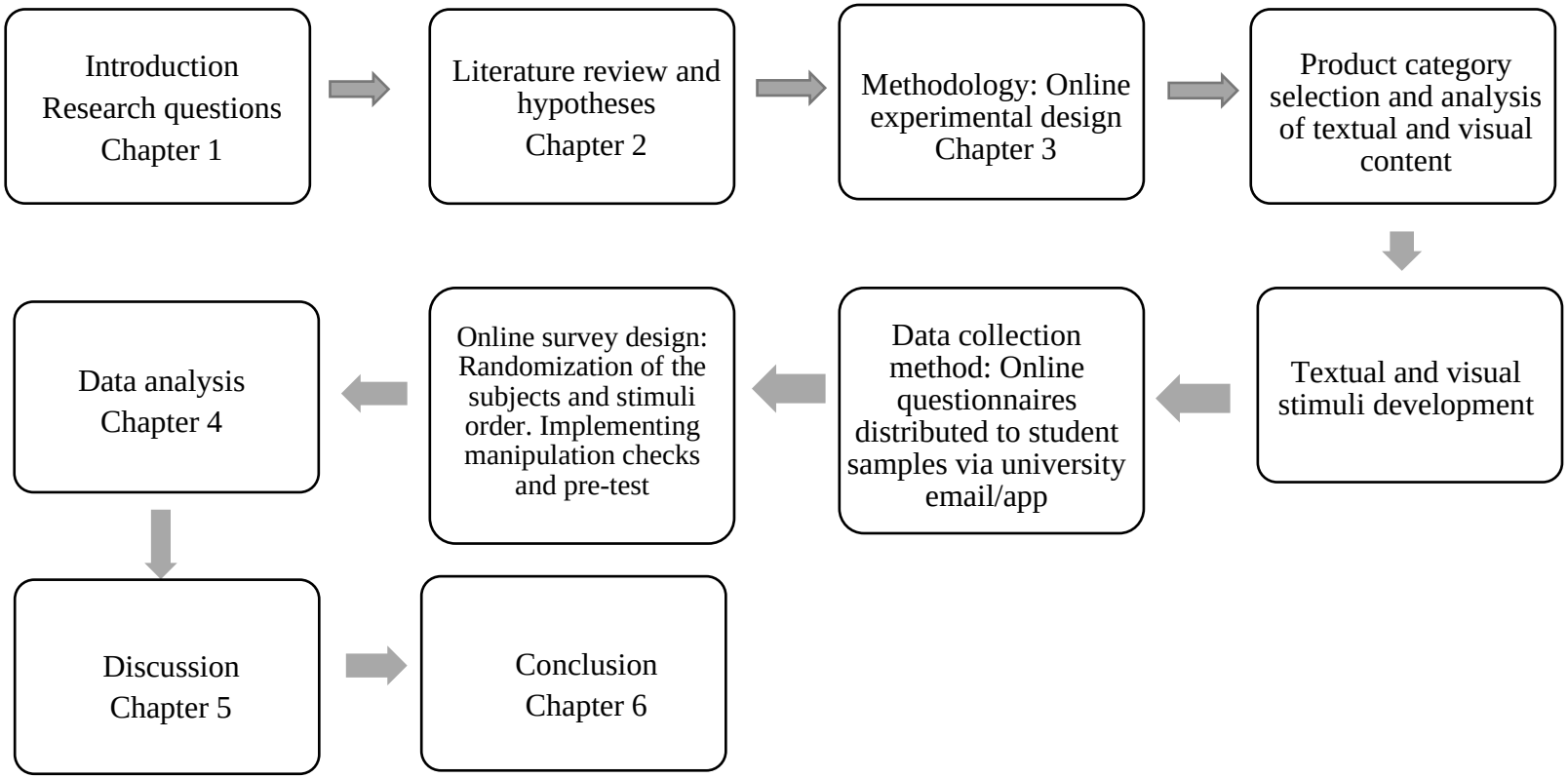

Figure 3.1. The research process. Source: adapted from Westberg (2004).

3.2 Research Paradigm

Previous sections detailed the underlying purpose and aims of the study. However, to effectively design appropriate methods, a research paradigm must also be selected (Kuhn, 2021). This is a philosophical framework that describes ways of conducting research that considers people's opinions (Collis & Hussey, 2013) as well as the research design, data collection methods, the approach for analysis and the evaluation of results (Myers & Avison, 2002). The choice of methodological approach enables the researcher to select the most appropriate method according to the individual parameters and problems being examined (Bryman, 2003; Deshpande, 1983). As a research practice is believed to be influenced by its philosophical assumptions, a methodological approach should be identified (Creswell & Creswell, 2017). The paradigms are recognised as research methodologies (Neuman, 2013). Therefore, a research paradigm allows scholars to define the problems to be examined and to determine the methods used (Bryman, 2003; Deshpande, 1983). There are two widely adopted paradigms that can be selected as a direction for research: positivism and constructivism (Creswell & Creswell, 2017).

A positivist paradigm in social science utilises deductive logic and observable data to examine and analyse human behaviour (Carson, Gilmore, Perry, & Gronhaug, 2001; Neuman, 2013). The most suitable methodology is quantitative, in which the data collected are numerical and require analysis (Creswell & Creswell, 2017). Examples include surveys and experiments. After evaluating existing research, the researcher adheres to this paradigm by testing a developed theory in an unbiased manner. This means that factual data are collected and analysed, and subjective researcher opinions are excluded (Saunders & Tosey, 2015). Being objective is an essential aspect of positivism (Creswell & Creswell, 2017). Thus, researchers maintain nominal interaction with research participants while collecting data in order for their judgements and conclusions to be independent. Positivism is related to

the deductive approach, so that observations are made according to pre-existing theory and empirically tested. Through this approach, conclusions are drawn from established evidence and therefore can be considered true (Ghauri & Grønhaug, 2010).

Conversely, researchers using constructivism rely on the participants' views of a situation, which depend on personal beliefs, and how this intersects with a given context (Carson et al., 2001; Creswell & Creswell, 2017). Qualitative methods such as in-depth interviews and observational data are favoured by constructivist researchers, and are employed to develop subjective meanings. This type of research uses an inductive approach to apply theory (Bell, Bryman, & Harley, 2018). Specifically, it establishes a general proposition reached from observations (Ghauri & Grønhaug, 2010). Perspectives that are grounded in constructivism or interpretivism seek to deeply understand the specific situation being studied, unlike positivists, who generalise findings to a whole context (Creswell & Creswell, 2017). Constructivism uses qualitative approaches to gather and understand different opinions, enabling studies to be conducted with a great level of detail and depth. Interpretations are inductively developed from patterns of meaning detected. Constructivist researchers integrate human interest into research whereby multiple perspectives of reality are captured, and understanding develops from the participants' views of a given situation (Creswell & Creswell, 2017). The main criticism of constructivism is that it is subjective in nature, as outcomes can be biased by the participants' views and researchers' interpretations, potentially undermining the findings of the research (Saunders & Tosey, 2015). Moreover, primary data collected using this method may not be generalised to other situations or cultures because of different opinions.

Table 3.1 summarises the differences between positivism and constructivism. While the positivist and constructivist approaches represent different views, each can provide

insight into society (Denzin & Lincoln, 1998). Since the current study aims to test hypotheses from past theory, the research favours the positivist paradigm.

Table 3.1

Differences between Positivism and Constructivism

	Positivism	Constructivism
Ontology (the essence of reality)	Direct awareness of the true sensation of things	Truth is something that exists in personal thoughts and cultural beliefs; thus, different individuals may have different opinions
Epistemology (what is established as acceptable knowledge)	Relies on observable scientific evidence. The researcher and the person under investigation represent different entities	Relies on experience and prior knowledge. The researcher is connected to the person under investigation
Methodology (how researchers determine what can be known)	Quantitative approach: deductive	Qualitative approach: inductive
Method (data collection technique)	Experiments and surveys	Interviews, focus groups and observations

Note: Adapted from Aljlayel (2021), M. N. Saunders and Tosey (2015), Morgan (2014), Creswell and Creswell (2017), Lincoln, Lynham and Guba (2011), and Teddlie and Tashakkori (2010).

Generally, research can also be classified as quantitative or qualitative (Onwuegbuzie & Leech, 2005). According to Bryman (2003), two views exist to distinguish quantitative from qualitative research. One view sees that quantitative and qualitative methods fall under different paradigms (either positivism or constructivism, respectively). The opposing view assumes that both quantitative and qualitative methods can be utilised with either positivism or constructivism. Therefore, the differences between quantitative and qualitative research not only lie in the method but also in the relevance to the research questions (Bryman, 2003). Further, selecting the appropriate approach depends on factors such as the purpose of the study, research questions, the existing body of knowledge and the availability of resources

(Saunders, Lewis, & Thornhill, 2009). While researchers utilising quantitative techniques collect statistical data, qualitative researchers prefer collecting data in the form of words or pictures (Neuman, 2013; Punch, 2013). As discussed previously, quantitative research attempts to verify hypotheses developed from past theory. Collecting quantitative data can be achieved with a variety of methods such as surveys and experiments. The current study chooses to employ quantitative research, as these studies are associated with the positivist paradigm.

3.3 Experimental Method

Several existing lines of research argue that no overarching method is better than another (Lee & Lings, 2008; Saunders et al., 2009). However, controlled experiments have been cited as superior for quantitative research compared with other research methods (Gill & Johnson, 2002; Lee & Lings, 2008; Saunders et al., 2009). Experimental research typically involves separating participants into distinct groups, where at least one acts as the 'control' group (i.e. unaffected by the researcher or variable of interest) and the other(s) are 'treatment' groups with one variable of interest affected.

In factorial experiments, no control group is established, but each factor acts as a control group instead (Collins, Dziak, Kugler, & Trail, 2014). Manipulating the variables of the study enables the examination of cause-and-effect relationships (Perdue & Summers, 1986). M. Saunders et al. (2009) states that experimental research is explanatory since it attempts to investigate causation between independent and dependent variables. Thus, experimental studies are a suitable method to explore causality (Haslam & McGarty, 2004; Morton & Williams, 2010). Another advantage is that experimental studies are widely implemented in several disciplines, with different subject types (Izogo, 2017).

It has also been recognised that experimental studies have limitations. These include being difficult to generalise because of lack of realism, which may only deal with subset of

the selected variables (Chambliss & Schutt, 2018). Additionally, they require in-depth ethical considerations as well as more time to design and conduct the study (Reips, 2000). Finally, experimental designs pose difficulties in controlling extraneous variables. Table 3.2 summarises the advantages and disadvantages of experiments.

Table 3.2

Advantages and Disadvantages of Experiments

Advantages	Disadvantages
1. Easy to determine causal relationships. 2. Control over variables. 3. Delivers specific results. 4. Results verifiable through repeatability. 5. Broadly implemented. 6. Results acquired from multiple experimental tests can offer generalisation.	1. Difficult to generalise. 2. Requires strong ethical consideration. 3. May yield unrealistic results. 4. Time consuming process. 5. Difficulties in controlling extraneous variables.

Note. Adapted from Chambliss and Schutt (2018), Reips (2000), M. Saunders et al. (2009).

To claim a causal relationship, several criteria must be established. The three requirements for determining this are observed association, time sequence and controlling for the third variable (Aaker, Kumar, & Day, 2001; Churchill, Brown, & Suter, 1996). The first of these suggests a correlation between the independent and the dependent variable, through which one affects the other. If a correlation between the two variables is not evident, then the causal relationship is not established (Chambliss & Schutt, 2018). The condition of time sequence requires that the cause precipitated by the independent variable must precede the assumed effect. For example, success (dependent variable) follows after working hard (independent variable). The third condition necessitates that variables, other than the

independent and dependent variables, should be controlled so that the presumed effect can be determined as being because of the correlation between the independent and dependent variables. This can also be achieved through random assignment to groups.

3.3.1 Online Experiments

The internet has become a useful source of data for research. Data collection harnessing electronic surveys was initiated during the late 1980s using email surveys (de Leeuw, Hox, & Dillman, 2008). Since then, it has become the most widely used method of collecting data (Geuens & De Pelsmacker, 2017). The current experiment was conducted online with data collected using the Qualtrics online survey platform, modelled on the study design of Powell et al. (2015). This method offers researchers advantages compared with other methods such as face-to-face and telephone interviews. One such advantage of online survey experiments is accessibility to unique populations, obtaining larger and more diverse samples, as well as minimising the cost of time required to collect data (Birnbaum, 2004; Reips, 2002). Obtaining samples with unusual characteristics (i.e. a homogeneous sample) is possible in online surveys by posing filtering questions on demographics or specific characteristics. Furthermore, conducting research using an online survey can be less expensive than other methods (Reips, 2002). Some experimental researchers are obliged to bring participants to a lab, which may raise a burden on participants (Reips, 2002). However, through online experiments, the researcher can send participants what is required through the internet, enabling ease of accessibility. Moreover, online surveys support not only ease of data entry but also its subsequent analysis (Evans & Mathur, 2005; K. B. Wright, 2005). The online environment is an appropriate medium for studying EWOM, as both are online. An online survey additionally allows the showing of visual stimuli.

Nonetheless, online survey methods also present some weaknesses such as low response rates, lack of participant experience with online environments and perceiving

surveys as junk email (Ball, 2019; Evans & Mathur, 2005). Thus, the researcher should administer follow-up emails or notifications, as well as providing participants with clear instructions in anticipation of the survey to foster greater familiarity. If email is used, it is important that the researcher cooperate with official organisations to reduce automatic filtering to junk email.

Face-to-face interviews as well as lab experiments are additional ways of collecting data. However, there are several issues that may undermine this research. In light of the presence of the interviewer when collecting data face-to-face (i.e. paper and pencil and lap), participants might answer questions differently by overemphasising their opinion (Geuens & De Pelsmacker, 2017; Jordan, Marcus, & Reeder, 1980). The existence of the interviewer may also encourage respondents to give dishonest answers (East, 2007; Geuens & De Pelsmacker, 2017; Krumpal, 2013).

Online surveys are a form of self-completion interviewing. As there is no interviewer present to check that the survey is being completed properly, internet surveys need careful design (Ball, 2019). These include making key questions compulsory and building in checks for respondent behaviour that may affect outcomes, such as for ‘speeders’ who fail to read questions properly before making a response (Bradley & Daly, 1994; Galesic & Bosnjak, 2009; Johnson, Lehmann, & Horne, 1990; Lavrakas, 2008).

Table 3.3

Strength and Weaknesses of Online Surveys

Strength	Weaknesses
1. Easy access to unique populations. 2. Quick and flexible. 3. Convenient, with low cost. 4. Ease of data entry and analysis. 5. Ease of collecting large samples. 6. Easy to follow up. 7. Participants can provide answers freely. 8. Can show visuals and videos.	1. Email may be perceived as junk. 2. Accessibility issues. 3. Low response rates. 4. Some participants may lack online experience. 5. Repeated requests to complete online surveys result in lower response rates.

Note. Adapted from K. B. Wright (2005), J. R. Evans and Mathur (2005), Morse and Graves (2009) and Ball (2019).

There are also some online survey methods for recruiting participants, such as sending a study via email containing a link to the survey site (Birnbaum, 2004). However, it is recommended that researchers seek assistance from a relevant agent to distribute surveys to avoid emails being received as ‘spam’ (Birnbaum, 2004; Hewson, Laurent, & Vogel, 1996). Qualtrics software, which was utilised in this study, is designed to avoid spam filters. Another recruitment approach is to advertise links to the study or banners on websites, as well as using online panels (Baron & Siepmann, 2000). The current research sought cooperation with a university to distribute the link to participants. This was achieved by contacting the business department in the university, in line with Jamal (2019), whose study conducted in Saudi Arabia was exclusive to females.

The researcher reached an agreement with the university to disseminate the link to its male and female students via the university’s application (app) and email. This app is compulsorily used daily by students to check their assignments as well as attend some online

lectures. Students were notified under the home page and encouraged to take part in the study; however, participation was voluntary. The notification statement was written by the researcher so that each student was notified in the same way to avoid bias. More details regarding the sample are discussed in Section 3.5.

3.4 Experimental Research Design

To test for the impact of visual and textual EWOM on helpfulness and purchase intention, an online experiment was employed. The experiment comprised the manipulation of independent variables to explore the causal relationship between factors (Cook et al., 2002; Perdue & Summers, 1986). There are two basic approaches in experimental designs: between-subjects design (referred to as independent groups) and within-subjects design (referred to as repeated measures; Heppner, Wampold, Owen, & Wang, 2015). In the between-subjects design, groups of people are randomly assigned to different conditions. In this way, the allocation allows for random distribution of participant demographic and other differences among the groups (Field & Hole, 2002). The within-subjects design is relevant when participants are allocated to multiple experimental treatments or conditions (Damico & Ball, 2019). The combination of both approaches would produce a mixed between- and within-subjects experimental design.

This research has two independent variables—visual inclusion to text and EWOM valence—with each one capturing three different conditions. The visual inclusion independent variable encompassed three possibilities: where the photo of the product was present, the photo of the product and the face of the person were present, and where there was no photo at all. The three groups for EWOM valence were positive EWOM, positive and negative EWOM and negative EWOM, in line with Park and Jeon (2018) and Pentina et al. (2018). Thus, a full factorial design was selected to test the effects resulting from EWOM forms (visual and textual) and EWOM valence (positive, negative and both). The experiment

was a 3 (visual inclusion to text: with product photo, with product and face photo, without product photo) × 3 (EWOM valence: positive, positive and negative, and negative) full factorial design. These manipulations are discussed in more detail in Sections 3.4.2.1. and 3.4.2.2. This design produced nine scenarios in total as shown in Table 3.4. The two manipulated variables acted as a between-subjects design. In the current research, the product type acted as a within-subjects design, in which all participants in each condition were exposed to four different types of products. The next section discusses the product categories, followed by stimuli development. Each participants saw four products from the conditions to which they were randomly allocated.

Table 3.4

Experimental Design

Condi-tion	EWOM valence	Visual inclusion to text	Product category	
			Conspicuous	Non-conspicuous
1	One-sided positive	Product-only photo	Earbuds Vitamin water	Electric toothbrush Vitamin supplements
2	One-sided positive	Product + person photo	Earbuds Vitamin water	Electric toothbrush Vitamin supplements
3	One-sided positive	No photo	Earbuds Vitamin water	Electric toothbrush Vitamin supplements
4	Two-sided mixed	Product-only photo	Earbuds Vitamin water	Electric toothbrush Vitamin supplements
5	Two-sided mixed	Product + person photo	Earbuds Vitamin water	Electric toothbrush Vitamin supplements

6	Two-sided mixed	No photo	Earbuds Vitamin water	Electric toothbrush Vitamin supplements
7	One-sided negative	Product-only photo	Earbuds Vitamin water	Electric toothbrush Vitamin supplements
8	One-sided negative	Product + person photo	Earbuds Vitamin water	Electric toothbrush Vitamin supplements
9	One-sided negative	No photo	Earbuds Vitamin water	Electric toothbrush Vitamin supplements

3.4.1 Product Categories

The brands used in the scenarios were fictional, because introducing known brands would complicate the scenarios by virtue of different levels of brand knowledge that participants may hold, as suggested by Geuens and De Pelsmacker (2017) and Tan, Teo, and Benbasat (2010). Each participant evaluated two categories with four products in total. The first category included two conspicuous products, in which earbuds required high involvement and vitamin water, low involvement. The second category had two non-conspicuous products in which electric toothbrush represented a high-involvement product and vitamin supplements a low-involvement product. While the product classification as conspicuous and non-conspicuous in this study was inspired by Graeff (1996), Choi et al. (2018), and Minyoung Lee et al. (2021), the classification of the level of involvement was inspired by De Pelsmacker et al. (2018). Inclusion of different product categories supports the generalisability of the results, as well as minimising specific effects of such a product. Consumer electronics are the products category for which online reviews are mostly consulted (Nielsen, 2010; as cited in De Pelsmacker, 2018). As in Hong and Pittman's

(2020) study using health products, the four products acted as a within-subjects design as each participant evaluated them separately according to each scenario. Table 3.5 details the classification of the product type. The order of presentation of products within each group was randomised to control for order effects.

Table 3.5

Classification of Products

	High involvement	Low involvement
Conspicuous	Earbuds	Vitamin water
Non-conspicuous	Electric toothbrush	Vitamin supplements

3.4.2 Stimuli Development

The stimuli of the current study incorporated textual information as well as visual information. The textual information included the product being evaluated positively, negatively or neutrally by a user stated to be a friend. For the visual information, the presentation included photos of the product, as well as the person with the product being evaluated. Both textual and visual information were in the form of tweets because Twitter enables users to post texts, photos as well as videos. Next, the textual and visual stimuli are discussed.

3.4.2.1 Textual Stimuli

Drawing on the limited guidance available in the literature (De Pelsmacker et al., 2018), a content analysis was performed to gather real-life textual EWOM information about the products from several social media platforms as well as commercial websites. These websites featured consumer evaluations of similar products to the fictional brands. The current study was able to identify the most frequently mentioned positive attributes in relation to each product class. The textual EWOM information relates to products that the person has bought for their own use. It is worth noting that because of its significant effect and biasing

impact on EWOM, this research excluded pricing attributes for each product, following the suggestion of Park and Jeon (2018). The positive EWOM information for the four products was turned into negative EWOM to generate negative information, to achieve having identical content and attributes (De Pelsmacker et al., 2018). For the two-sided EWOM, the four attributes were described as half positive and half negative for all products, demonstrating balanced evaluation.

With regards to the presentation order of the positive and negative EWOM in the two-sided tweets, there are conflicting views over positivity and negativity effects. Several authors argue that starting with negative EWOM has a stronger impact on a reader than positive EWOM, while other scholars have found that the opposite is true, with the positivity effect being more powerful. In fact, the order in which positive and negative EWOM is presented may cause different brand attitudes towards products (Park & Jeon, 2018), with primacy and recency effects producing conflicting outcomes (Kolomiiets, Dens, & De Pelsmacker, 2016; Zhou & Guo, 2017). However, a recent cross-cultural study conducted by Park and Jeon (2018) revealed that no significant difference was found in the East, although difference exists in the West. In this research, tweets were generated with an opening sentence demonstrating the evaluative orientation of the tweet, information about the product's attributes and a closing sentence (De Pelsmacker et al., 2018). The order of presentation in this study commenced with positive, then negative EWOM in all two-sided valence conditions, which are presented in Table 3.6.

Some revisions were made to flatten some strong negative expressions and balance the closing sentences of the two-sided EWOM valence. Moreover, the names of the products were added to the scripts (tweets) because some participants would not see the product photos displaying the brand names. This was to ensure that those who were randomly assigned to a condition containing only text EWOM had a chance to read the product name in

the tweet. Another issue encountered was the gender of the speaker, as this is communicated in the Arabic language (Akan, Karim, & Chowdhury, 2019). Thus, further revision was made to make the scripts relevant to both genders. For example, the sentence 'I was happy' in Arabic is articulated differently depending on gender. After consulting linguistic professors, they advised editing 'I was happy' to 'I felt happy', as it conveys no difference between males and females in the Arabic language.

Another issue related to the total word count of the textual information. This research followed the suggestions of Chevalier and Mayzlin (2006) and Purnawirawan, De Pelsmacker, and Dens (2012) in that the length of the EWOM information in tweets should be kept constant as it was found that an inconsistent length may influence readers' decisions. Thus, the current study controlled the word length of each tweet for all conditions, limiting this to 45 words in English. This word limit aligned with the commonly known Twitter word limit for each tweet, ensuring realism. However, when the translation process of the textual scenarios was performed by the translator, the Arabic word limits per tweet changed significantly. It was found that the word count in Arabic was less than in English owing to the Arabic definite article system, Arabic countable, uncountable and plural cliticisation, Arabic absent pronoun and internal voweling (El-Nashar & Mohamed, 2016). After further consultation with the linguistic professors, the word limits of the Arabic scenarios were kept to 28 for each tweet.

Table 3.6 shows scenarios for the three independent groups about the four products, paired either with photo of the product, photo of the product and person, or no photo at all. These scenarios were developed from an analysis of the content.

Table 3.6

Product Attributes–Scenarios

Product	One-sided positive EWOM
Earbuds	StormX earbud is good and has exceeded my expectation. I liked the sound quality, and I felt like they did a good job of sealing out surrounding noises. The battery life lasts a long time and perfectly fits my ears. Generally, StormX is an excellent earbud.
Vitamin water	In the past, I was not a fan of vitamin water. After I tried Foster, I became a vitamin water lover. Foster is truly tasty and comes with many good flavours, nice scent as well as being sugar-free. Try it, you will love it.
Electric toothbrush	I am really pleased with the good features my new electric toothbrush Lumen has. This toothbrush is really easy to use and has long battery life. Besides, Lumen's weight is light, and vibrations are gentle. In general, it's one of the best products I've purchased.
Vitamin supplements	I purchased Vitm to improve my vitamin D levels. I like the actual capsule size being small and easy to swallow. I liked the purity of ingredients and flavour. Vitm smells good unlike other products. I highly recommend Vitm to improve your vitamin D levels.
Product	Two-sided positive\negative EWOM
Earbud	StormX earbud is average and came as expected. Two things I liked: sound quality and very comfortable fit. Two things I disliked: its weak noise cancelation and short battery life. Overall, these are pros and cons of StormX, so you may like it or not.
Vitamin water	I was not a fan of vitamin water. After I tried Foster, here is my opinion. The good taste and sugar-free were positives. Negatives were Foster's limited flavours and its weird scent. Those were my thoughts about Foster, so you may like it or not.
Electric toothbrush	My new electric toothbrush, Lumen, is fairly practical. Lumen is lightweight and gentle vibrations were things I liked. What I disliked were the short battery life, and the difficulties dealing with it. Lumen might not be suitable for you, but overall, it is not a bad toothbrush.
Vitamin supplements	I purchased Vitm to improve my vitamin D levels. The purity of the ingredients and scent pleased me. I was disappointed with the bitter flavour and large capsule size which make it difficult to swallow. That was my experience with Vitm, so it might suit you or not.
Product	One-sided negative EWOM
Earbud	StormX earbud is terrible and was not what as expected. I found the sound quality really bad, and I felt like they did poorly sealing out surrounding noises. It was not stable while worn and battery life did not last long time. StormX is a bad earbud.

Vitamin water	I was not a fan of vitamin water. After I tried Foster, I didn't change my mind. Foster tastes bad and comes with only a few flavours. Besides, the scent is weird and the sugar is at high level. Do not try it, it's not good.
Electric toothbrush	I am disappointed with the bad features my new electric toothbrush Lumen has. It's difficult to use and has low battery life. Besides, Lumen's weight is heavier than what I thought, let alone its extreme vibrations. Overall, it's one of the worst products I've purchased.
Vitamin supplements	I purchased Vitm to improve my vitamin D levels. The actual capsule size is large and difficult to swallow. The ingredients were not pure, and the flavour is bitter with a rancid smell. Vitm is a totally bad choice, so look for other good products.

3.4.2.2 Visual Stimuli

An online content analysis was conducted to examine visual dimensions, and how consumers posted about their products. After reviewing several websites and social media platforms, the researcher located the visual dimensions as presented in Figure 3.2. These results were consistent with Hartmann et al. (2021).

Figure 3.2. Visual dimensions.

It was challenging to consider all these visual dimensions within a single study. After consulting senior academics, an initial decision was made to test images with the product only, those with multiple product photos, and where no photos were present. However, it was difficult to compare these visual dimensions. For instance, when the survey showed participants a tweet containing a product-only photo as a stimulus, the size of the single photo rendered its contents clearly visible. In contrast, the other condition showing a tweet containing multiple product photos was less clear than tweets with just one product photo. This was because of the size of the photo being larger with just the one image than it was when the tweet included multiple product photos. Therefore, the research selected the following visual dimensions: product-only photo, product with face, and no photo (text-only). To equalise its effects, product photos were neutral in all conditions (Park & Jeon, 2018).

The researcher ensured that both male and female student models were not from Riyadh city, where the study was conducted. Before selecting the male and female models photographed for the purpose of the study, the researcher listed some conditions and instructions as follows:

> Please note that there are four products you need to take a selfie with: wireless headphones, vitamin water, an electric toothbrush and multivitamins. You should take one photo for each product. For the selfie, the right hand is for holding the mobile camera and the left hand is for holding the product. Use of an iPhone 12 is required to ensure photo consistency. Good lighting and excellent image accuracy are also required. Consider an appropriate background that does not distract the viewer from the product, while using the same background for all products. All photos must be without a smile (neutral photo), and the eyes on the camera, not the screen. Show the full head with the product clearly on display and make sure that the name of the product is shown with all products. Wear the hijab in accordance with the regulations of Saudi universities, with or without formal light makeup. While photographing the wireless earbuds product, please open the headphone case to show the two headphones.

Figure 3.3. Photographs of models and products.

After taking photographs, the research team noticed that the name of the vitamin supplements, ‘Vitex’, was already traded as a well-known brand online. Thus, a differentiating and new name was needed. ‘Vitm’ was selected. Subsequently, 72 screenshot tweets were generated. All tweets are listed in Appendix 2. The tweets were shown as they were posted from a user/friend who was assumed to be followed by respondents, as suggested by Westerman, Spence and Van Der Heide (2012) and Shafir, Simonson and Tversky (1993). The pages were identical in all aspects, except for the topic, name of user and product evaluations.

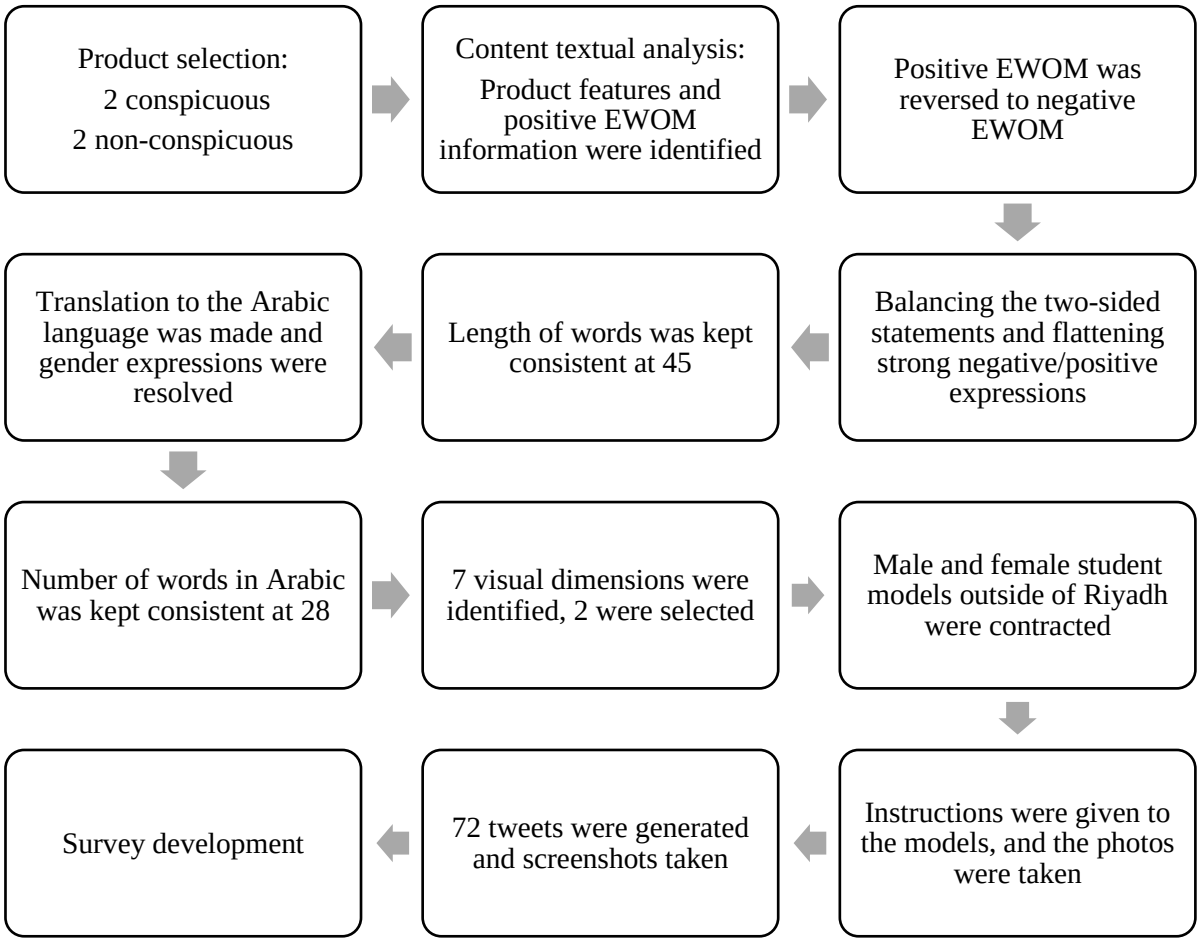

Figure 3.4. Stimuli development process. *Source: developed for this study.*

3.5 Sample

A total of 540 Saudi college students were recruited to take part in the survey. The college students recruited were undergraduates studying in two Saudi universities located in Riyadh. The researcher obtained a letter from his university in Saudi Arabia (employer) allowing him to recruit students with the support of the business department, where they cooperated in sending the survey link to the students via the university application, email and social media platforms. Several reminders were sent to students via email to encourage them to participate.

There were three groups in this experiment and each group captured three manipulations, totalling nine scenarios. The literature advises a minimum group size of 20 (Geuens & De Pelsmacker, 2017). However, the sample size also depends on the number of conditions and the moderators. As the current research consisted of nine conditions, each one needed to have 60 participants (60 × 9 = 540). The research ensured that the percentages of male and female participants were equal in each condition, with 30 males and 30 females (30 × 2 = 60) in each condition. Section 4.2 in Chapter 4 discusses replacing speeders.

3.6 Survey Distribution Process

Because the research team chose students as the sample population, it was recommended that the researcher seek assistance from a relevant agent to distribute the survey (Birnbaum, 2004; Hewson et al., 1996). After obtaining a letter from his employer, the researcher travelled to the capital city of Riyadh and sought cooperation from the two universities to distribute the link to participants. All universities agreed to facilitate the work by distributing the survey link to their business students, with several reminders until the desired sample was obtained. Additionally, it should be noted that the universities formed a scientific council and conducted ethical reviews of the research instruments before they distributed the survey to students. Although this process took time, it was mandatory according to the regulations of the Saudi universities and Victoria University.

3.6.1 Justification for Sampling Students

Samples of students have been widely utilised in the field of marketing and consumer behaviour (Ok, Shanklin, & Back, 2008). Their use in marketing research was first supported by Ferber (1977), who considered that the approach is helpful when the goal of the study is to explain a phenomenon. Further support for student sampling was given by Calder, Phillips and Tybout (1981) who argued that utilising student samples to test a theory is justified by the fact that the theory is to be generalised, not the results. Further to this, students are easily

accessed and relatively homogeneous (Peterson, 2001), which can ensure a high level of internal validity (Ashraf & Merunka, 2017) when comparing across conditions. Having similar characteristics can ensure that different participants' responses are because of the manipulation of the experiment's independent variables (Chau, 2017). In addition, students are distinguished by having strong cognitive abilities, which is mostly required in lab experiments (Jones & Sonner, 2001; Sears, 1986). Furthermore, students generally have access to the internet and are experienced in using social media platforms (Chau, 2017) like Twitter. Students are considered to be real-life consumers, and therefore have consumption experience (Collie, Sparks, & Bradley, 2000; Mattila, 2001). Finally, utilising student samples is convenient and cost-effective for researchers (Gordon, Slade, & Schmitt, 1986; Hampton, 1979).

3.7 Survey and Questionnaire Design

This section is devoted to discussing the significance of questionnaires by reviewing their effective development. Malhotra (2006) describes a questionnaire as a set of questions formed to acquire information from participants. Questionnaires facilitate collecting quantitative data consistently for analysis (Malhotra, 2006). Development of high-quality surveys stems from the ability of researchers to generate questions that participants can understand by providing them with the information needed to complete the questionnaire accordingly (Baker, 1999). There are no specific rules to follow when designing a questionnaire; however, studies have suggested principles and standards, which are discussed next (Bradburn, Sudman, & Wansink, 2004; Sudman & Bradburn, 1982).

Converse and Presser (1986) recommend utilising clear questions and simple language so that participants can easily understand the questions they are answering. The researcher is also encouraged to refrain from using general questions because of the possibility of causing response errors (Fink, 2003). Instead, questions should be specific so

that they can be directly addressed. Further to this, posing two questions in one sentence should be avoided to prevent respondent confusion (Malhotra, 2006). Fowler (2009) and Sudman and Bradburn (1982) recommend adopting questions that have been successfully utilised by relevant studies, which offers the benefit of strengthening survey validity (Malhotra, 2006). The current research takes these parameters into consideration. The following sections provide more detail on the layout and translation of questionnaires.

3.7.1 Layout of Questionnaires

Owing to the large number of stimuli, blocks, sub-blocks, branching and randomisations, building an online survey for both male and female participants was initially thought impossible. After further consultation with Qualtrics experts, they provided the researcher with a survey flow method. This technique enabled randomisation across the two gender groups and sub-groups.

This study's questionnaires used clear introductions as well as organised questions that used simple language (Sekaran & Bougie, 2016). The survey was implemented in two languages, English and Arabic, and participants were able to choose their preferred language for completing the survey. The items adopted in the questionnaire were informed by an extensive literature review. The study developed 72 tweets as stimuli, where 36 tweets represented a male model, and 36 tweets a female model. The 36 male tweets applied the nine conditions, and similarly the female tweets. Thus, the survey consisted of nine blocks for male data and nine blocks for female data. Each block included four sub-blocks representing the four products. These product sub-blocks were randomised to avoid order bias effect.

Several filtering questions were employed in the survey. Participants who were under the age of 18 were excluded, along with those who did not have a Twitter account. Response timing was embedded as a filter. While pre-test information specified that the survey could

take between 10 and 13 minutes to finish, participants who took under 8 minutes or over 18 minutes were also omitted.

This study's questionnaires contained four sections. The first consisted of statements detailing an introduction (Geuens & De Pelsmacker, 2017), capturing information about the research and seeking informed consent. In the second section, the survey began with questions relating to demographics and Twitter usage. According to their gender selection, participants were then randomly assigned to a designated block. For instance, if 'male' was selected as a choice, the survey then randomly assigned the participant to the male blocks, and vice versa for females. The third section related to stimuli exposure. Before showing the four different tweets (either with product photo, product and face photo, or no photo), respondents were instructed to imagine that a friend they followed on Twitter had posted a tweet about the four products. All product names were fictitious to avoid potential confusion. In the stimuli (i.e. tweet), several factors were held constant across conditions, except for the name of the user. After the survey randomly presented four tweets, participants answered questions related to the dependent variables and control variables. The fourth section consisted of questions about participants' usage of each product; the manipulation checks on the independent variable as suggested by Geuens and De Pelsmacker (2017) and quality control questions detailed under 'Validity' (Section 3.10).

3.7.2 Translation of the Questionnaire

As the main language used in this study was English, the questionnaire was designed in English. It was also necessary to translate the questionnaire from English to Arabic because the main language of the participants in the sample was Arabic. However, the questionnaire was offered in both languages: Arabic and English. It is worth noting that the questionnaire utilised a number of translation objectives as well as certain procedures. McKay et al. (1996) explain several approaches for the translation of surveys into different

languages: literal translation, conceptual translation and cultural equivalent translation. Literal translation is a direct translation through which each word is translated separately, irrespective of whether this accurately reflects the meaning of the original text. A drawback of adopting this translation technique is that can miss conveying the original style, thereby posing a threat to the validity of the translation (Arffman, 2012). The second technique is the conceptual translation which reflects the meaning of the original text, but does not necessarily match words like for like between languages (McKay et al., 1996). The cultural equivalent translation aims to integrate behavioural and social norms. This technique provides readers with ideas that they are familiar with (Baker, 2018).

Several ways of testing the validity of survey translation approaches or methods have been described in the literature. These are back translation, decentring, direct or one-for-one and committee and modified committee (Brislin, 1970; McKay et al., 1996; Sechrest, Fay, & Zaidi, 1972). The commonly employed back translation method includes translating a text back into the original language after it has been translated, as a means of assessing the translated text (Harkness & Schoua-Glusberg, 1998). Through this procedure, the survey is translated first by a certain bilingual individual, then translated back into the source language by a different bilingual individual (Bernard, 2013). This produces two questionnaire forms, and both are processed for comparison. Ultimately, the translated questionnaires must be consistent to ensure that participants can precisely understand the meaning.

The current research used the conceptual translation approach as the translation technique so that the meaning of the questionnaire was paralleled. Using this method, back translation was selected to ensure identical forms in both Arabic and English languages. To ensure a high quality of the translation, a certified firm was hired to process the questionnaire translation from English to Arabic. The survey was then translated to English by a separate professional translator to check the accuracy. It was the responsibility of the researcher to

work with the professional translator to detect any grammatical issues. Both the English version as well as the back translated survey were processed for comparison through different English-speaking professionals to verify that the intent of questions was correctly captured. Figure 3.5 summarises the survey development process.

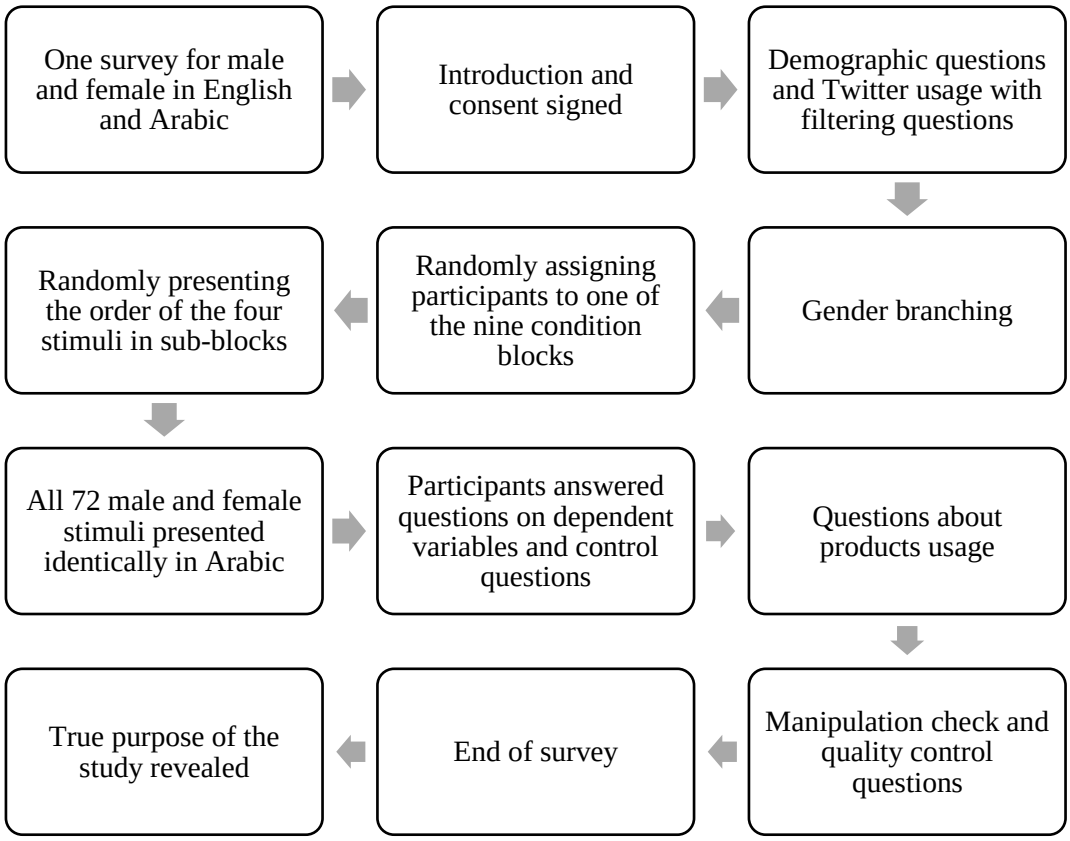

Figure 3.5. Survey development process. *Source: developed for this study.*

3.7.3 Scales

The current study attempted to reduce possible errors by adapting existing questions developed by relevant studies (Fink, 2003; Fowler, 2009). The use of existing question items was suggested, especially for measuring significant variables in a study (Punch, 2013). The selection of the study's variables was based on several factors. First, both the independent (valence/sidedness and visual inclusion) and the dependent variables (helpfulness and purchase intention) were determined with reference to the purpose of the study. Second, the variables selected were previously measured and tested for reliability, thus achieving higher

than the minimum reliability score of 0.70 (Burns & Bush, 2000). This ensured that the overall consistency of the study's measures was reliable and free from random error (Hoyle, Harris, & Judd, 2002). Cronbach's coefficient alpha is a benchmark by which internal consistency is measured (Hoyle et al., 2002). The reliability coefficient alpha scores and questionnaire tables are indicated in Appendix 1.

3.7.3.1 Helpfulness

Jiang and Benbasat (2007) measured helpfulness using a 7-point Likert scale. Similarly, the current study measured helpfulness using a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree) to be consistent with the established valid scales. There were three question items as follows: 'The information provided in the tweet was helpful for me to evaluate the product', 'The information provided in the tweet was helpful in familiarising me with the product', and 'The information provided in the tweet was helpful for me to understand the performance of the product'. It is worth noting that the word 'product' was modified to fit the product type: earbuds, vitamin water, toothbrush or vitamin supplements. For example, a statement would present as 'The information provided in the tweet was helpful for me to evaluate the toothbrush'. Moreover, the word 'online review' was modified to 'the tweet' to fit the context of the current research.

3.7.3.2 Purchase Intention

Similarly to helpfulness, the variable of purchase intention was measured using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). There were four question items as follows: 'I would consider purchasing this product', 'I intend to try this product', 'I plan on buying this product' and 'I am interested in testing this product'. The word 'product' was modified to fit the product type: earbuds, vitamin water, toothbrush or vitamin supplements. For instance, a statement presented as 'I would consider purchasing these earbuds'. This scale was also adopted from validated studies (Barber, Kuo, Bishop, & Goodman, 2012). The

Cronbach's alpha coefficient for both scales were greater than .70, achieving the minimum number recommended (Nunnally, 1978).

3.8 Manipulation Checks

Further, the study employed manipulation checks to certify the success of the manipulation. To do so, an analysis of the manipulation checks was performed in the main study. This was related to the one-sided positive, two-sided positive/negative and one-sided negative EWOM to examine whether differences between groups were evident. Participants in each group were asked questions about sidedness to confirm the success of the manipulations. Participants in each group were asked to indicate whether the tweets written by the user identified only pros, only cons or both pros and cons regarding the four products. The statements used were 'The tweet includes both pros and cons of the discussed product', 'The tweet includes only positive aspects of the product', and 'The tweet includes only negative aspects of the product'. The responses were measured on a 5-point Likert scale. Wording modifications to the questions were required to fit the context of the study as they were adopted from another study (Cheung, Luo, Sia, & Chen, 2009). The results of the manipulation check can be found in the next chapter.

3.9 Pre-test

Pre-testing a questionnaire is vital to ensure its content validity. Content validity is the subjective judgement made by professional experts regarding questionnaire design and its suitability (Kinnear & Taylor, 1996). The current study followed this approach in line with Aljlayel (2021) and Albihany (2019), who tested the nuances of the Arabic and English languages as well as the quality of the translation. Therefore, the questionnaire was pre-tested with five academics in Business and Linguistics as well as 20 Arabic and English-speaking PhD candidates in Saudi Arabia, UK, USA and Australia. The test assisted in identifying

ambiguity in the questionnaire as well as identifying misspelled words and sentences (Reynolds & Diamantopoulos, 1998).

Participants were directed to test the questionnaires. They evaluated the questions for clarity, as well as the design and structure of the survey. Pre-testing provided the researcher with the benefit of confirming the phrasing in addition to identifying difficulties in understanding the questionnaires and their wording. This process was essential to revise items that could have been misinterpreted by participants. Hence, the feedback provided by respondents focused on improving the questionnaire. Minor changes were subsequently made to the wording for increasing the clarity of questions. This process ensured that the respondents fully understood the questions. Table 3.7 shows the particular amendments that were made.

Table 3.7

Questionnaire Amendments

Original text	Revisions
دور وسائل التواصل الاجتماعي في التأثير على نية ' شراء المستهلك: حالة المملكة العربية السعودية' 'The Role of User-Generated Content in Social Media on Consumers' Purchase Intention: The Case of Saudi Arabia'.	دور وسائل التواصل الاجتماعي في التأثير على نية ' شراء المستهلك في المملكة العربية السعودية' 'The Case of Saudi Arabia' was amended to 'in Saudi Arabia', only in Arabic language.
لن تحتوي البيانات التي يتم جمعها على أي معلومات شخصية قد تحدد هويتك The data collected will not contain any personal information that may identify the participants.	علماً بأن البيانات التي يتم جمعها لن تحتوي على أي معلومات شخصية قد تحدد هويتك Add 'knowing that' in Arabic at the beginning of the sentence.
عند النقر على"أوافق" فإنك تؤكد على أنك: • قرأت المعلومات الواردة أعلاه، • موافق على المشاركة بمحض إرادتك، • تبلغ من العمر ١٨ عاماً فأكثر، Electronic consent: Please select your choice below. Clicking on the 'Agree' button indicates that • You have read the above information, • You voluntarily agree to participate,	النقر على زر"موافق" يشير إلى أنك: • قرأت المعلومات الواردة أعلاه، • توافق طواعية على المشاركة • تبلغ من العمر ١٨ عاماً فأكثر، Change some words in Arabic to make them clearer.

• You are 18 years of age or older,	
استفدت من المعلومات الواردة في التغريدة لتقييم هذه المياه بالفيتامين The information provided in the tweet was helpful for me to evaluate this vitamin water.	استفدت من المعلومات الواردة في التغريدة لتقييم هذا الماء بالفيتامين 'Vitamin water' in Arabic was previously plural but was changed to singular because it is mainly uncountable.
قرار اختيار السماعات اللاسلكية مهم Choosing earbuds is an important decision.	قرار اختيار منتج سماعات لاسلكية عموماً مهم The earbuds in Arabic were introduced as a definite word and changed to an indefinite to include any earbuds. Plus, the words 'a product' and 'generally' were added to emphasise that the product was indefinite (e.g., without 'the').
قرار اختيار مياه الفيتامين مهم Choosing a vitamin water is an important decision.	قرار اختيار منتج ماء فيتامين عموماً مهم The vitamin water in Arabic was introduced as a definite word (i.e. 'the') and changed to an indefinite (i.e. 'a') to include any vitamin water. Plus, the words 'a product' and 'generally' were added to emphasise that the product was indefinite.
قرار اختيار الفيتامينات التكميلية مهم Choosing vitamin supplements is an important decision.	قرار اختيار منتج فيتامينات تكميلية عموماً مهم The vitamin supplements in Arabic were introduced as a definite word (i.e. 'the') and changed to an indefinite (i.e. 'a') to include any vitamin supplements. Plus, the words 'a product' and 'generally' were added to emphasise that the product is indefinite.
قرار اختيار الفرشاة الكهربائية للأسنان مهم Choosing an electric toothbrush is an important decision.	قرار اختيار منتج فرشاة أسنان كهربائية عموماً مهم The electric toothbrush in Arabic was introduced as a definite word (i.e. 'the') and changed to an indefinite (i.e. 'a') to include any electric tooth brush. Plus, the words 'a product' and 'generally' were added to emphasise that the product was indefinite.
يتطلب قرار اختيار السماعات اللاسلكية الكثير من التفكير Choosing earbuds is a decision that requires a lot of thought.	يتطلب قرار اختيار منتج سماعات لاسلكية عموماً الكثير من التفكير The earbuds in Arabic were introduced as a definite word and changed to an indefinite to include any earbuds. Plus, the words 'a product' and 'generally' were added to emphasise that the product is indefinite.
يتطلب قرار اختيار مياه الفيتامين الكثير من التفكير Choosing a vitamin water is a decision that requires a lot of thought.	يتطلب قرار اختيار منتج ماء فيتامين عموماً الكثير من التفكير The vitamin water in Arabic was introduced as a definite word (i.e. 'the') and changed to

	an indefinite (i.e. ‘a’) to include any vitamin water. Plus, the words ‘a product’ and ‘generally’ were added to emphasise that the product was indefinite.
يتطلب قرار اختيار الفرشاة الكهربائية للأسنان الكثير من التفكير Choosing an electric toothbrush is a decision that requires a lot of thought.	يتطلب قرار اختيار منتج فرشاة أسنان كهربائية عموماً الكثير من التفكير The electric toothbrush in Arabic was introduced as a definite word (i.e. ‘the’) and changed to an indefinite (i.e. ‘a’) to include any electric tooth brush. Plus, the words ‘a product’ and ‘generally’ were added to emphasise that the product was indefinite.
يتطلب قرار اختيار الفيتامينات التكميلية الكثير من التفكير Choosing vitamin supplements is a decision that requires a lot of thought.	يتطلب قرار اختيار منتج فيتامينات متعددة عموماً الكثير من التفكير The vitamin supplements in Arabic were introduced as a definite word (i.e. ‘the’) and changed to an indefinite (i.e. ‘a’) to include any vitamin supplements. Plus, the words ‘a product’ and ‘generally’ were added to emphasise that the product was indefinite.
ًأبدا Never	ًلا أستخدمها أبدا The word ‘Never’ was changed to ‘I never use it’ for more clarity.
شكراً لك على المشاركة في هذه الدراسة لغرض من هذه الدراسة هو اختبار العلاقة بين المعلومات المرئية والنصية- المتعلقة بالمنتج, والمساعدة, ونية الشراء. Thank you for taking part in this study The purpose of this research is to examine the relationship between product-related information (visual and textual), helpfulness and purchase intention.	شكراً لك على المشاركة في هذه الدراسة لغرض من هذه الدراسة هو اختبار دور المعلومات – المرئية والنصية- المتعلقة بالمنتج في نية الشراء. Thank you for taking part in this study The purpose of this research is to examine the role of product-related information (visual and textual) on consumers’ purchase intention.

Note. Amendments were in the Arabic language only, except for the end note of the survey.

3.10 Validity

Internal and external validity are two forms of experimental validity. Internal validity refers to whether the experimental conditions make changes to the dependent variables of the study, without any interaction with extraneous variables (Babbie, 2001; Hoyle et al., 2002; Punch, 2013). External validity is concerned with the generalisability of outcomes to other settings (Heppner et al., 2015). Several factors can threaten the internal validity of

experiment studies. These factors are related to the experimenter, participants, as well as the environment where the experiment is being conducted (Morse & Graves, 2009). Such factors can affect primarily the relationship between variables of the study.

Morse and Graves (2009) explain three possible threats to validity caused by participants' expectations, reactions and evaluation apprehension. Participant expectancy occurs when a participant attempts to perform as the experimenter expects (Morse & Graves, 2009). However, this bias can be eliminated if the research is well designed. Participants' reactions refer to being unhelpful and purposely acting against the research hypotheses, aiming to establish autonomy (Brehm, 1966; Morse & Graves, 2009). The last potential risk to validity that participants pose is evaluation apprehension. This means that participants provide an answer that they do not genuinely believe to be true, seeking to align with the majority of the group. Morse and Graves (2009) recommend that researchers should ensure participant anonymity so that they can freely provide answers. An online survey was suitable for this study for this reason.

Other factors also threaten internal validity, such as the impact of history, subject maturation, experimental mortality (attrition), selection bias, rivalry between groups, testing and instrumentation (Damico & Ball, 2019; Morse & Graves, 2009). As regards history, random assignments can minimise the effect of events occurring during the short time of the treatment (Damico & Ball, 2019). It has been suggested that utilising at least two groups in experiments is the primary solution to control for history in that any events that might occur affect all groups equally (Heppner et al., 2015). Maturation, in which participants may experience changes over time, was eliminated by changing the order of conditions in within-subjects design related (rotating the presentation of product types).

Experimental mortality or attrition refers to participant withdrawal from the survey. This may be an issue for heterogeneous samples, but it is less problematic for homogeneous

samples (Heppner et al., 2015; Morse & Graves, 2009). Selection bias can be solved by assigning students randomly to each condition. Rivalry between groups is the extent to which participants in a control group attempt to outperform other groups, indicating less difference between all groups (Morse & Graves, 2009). Jewell (2014) proposed several methods to avoid compensatory rivalry such as keeping subjects separated, masking or providing clear instruction to participants about the significance of not changing the answers. Further to this, the researcher ensured random assignment of students from different classes to prevent communication between each other. Additionally, well-defined instructions were provided and the software prevented participants from going back to change answers from different pages. Moreover, the nature of the study was online so that students were able to participate outside the campus.

Testing refers to changes in results because of participating twice (Morse & Graves, 2009). However, using control groups and randomising product order in the current research could minimise the testing threat (Heppner et al., 2015). In addition, Qualtrics software can detect duplicates and prevent multiple submissions. This was implemented in the current study by installing a cookie on participants' browser when they submitted an answer. Moreover, the current study managed this by ensuring that those who participated in the pre-test were different from those who took part in the main study. Changes in the instrumentation or procedure during the study can also be a threat to the internal validity. While this online experiment was underway, the researcher avoided making any changes to ensure validity (Damico & Ball, 2019).

Although it is difficult to establish validity with total assurance, this research formed validity estimations through which it ruled out identified risks. Data collected from inattentive participants can pose a risk to the internal validity of the results. This research implemented a number of controls to discard careless respondents. For example, the

questionnaire software (Qualtrics) enabled establishing predetermined duration times for exposure to the stimuli, thus ensuring that the manipulations lasted for a sufficient period to influence the dependent variables (Geuens & De Pelsmacker, 2017). Respondents who took a break between watching stimuli and answering dependent variables were excluded as the effect of stimuli may have lapsed. This measure, too, strengthened the internal validity of the results (Geuens & De Pelsmacker, 2017). To address this last concern, participants were asked 'Did you take a break after watching the tweet?'. The research also employed a mechanism through which the survey calculated the amount of time spent on each page as well as on completing the full survey. This was in line with Deetlefs, Chylinski, and Ortmann (2015), who excluded participants answering survey questionnaires faster than a predetermined time. This enabled the researcher to exclude speeders, and those at the other end of the spectrum who spent lots of time reading the questionnaires (Meade & Craig, 2012). Another step to validate the results of the study was that participants were asked 'How conscientious were you when you answered the questions?'. This assisted the researcher in identifying those who were not thoughtful while answering, thus excluding them from the analysis (Geuens & De Pelsmacker, 2017).

External validity is related to the generalisability of results to other contexts. Studies involving experiments tend to have a higher risk of being externally invalid, especially laboratory experiments (Reips, 2000). Moreover, experiments may fail to be replicated because of some factors, such as differences in participants and extraneous variables (Frässle, Sommer, Jansen, Naber, & Einhäuser, 2014). However, many participants in online experiments are familiar with computers and mobile phones so that they could take part whether at home or a different place. Although online experiments are better than lab experiments with regard to control over external validity, the sample of the current study was limited to students. Nonetheless, the current study used two product categories with four

products in total, aiming to achieve generalisation. In fact, repeated studies can be vital to assess the reliability and validity of findings (Reips, 2000).

3.11 Ethical Considerations

Strong ethical practices must be followed by researchers so that data collected and findings reported are unbiased. At Victoria University, Ethical Approval must be secured before the data collection process begins. The present study followed the guidelines specified by Victoria University Human Research Ethics Committee to ensure confidentiality, voluntary participation, data storage and security. The Ethics Application was approved by the Committee with the ID number: HRE21-155.

According to Anderson and Schonfeld (2014), informed consent is a procedure in which a researcher asks a participant to give permission before participating in a study. However, full informed consent slightly contradicts the principle of hiding the true purpose of the experiment (Geuens & De Pelsmacker, 2017). Hence, an appropriate solution suggested by Geuens and De Pelsmacker is to obtain partly informed consent from participants, and to explain to them that a debrief would be given at the end of the survey and the true purpose explained.

In line with this recommendation, the participants of the current study were not clearly informed about the true purpose of the study. They were told simply that the purpose of the study was to evaluate product-related information on social media. The identity of the research team was also provided. Participants were given the option to either refuse or take part in the survey as it was completely voluntary. Participants agreed to participate in the questionnaire after having been given the opportunity to read the plain language statement about the purpose, which was approved by the Victoria University Ethics Committee. The researcher ensured that at the conclusion, the true propose of the study was fully explained to

participants. This information also included the risks and benefits that may have been involved. It is worth noting that there were no risks involved.

3.12 Chapter Summary

This chapter addressed the methods used to test the hypotheses. Additionally, it provided explanation of the research paradigm, experimental research design, sample techniques, survey and questionnaire design. Finally, validity and ethical issues were explored. The next chapter will provide analysi

Chapter 4: Data Analysis

4.1 Introduction

Chapter 3 presented the experiment's design and the sampling. It also discussed pre-testing the survey, validity and several ethical considerations when conducting studies involving experiments. This chapter starts with a discussion about the data screening and the assumptions of analysis of variance (ANOVA). It then presents the sample profile and demographics, followed by the manipulation check. Finally, this chapter presents the hypotheses, testing results.

The following questions were posed to achieve the objective of the research:

- RQ1: To what extent does the interrelationship between EWOM type and visual format, when considering gender, affect (1) helpfulness and (2) purchase intention?
- RQ2: Which visual format has greatest impact on (1) EWOM perceived helpfulness and on (2) purchase intention: the image of the product only, the image of the product with the person shown, or text only (no image)?
- RQ3: Which EWOM type (valence) has greatest impact on (1) EWOM perceived helpfulness and on (2) purchase intention: positive EWOM, mixed EWOM or negative EWOM?
- RQ4: How do consumers rate the helpfulness and their purchase intention according to the levels of involvement and conspicuousness of the four products?

A three-way ANOVA was employed to test seven hypotheses for each dependent variable (helpfulness and purchase intention $2 \times 7 = 14$ hypotheses). In Chapter 5, the findings of the research are discussed in relation to the literature.

4.2 Data Screening

Examining the data is a crucial initial step before starting the analysis. Using the Qualtrics tool, 1,146 responses were received from undergraduate business students. There were 508 cases that were removed from the analysis owing to participants who left the survey before its completion and speeding respondents who gave identical answers to all items (1146 − 508 = 638). To ensure a balanced sample in each group, 540 complete cases were selected from 638 cases. Having equal sample size greater than 30 across all conditions would establish partial homogeneity of variance (Fidell & Tabachnick, 2003).

4.3 Demographic Profile

This section describes the demographic profile of participants and their usage of Twitter and the four products.

4.3.1 Participants

The data were gathered from 540 undergraduate business students at two sizeable public universities in Riyadh, as was indicated in Chapter 3. The students responded to the email sent by their university and accepted the invitation to take part in this study. The sample size for each group is shown in Table 4.1.

Table 4.1

Sample Size

EWOM type	Visual dimension	Gender	Cases
Positive EWOM	Product-only image	Male	30
		Female	30
	Product with face image	Male	30
		Female	30
	Text-only	Male	30
		Female	30
Mixed EWOM	Product-only image	Male	30
		Female	30
	Product with face image	Male	30
		Female	30
	Text-only	Male	30
		Female	30
Negative EWOM	Product-only image	Male	30
		Female	30
	Product with face image	Male	30
		Female	30
	Text-only	Male	30
		Female	30
Total			540

Table 4.1 shows that each group had an equal gender distribution of 50% males and 50% females. There was only one age category since the sample size targeted undergraduate students, who ranged between 18 and 30. Consequently, the sample size for each group was equal.

4.3.2 Twitter Usage

After participants were directed to their gender block in the survey, they were asked other questions on how frequently they visited their Twitter account. Figure 4.1 shows that over 65% of the participants said they visited Twitter more than once every day. About 13%

of people indicated that they checked their Twitter account once every day. About 2% of the participants said they visit Twitter once a month or less. According to the research, both male and female students frequently check Twitter. Thus, Twitter was a suitable social media environment in which to conduct the experiment.

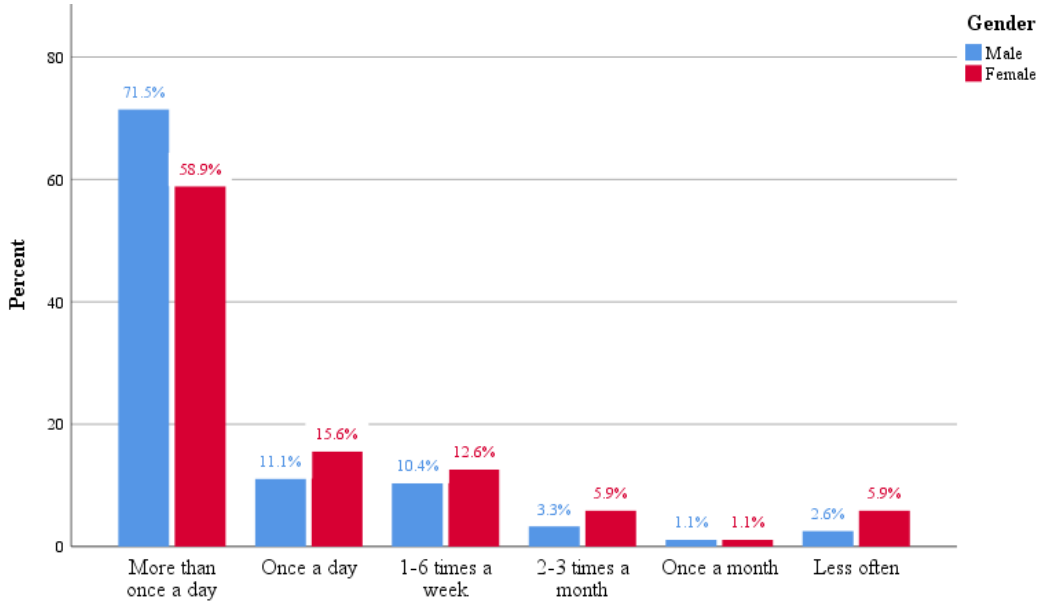

Figure 4.1. Twitter usage.

4.3.3 Products Usage

At the end of the survey, respondents were asked how often they use the products they evaluated (earbuds, electric toothbrush, vitamin water and multivitamins). Sections 4.3.3.1–4.3.3.4 discuss each product.

4.3.3.1 Earbud Usage

The earbuds represented a high-involvement and conspicuous product. Figure 4.2 indicates that a significant proportion of participants (38%) used earbuds more than once a day, as opposed to those who used them once a month (3%). The findings suggested that earbuds are often used among male and female students and were thus a suitable product type to include.

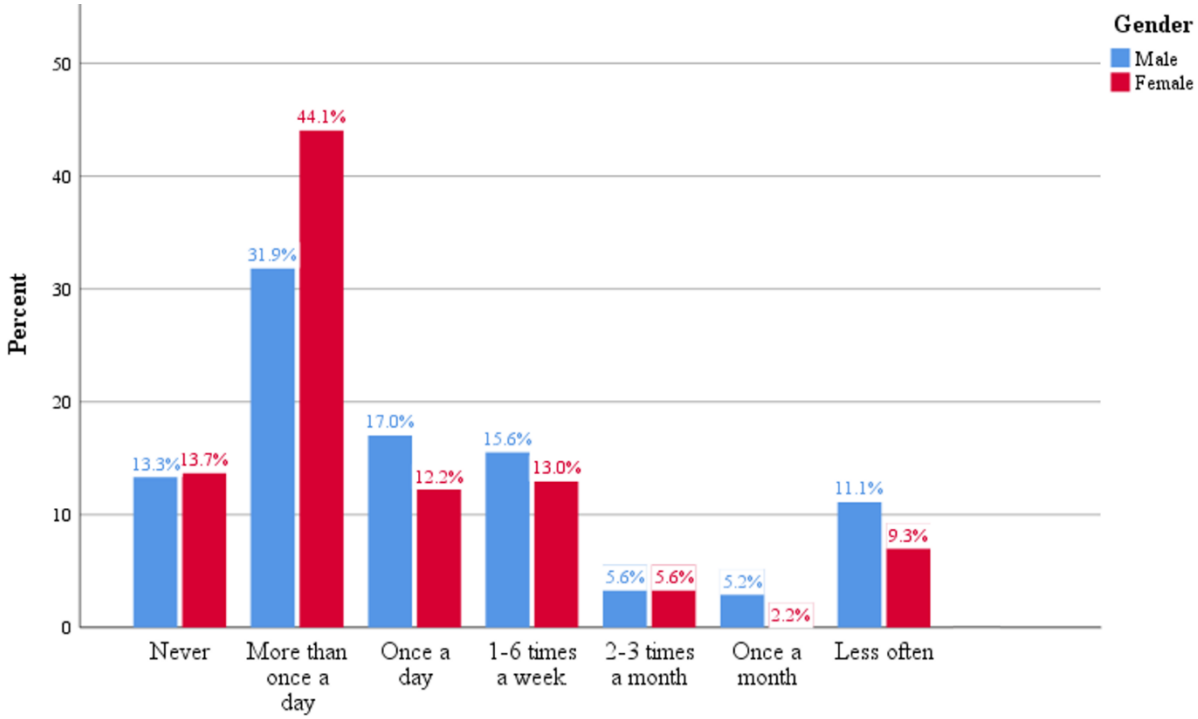

Figure 4.2. Earbuds usage.

4.3.3.2 Electric Toothbrush Usage

The electric toothbrush represented a high-involvement and non-conspicuous product. Figure 4.3 indicated that 55% of male and female students never used an electric toothbrush. However, approximately 18% of participants indicated that they used the product more than once a day, and about 9% specified that they used it only once a day. The outcome indicated that about a fifth of the population used electric toothbrushes more than once a day.

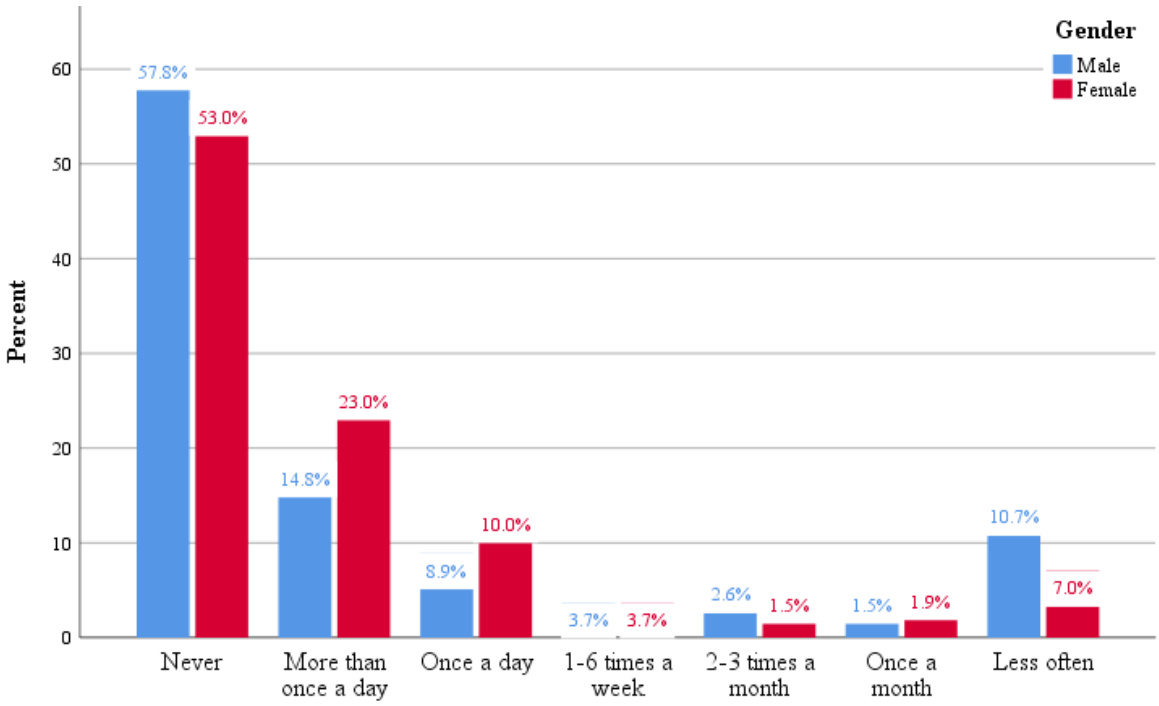

Figure 4.3. Electric toothbrush usage.

4.3.3.3 Vitamin Water Usage

The vitamin water product signified a low-involvement and conspicuous product. According to the results, 74% of the participants indicated that they never used this product, as shown in Figure 4.4. In total, 9% said they consumed vitamin water at least once a month.

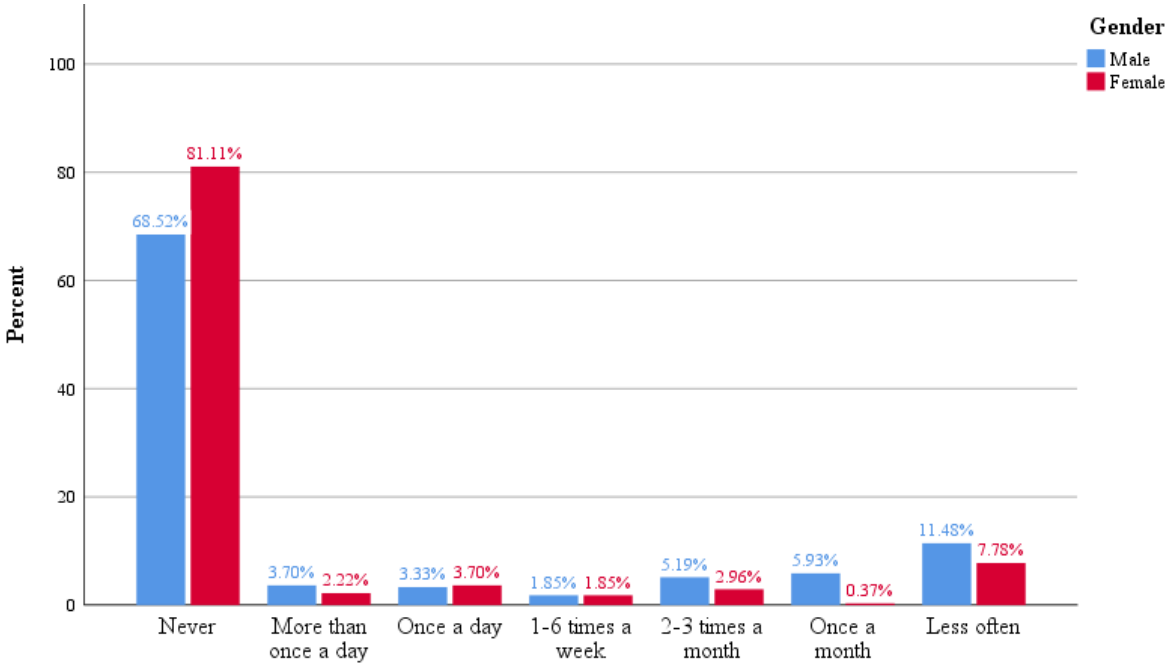

Figure 4.4. Vitamin water usage.

4.3.3.4 Multivitamins Usage

The multivitamin indicated a low-involvement and non-conspicuous product. According to Figure 4.5, about 30% of the participants revealed that they never used multivitamins. At the same time, about 20% of male and female students used multivitamins less than once a month. As overall, multivitamins were often used by many of the students, selecting this product was appropriate.

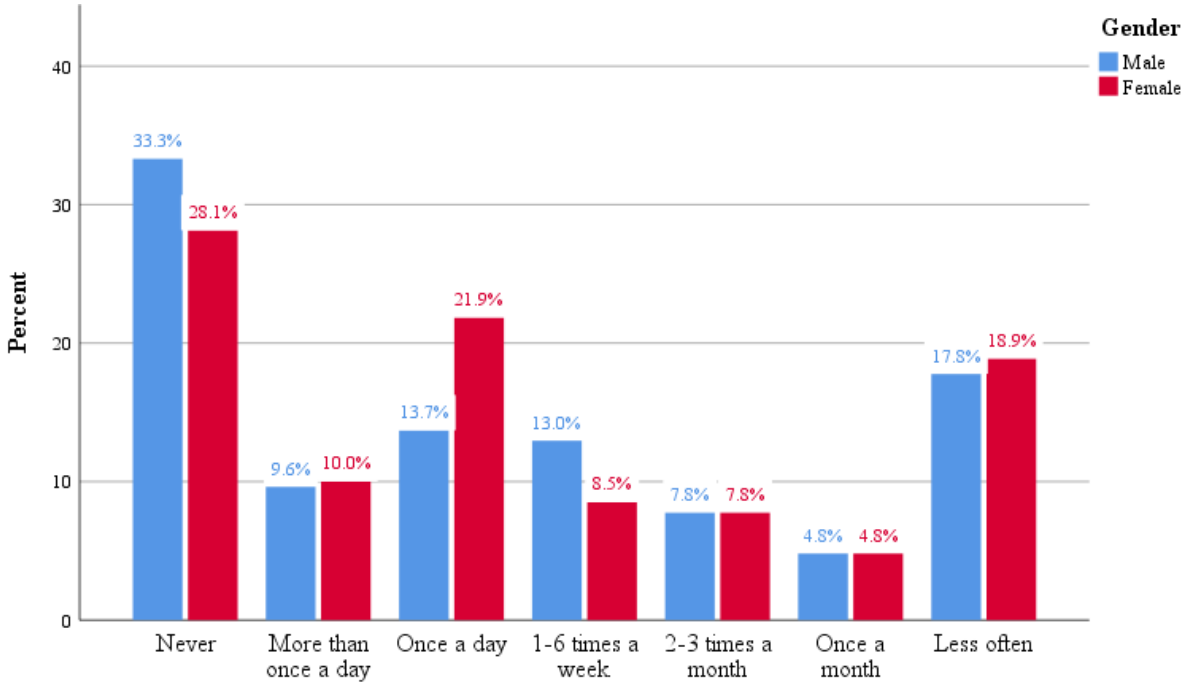

Figure 4.5. Multivitamins usage.

4.4 Manipulation Checks

Three manipulation checks were performed to determine whether the experimental manipulations were successful. For positive EWOM manipulation, participants were asked whether the tweet had positive aspects relating to the product and were required to disagree or agree on a 5-point Likert scale. For the mixed EWOM manipulation, participants were asked if the tweet contained comments both in favour and against the product on a 5-point Likert scale that ranged from strongly disagree to strongly agree. For the negative EWOM manipulation, participants were asked to disagree or agree on a 5-point Likert scale with the statement that the tweet contained exclusively negative features of the product. Table 4.2 shows the differences in means of the three manipulations.

Table 4.2

Manipulation Checks Statistics

	Descriptive Statistics				*F value*	*P value*
	EWOM_ type	*N*	*Mean*	*SD*		
The tweet includes only positive aspects of the products	Positive EWOM	180	4.33	.939	504.081	<.001
	Mixed EWOM	180	1.93	.865		
	Negative EWOM	180	1.54	.899		
	Total	540	2.60	1.526		
The tweet includes both pros and cons of the discussed products	Positive EWOM	180	2.18	1.197	121.616	<.001
	Mixed EWOM	180	3.71	.930		
	Negative EWOM	180	2.03	1.241		
	Total	540	2.64	1.361		
The tweet includes only negative aspects of the products	Positive EWOM	180	1.58	.909	488.542	<.001
	Mixed EWOM	180	1.89	.815		
	Negative EWOM	180	4.36	1.034		
	Total	540	2.61	1.548		

All manipulation checks were tested by using one-way ANOVA, following J. Hoewe (2015, 2017). In the first question related to the positive EWOM, ‘The tweet includes only positive aspects of the products’, significant differences were found among the three groups of EWOM (F = 504.081; p < .001): positive EWOM (M = 4.33, SD = .939), mixed EWOM (M = 1.93, SD = .865) and negative EWOM (M = 1.54, SD = .899). Therefore, it is acceptable to assume that the first manipulation was successful. For results of the second question, ‘The tweet includes both pros and cons of the discussed products’, significant difference was

found among the three cells of EWOMs (F = 121.616; p < .001): positive EWOM (M = 2.18, SD = 1.197), mixed EWOM (M = 3.71, SD = .930) and negative EWOM (M = 2.03, SD = 1.241). Thus, the second manipulation was successful. In the last question about negative EWOM, 'The tweet includes only negative aspects of the products', significant difference was found among the three conditions of EWOMs (F = 488.542; p <. 001): positive EWOM (M = 1.85, SD = .909), mixed EWOM (M = 1.89, SD = .815) and negative EWOM (M = 4.36, SD = 1.034). Consequently, the third manipulation was also successful. Table 4.3 presents the multiple comparisons among the three groups.

Table 4.3

Manipulation Checks Statistics

Multiple comparisons					
Tukey HSD					
Dependent variable	(I) EWOM_type	(J) EWOM_type	Mean difference (I-J)	*SE*	Sig.
The tweet includes only positive aspects of the products	Positive EWOM	Mixed EWOM	2.40*	.095	<.001
		Negative EWOM	2.78*	.095	<.001
	Mixed EWOM	Positive EWOM	-2.40*	.095	<.001
		Negative EWOM	.38*	.095	<.001
	Negative EWOM	Positive EWOM	−2.78*	.095	<.001
		Mixed EWOM	−.38*	.095	<.001
The tweet includes both pros and cons of the discussed products	Positive EWOM	Mixed EWOM	−1.53*	.119	<.001
		Negative EWOM	.14	.119	.447
	Mixed EWOM	Positive EWOM	1.53*	.119	<.001

		Negative EWOM	1.68*	.119	<.001
	Negative EWOM	Positive EWOM	−.14	.119	.447
		Mixed EWOM	−1.68*	.119	<.001
The tweet includes only negative aspects of the products	Positive EWOM	Mixed EWOM	−.31*	.097	<.001
		Negative EWOM	-2.78*	.097	<.001
	Mixed EWOM	Positive EWOM	.31*	.097	.004
		Negative EWOM	-2.47*	.097	<.001
	Negative EWOM	Positive EWOM	2.78*	.097	<.001
		Mixed EWOM	2.47*	.097	<.001

4.5 Assumptions of ANOVA

Before testing the hypotheses of the study implementing ANOVA, the data must be further evaluated to ensure that they meet the assumptions on which the tests are dependent. The assumptions are the groups must be independent, the variances should be equal for each group, there should be no outliers and the dependent variable should be normally distributed (Hair, Black, Babin, Anderson, & Tatham, 2019).

4.5.1 Independence

The lack of independence is a critical violation of assumption. In an experimental setting, this assumption can be violated because of noise, unclear instructions, extraneous effects or all three. As the current research used a robust design, the chance of meeting this assumption was high.

4.5.2 Assessment of Equality of Variance

Under this assumption, different samples should have the same variance although they were sampled from different populations (i.e. males and females). However, when the sample sizes are equal across all conditions and above 30, violation of this assumption is not considered a critical issue (Fidell & Tabachnick, 2003). The current study used the Levene test to evaluate the equality of variance. According to this test, only three out of eight tests were violated. Therefore, partial homogeneity of variance was established. The tests' results were specified in the hypotheses testing section.

4.5.3 Assessment of Outliers

It has been suggested that ANOVA is very sensitive to outliers. Therefore, outliers should be identified first and potentially eliminated to prevent them from having a disproportionate influence over the results (Hair et al., 2019). There are some widely accepted rules of thumb which suggest how outliers can be treated. The *z*-score, which reveals how far a value deviates from the standard deviation, can be used to detect outliers. Hair et al. (2019) suggests that standard score for small sample size fewer than 80 is ± 2.5, while standard score for large size more than 80 is ± 3.29. Standard deviations away from the mean are regarded as an outlier. In the current study, to detect univariate outliers, items were grouped together to represent a single variable. Using SPSS functions of descriptive statistics, the data values of each observation were transformed to standardised scores, also known as *z*-scores (Fidell & Tabachnick, 2003; Hair et al., 2019; Tabachnick, Fidell, & Ullman, 2007). The results revealed that the data set did not contain cases of outliers because *z*-scores for all cases' values were less than ± 3.29.

4.5.4 Assessment of Normality

Normality is considered an essential assumption for an ANOVA. Under this assumption, it is expected that the distribution of data is normal (Hair et al., 2019). Fidell and

Tabachnick (2003) demonstrate that a normal distribution occurs when the value of skewness and kurtosis are both equal to zero. However, Hair et al. (2019) suggest that critical values should not exceed ± 2.58. Moreover, they demonstrated that a positive skewness indicates that the distribution moves to the left and tails off to the right, whereas negative skewness distribution is reversed. In addition, the positive kurtosis value reveals peaked distribution while the negative kurtosis value demonstrates a flatter distribution.

Furthermore, Chou and Bentler (1995) indicate that the data are normally distributed if the *z*-score for skewness is less than ± 3 and the *z*-score for kurtosis is less than ± 7. In addition, a small sample size of approximately 50 cases and below represents a serious influence on normality compared with a large sample size of 200 cases and above. The current research followed the guideline suggested by Hair et al. (2019) that the cut-off critical value is ± 2.58. Table 4.4 shows that the value of kurtosis and skewness for each factor is within the range (± 2.58). The descriptive analysis illustrated that data were normally distributed with mean skewness ranging between (.003) and (−.959) while kurtosis values ranged between (.096) and (.813). Table 4.4 indicates skewness and kurtosis for variables.

Table 4.4

Skewness and Kurtosis for Variables

Variable	Product	Skewness	Kurtosis
Helpfulness	Earbuds	−.959	.749
	Electric Toothbrush	−.863	.573
	Vitamin water	−.290	−.649
	Multivitamin	−.250	−.795
Purchase intention	Earbuds	.149	−.759
	Electric Toothbrush	.003	.813
	Vitamin water	.224	−.760
	Multivitamin	.389	−.714

4.6 Hypothesis Testing of Study 1: Earbuds

4.6.1 Helpfulness

H1.1 Female consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed, and this will be more so than for males.

H1.2 Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed.

H1.3 Females will consider product-only images to be more helpful than will males.

H1.4 Females will consider mixed EWOM more helpful than will males.

H1.5 Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM.

H1.6 Consumers will consider product-only images to be more helpful than products with face image and text-only.

H1.7 Male and female consumers will differ in their rating of helpfulness in EWOM.

These hypotheses related to the helpfulness of posts about earbuds tested whether there was a significant difference in the helpfulness of posts about earbuds based on the EWOM type (positive, mixed, and negative), visual dimension (product-only image, product with face image, and text-only) and gender (male and female). The helpfulness scale encompassed 7 items that were measured on a 7-point scale, with 1 representing less useful information about the product and 7 representing more useful information.

A three-way ANOVA was conducted on the influence of three independent variables (EWOM type, visual dimension and gender) on the EWOM helpfulness about earbuds. Levene's test was conducted, and the results indicated that there was a significant difference (p = .009), indicating that the assumption of equality of variances was violated. In fact, violation of variance assumption is not seen as a critical issue for the current design because

(1) the sample sizes exceeded 30 (n = 60), and (2) the sample sizes were equal across the nine experimental conditions (Fidell & Tabachnick, 2003). There was statistically significant three-way interaction between EWOM type, visual dimension and gender, $F(4,522) = 3.75$, $p = .01$, as indicated in Table 4.5.

Table 4.5

Three-way Analysis of Variance Results: Perceived Helpfulness of EWOM about Earbuds by EWOM Type, Visual Dimension and Gender

Source	Type III Sum of squares	*df*	Mean square	*F*	Sig.
Corrected Model	62.58[a]	17	3.68	2.21	<.001
Intercept	13886.02	1	13886.021	8351.517	<.001
Gender	1.56	1	1.56	.94	.33
Visual_dim	10.65	2	5.32	3.20	.04
EWOM_type	8.26	2	4.13	2.49	.08
Gender * Visual_dim	3.90	2	1.95	1.17	.31
Gender * EWOM_type	1.47	2	.73	.44	.64
Visual_dim * EWOM_type	11.80	4	2.95	1.77	.13
Gender * Visual_dim * EWOM_type	24.94	4	6.24	3.75	.01
Error	867.93	522.00	1.66		
Total	14816.53	540.00			
Corrected Total	930.51	539.00			

a. R Squared = .067 (Adjusted R Squared = .037)

To investigate this interaction, a simple effects analysis was utilised (Field, 2014). There was a statistically significant simple main effect of EWOM type for males at product-only image, F(2, 522) = 4.166, p=.016, but not for males at product with face image, F(2, 522) = 2.355, p = .096 and text-only F(2, 522) = 1.185, p = .307. There was a statistically significant simple simple main effect of EWOM type for females at product-only image, F(2, 522) = 3.936, p=.020, but not for females at product with face image, F(2, 522) = 1.405, p =

.247 and text-only F(2, 522) = .930, p = .395. Multiple comparisons were conducted with Bonferroni adjustment as indicated in Table 4.6. For males, the helpfulness in positive EWOM was .878 higher than negative EWOM at the level of product-only image, *p* =.026. For females, the helpfulness in mixed EWOM was .933 higher than positive EWOM at the level of product-only image, .016. This tendency is depicted in Figure 4.6. Therefore, H1.1 was partially supported.

Table 4.6

*Multiple Comparisons: Gender*EWOM Type*Visual Dimension*

Gender	Visual_dim	(I) EWOM_type	(J) EWOM_type	Mean difference (I-J)	*SE*	Sig.[b]
Male	Product-only image	Positive EWOM	Mixed EWOM	.100	.333	1.000
			Negative EWOM	.878*	.333	.026
		Mixed EWOM	Positive EWOM	−.100	.333	1.000
			Negative EWOM	.778	.333	.060
		Negative EWOM	Positive EWOM	−.878*	.333	.026
			Mixed EWOM	−.778	.333	.060
	Product with face image	Positive EWOM	Mixed EWOM	−.678	.333	.127
			Negative EWOM	−.556	.333	.287
		Mixed EWOM	Positive EWOM	.678	.333	.127
			Negative EWOM	.122	.333	1.000
		Negative EWOM	Positive EWOM	.556	.333	.287
			Mixed EWOM	−.122	.333	1.000
	Text-only	Positive EWOM	Mixed EWOM	−.489	.333	.428
			Negative EWOM	−.378	.333	.771
		Mixed EWOM	Positive EWOM	.489	.333	.428
			Negative EWOM	.111	.333	1.000
		Negative EWOM	Positive EWOM	.378	.333	.771

			Mixed EWOM	−.111	.333	1.000
Female	Product-only image	Positive EWOM	Mixed EWOM	−.933*	.333	.016
			Negative EWOM	−.500	.333	.401
		Mixed EWOM	Positive EWOM	.933*	.333	.016
			Negative EWOM	.433	.333	.581
		Negative EWOM	Positive EWOM	.500	.333	.401
			Mixed EWOM	−.433	.333	.581
	Product with face image	Positive EWOM	Mixed EWOM	.167	.333	1.000
			Negative EWOM	−.378	.333	.771
		Mixed EWOM	Positive EWOM	−.167	.333	1.000
			Negative EWOM	−.544	.333	.308
		Negative EWOM	Positive EWOM	.378	.333	.771
			Mixed EWOM	.544	.333	.308
	Text-only	Positive EWOM	Mixed EWOM	.067	.333	1.000
			Negative EWOM	.422	.333	.616
		Mixed EWOM	Positive EWOM	−.067	.333	1.000
			Negative EWOM	.356	.333	.858
		Negative EWOM	Positive EWOM	−.422	.333	.616
			Mixed EWOM	−.356	.333	.858

Based on estimated marginal means.
* The mean difference is significant at the 0.05 level.
[b] Adjustment for multiple comparisons: Bonferroni.

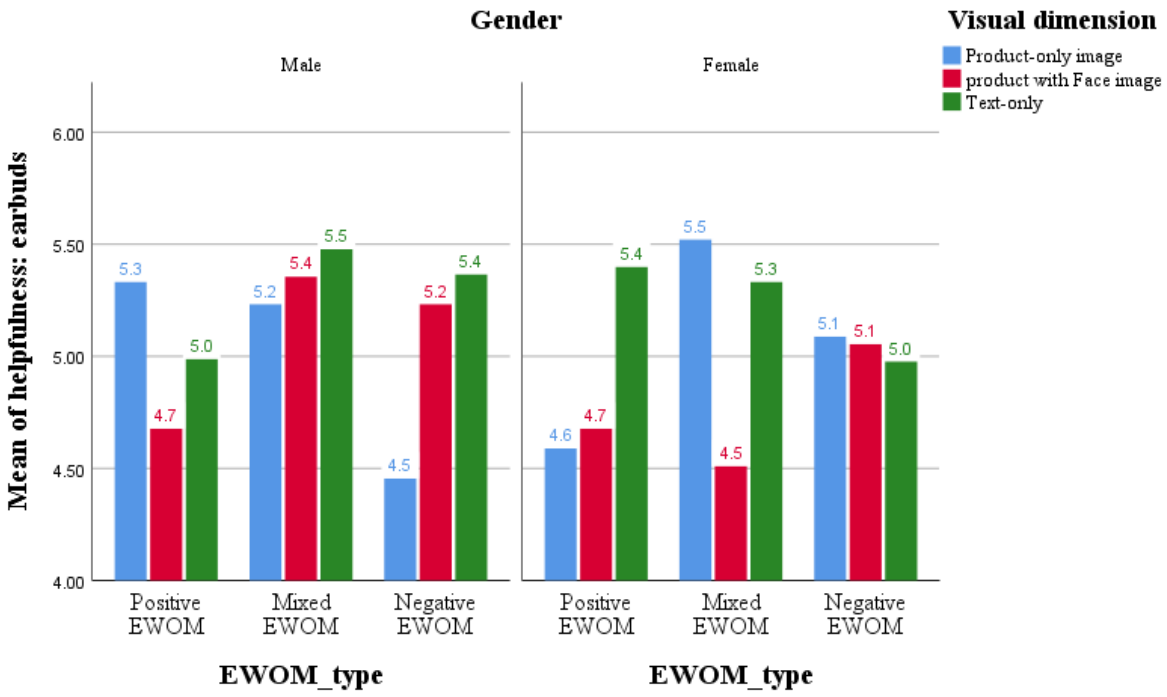

Figure 4.6. Means of helpfulness for earbuds.

There was a statistically significant relationship between the level of visual dimension, $F(1,522) = 3.20$, $p = .04$. Table 4.7 shows that the text-only condition was .338 higher than product with face condition. However, this could not support H1.6.

Table 4.7

Pairwise Comparisons: Visual Dimension

(I) Visual_dim	(J) Visual_dim	Mean difference (I-J)	*SE*	Sig.	95% Confidence interval	
					Lower bound	Upper bound
Product-only image	Product with face image	.1185	.13592	.658	−.2010	.4380
	Text-only	−.2204	.13592	.238	−.5398	.0991
Product with face image	Product-only image	−.1185	.13592	.658	−.4380	.2010
	Text-only	−.3389*	.13592	.035	−.6583	−.0194
Text-only	Product-only image	.2204	.13592	.238	−.0991	.5398
	Product with face image	.3389*	.13592	.035	.0194	.6583

Based on observed means.

The error term is Mean Square(Error) = 1.663.

*. The mean difference is significant at the .05 level.

4.6.2 Purchase Intention

H1.8 Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed for males but not females.

H1.9 Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed.

H1.10 Product-only image will lead to a higher purchase intention than product with face image and text-only for males than it will for females.

H1.11 Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM for males than it will for females.

H1.12 Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM

H1.13 Product-only image will lead to a higher purchase intention than product with face image and text-only.

H1.14 Male and female consumers will differ in purchase intention.

These hypotheses tested whether there was a significant difference in the purchase intention relating to earbuds based on the EWOM type (positive, mixed and negative), visual dimension (product-only image, product with face image and text-only) and gender (male and female). The purchase intention scale comprised 5 items that were measured on a 5-point scale, with 1 indicating lower purchase intention towards the product and 5 representing higher intention to purchase the earbuds.

A three-way ANOVA was conducted to examine the interaction of three independent variables (EWOM type, visual dimension and gender). Levene's test was conducted, and the results indicated that there was no significant difference, $p = .274$, indicating that the assumption of equality of variances was not violated. The findings in Table 4.8 suggest that there was no statistically significant interaction between EWOM type, visual dimension and

gender on the purchase intention regarding earbuds, *F(4,522)* = 1.27, *p* = .28. However, there was a statistically significant relationship between level of EWOM type, *F*(2,522) = 67.95, *p* < .005.

Table 4.8

Three-way Analysis of Variance Results: Intention to Purchase Earbuds by EWOM Type, Visual Dimension and Gender

Source	Type III Sum of squares	*df*	Mean square	*F*	Sig.
Corrected Model	122.25[a]	17	7.19	9.28	<.001
Intercept	3693.86	1	3693.86	4764.94	<.001
Gender	.49	1	.49	.64	.43
Visual_dim	2.33	2	1.17	1.50	.22
EWOM_type	105.34	2	52.67	67.95	<.001
Gender * Visual_dim	3.07	2	1.54	1.98	.14
Gender * EWOM_type	2.55	2	1.27	1.64	.19
Visual_dim * EWOM_type	4.52	4	1.13	1.46	.21
Gender * Visual_dim * EWOM_type	3.94	4	.98	1.27	.28
Error	404.66	522	.78		
Total	4220.78	540			
Corrected Total	526.92	539			

a. R Squared = .232 (Adjusted R Squared = .207)

Pairwise comparisons were conducted for the level of EWOM with Bonferroni adjustment. The earbud purchase intention in positive EWOM was .57 higher than mixed EWOM and 1.08 higher than negative EWOM. Thus, there was a statistically significant mean difference between positive, mixed and negative EWOM, *p* < .005, as indicated in Table 4.9. H1.12 is supported.

Table 4.9

Pairwise Comparisons: EWOM Type

(I) EWOM_type	(J) EWOM_type	Mean difference (I-J)	*SE*	Sig.	95% Confidence interval	
					Lower bound	Upper bound
Positive EWOM	Mixed EWOM	.57*	.09	<.001	.3438	.7896
	Negative EWOM	1.08*	.09	<.001	.8586	1.3044
Mixed EWOM	Positive EWOM	−.57*	.09	<.001	−.7896	−.3438
	Negative EWOM	.51*	.09	<.001	.2919	.7377
Negative EWOM	Positive EWOM	-1.08*	.09	<.001	-1.3044	−.8586
	Mixed EWOM	−.51*	.09	<.001	−.7377	−.2919

Based on observed means.

The error term is Mean Square(Error) = .775.

*. The mean difference is significant at the .05 level.

4.6.3 Correlation between Helpfulness and Purchase Intention of Earbuds

A Pearson's product-moment correlation was run to assess the relationship between helpfulness and purchase intention. When EWOM was positive, there was a statistically significant positive correlation between helpfulness and purchase intention, r = .521, n = 180, p < .001. Thus, the more helpful the positive EWOM about earbuds was, the more the purchase intention. When EWOM was mixed, there was a statistically significant positive correlation between helpfulness and purchase intention, r = .156, n = 180, p = .036. Thus, the more helpful the mixed EWOM about earbuds was, the more the purchase intention. When EWOM was negative, there was a statistically significant negative correlation between helpfulness and purchase intention, r = -.379, n = 180, p < .001. Thus, the more helpful the negative EWOM about earbuds was, the less the purchase intention. In short, the magnitude of the correlation between helpfulness and purchase intention is stronger for positive EWOM

than for negative EWOM. Correlation tables related to the earbud product are indicated in Appendix 3.

4.6.4 Summary of Hypotheses Testing

The result of hypothesis testing of Study 1, earbuds, is outlined in Table 4.10.

Table 4.10

Summary of Hypothesis Testing Related to Earbuds Study

No.	Hypothesis	Result
H1.1	Female consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed, and this will be more so than for males.	Hypothesis is partially supported
H1.2	Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed.	Hypothesis not supported
H1.3	Females will consider product-only image to be more helpful than will males.	Hypothesis not supported
H1.4	Females will consider mixed EWOM more helpful than will males.	Hypothesis not supported
H1.5	Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM.	Hypothesis not supported
H1.6	Consumers will consider product-only image to be more helpful than product with face image and text-only.	Hypothesis not supported
H1.7	Male and female consumers will differ in their rating of helpfulness in EWOM.	Hypothesis not supported
H1.8	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed for males but not for females.	Hypothesis not supported
H1.9	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed.	Hypothesis not supported
H1.10	Product-only image will lead to a higher purchase intention than product with face image and text-only for males than it will for females.	Hypothesis not supported
H1.11	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM for males than it will for females.	Hypothesis not supported
H1.12	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM.	Hypothesis supported

H1.13	Product-only image will lead to a higher purchase intention than product with face image and text-only.	Hypothesis not supported
H1.14	Male and female consumers will differ in purchase intention.	Hypothesis not supported

4.7 Hypothesis Testing of Study 2: Electric Toothbrush

4.7.1 Helpfulness

H2.1 Female consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed, and this will be more so than for males

H2.2 Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed.

H2.3 Females will consider product-only image to be more helpful than will males.

H2.4 Females will consider mixed EWOM more helpful than will males.

H2.5 Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM.

H2.6 Consumers will consider product-only image to be more helpful than product with face image and text-only.

H2.7 Male and female consumers will differ in their rating of helpfulness of EWOM.

These hypotheses related to posts about an electric toothbrush tested whether there is a significant difference in the perceived helpfulness of posts according to the EWOM type (positive, mixed and negative), visual dimension (product-only image, product with face image and text-only) and gender (male and female). The helpfulness scale encompassed 7 items that were measured on a 7-point scale, with 1 representing less useful information about the product and 7 representing more useful information.

A three-way ANOVA was conducted on EWOM type, visual dimension and gender. Levene's test was conducted, and the results indicated that there was no significant

difference, $p = .364$, indicating that the assumption of equality of variances was not violated. There was no statistically significant three-way interaction between EWOM type, visual dimension and gender, $F(4,522) = 1.00$, $p = .41$. There was a statistically significant relationship between the level of visual dimension, $F(2,522) = 3.65$, $p = .03$, as indicated in Table 4.11.

Table 4.11

Three-way Analysis of Variance Results: Perceived Helpfulness of EWOM about Electric Toothbrush by EWOM Type, Visual Dimension and Gender

Source	Type III Sum of squares	*df*	Mean square	*F*	Sig.
Corrected Model	30.41[a]	17.00	1.79	.98	.48
Intercept	12689.25	1.00	12689.25	6949.36	<.001
Gender	1.28	1.00	1.28	.70	.40
Visual_dim	13.34	2.00	6.67	3.65	.03
EWOM_type	1.00	2.00	.50	.27	.76
Gender * Visual_dim	.59	2.00	.29	.16	.85
Gender * EWOM_type	1.77	2.00	.88	.48	.62
Visual_dim * EWOM_type	5.13	4.00	1.28	.70	.59
Gender * Visual_dim * EWOM_type	7.31	4.00	1.83	1.00	.41
Error	953.15	522.00	1.83		
Total	13672.81	540.00			
Corrected Total	983.56	539.00			

a. R Squared = .031 (Adjusted R Squared = −.001)

Pairwise comparisons were conducted for the level of visual dimension with Bonferroni adjustment. The helpfulness in text-only was .37 higher than product with face image. Thus, there was statistically significant mean difference between text-only image and product with face image, $p = .029$, as indicated in Table 4.12. None of the hypotheses were supported.

Table 4.12

Pairwise Comparisons: Visual Dimension

(I) Visual_dim	(J) Visual_dim	Mean difference (I-J)	*SE*	Sig.	95% Confidence Interval	
					Lower bound	Upper bound
Product-only image	Product with face image	.09	.14	1.000	−.2477	.4365
	Text-only	−.28	.14	.160	−.6180	.0662
Product with face image	Product-only image	−.09	.14	1.000	−.4365	.2477
	Text-only	−.37*	.14	.029	−.7125	−.0283
Text-only	Product-only image	.28	.14	.160	−.0662	.6180
	Product with face image	.37*	.14	.029	.0283	.7125

Based on observed means.

The error term is Mean Square(Error) = 1.826.

*. The mean difference is significant at the .05 level.

4.7.2 Purchase Intention

H2.8 Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed for males but not females.

H2.9 Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed.

H2.10 Product-only image will lead to a higher purchase intention than product with face image and text-only for males than it will for females.

H2.11 Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM for males than it will for females.

H2.12 Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM

H2.13 Product-only image will lead to a higher purchase intention than product with face image and text-only.

H2.14 Male and female consumers will differ in purchase intention.

These hypotheses related to the purchase intentions around an electric toothbrush tested whether there was a significant difference in the purchase intention according to the EWOM type (positive, mixed and negative), visual dimension (product-only image, product with face image and text-only) and gender (male and female). The purchase intention scale comprised 5 items that were measured on a 5-point scale, with 1 indicating lower purchase intention about the product and 5 representing higher intention to purchase the toothbrush.

A three-way ANOVA was conducted to examine the interaction of three independent variables (EWOM type, visual dimension and gender). Levene's test was conducted, and the results indicated that there was no significant difference, $p = .088$, indicating that the assumption of equality of variances was not violated. The findings in Table 4.13 suggested that there was no statistically significant interaction between EWOM type, visual dimension and gender on the purchase intention regarding the electric toothbrush, $F(4,522) = 1.26$, $p = .29$. However, there was a statistically significant relationship between levels of EWOM, $F(2,522) = 52.65$, $p < .005$.

Table 4.13

Three-way Analysis of Variance Results: Intention to Purchase Electric Toothbrush by EWOM Type, Visual Dimension and Gender

Source	Type III Sum of squares	*df*	Mean square	*F*	Sig.
Corrected Model	104.42[a]	17	6.14	7.04	<.001
Intercept	4150.04	1	4150.04	4758.83	<.001
Gender	.07	1	.07	.09	.77
Visual_dim	2.98	2	1.49	1.71	.18
EWOM_type	91.83	2	45.91	52.65	<.001
Gender * Visual_dim	2.40	2	1.20	1.37	.25
Gender * EWOM_type	1.84	2	.92	1.05	.35
Visual_dim * EWOM_type	.92	4	.23	.26	.90
Gender * Visual_dim * EWOM_type	4.38	4	1.10	1.26	.29
Error	455.22	522	.87		
Total	4709.68	540			
Corrected Total	559.64	539			

a. R Squared = .187 (Adjusted R Squared = .160)

Pairwise comparisons were conducted for the level of EWOM with Bonferroni adjustment. The electric toothbrush purchase intention in positive EWOM was .54 higher than mixed EWOM and 1.01 higher than negative EWOM. Thus, there was a statistically significant mean difference between positive, mixed and negative EWOM, $p < .005$, as indicated in Table 4.14. Further, the electric toothbrush purchase intention in mixed EWOM was .47 higher than negative EWOM. Thus, there was statistically significant mean difference between mixed and negative EWOM, $p < .005$, as indicated in Table 4.14. Only H2.12 was supported.

Table 4.14

Pairwise Comparisons: EWOM Type

(I) EWOM_type	(J) EWOM_type	Mean difference (I-J)	*SE*	Sig.	95% Confidence interval	
					Lower bound	Upper bound
Positive EWOM	Mixed EWOM	.54*	.09844	<.001	.3043	.7772
	Negative EWOM	1.01*	.09844	<.001	.7728	1.2457
Mixed EWOM	Positive EWOM	−.54*	.09844	<.001	−.7772	−.3043
	Negative EWOM	.47*	.09844	<.001	.2321	.7049
Negative EWOM	Positive EWOM	-1.01*	.09844	<.001	-1.2457	−.7728
	Mixed EWOM	−.47*	.09844	<.001	−.7049	−.2321

Based on observed means.

The error term is Mean Square(Error) = .872.

*. The mean difference is significant at the .05 level.

4.7.3 Correlation between Helpfulness and Purchase Intention of Electric Toothbrush

A Pearson's product-moment correlation was run to assess the relationship between helpfulness and purchase intention. When EWOM was positive, there was a statistically significant positive correlation between helpfulness and purchase intention, r = .666, n = 180, p < .001. When the coefficient's absolute value is large, the magnitude of the relationship is also large. Thus, the more helpful the positive EWOM about electric toothbrush was, the more the purchase intention. When EWOM was mixed, there was a statistically significant positive correlation between helpfulness and purchase intention, r = .190, n = 180, p = .011. Thus, the more helpful the mixed EWOM about electric toothbrush was, the more the purchase intention. When EWOM was negative, there was a statistically significant negative correlation between helpfulness and purchase intention, r = -.266, n = 180, p < .001. Thus, the more helpful the negative EWOM about electric toothbrush was, the less the purchase

intention. To conclude, the magnitude of the correlation between helpfulness and purchase intention is stronger for positive EWOM than for negative EWOM. Correlation tables related to the electric toothbrush product are indicated in Appendix 4.

4.7.4 Summary of Findings

The result of hypothesis testing of Study 2, electric toothbrush, is outlined as follows in Table 4.15.

Table 4.15

Summary of Hypothesis Testing Related to Electric Toothbrush Study

No.	Hypothesis	Result
H2.1	Female consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed than will males.	Hypothesis not supported
H2.2	Consumers will consider mixed EWOM to be more helpful than positive and negative when the product-only image is disclosed.	Hypothesis not supported
H2.3	Females will consider product-only image to be more helpful than will males.	Hypothesis not supported
H2.4	Females will consider mixed EWOM more helpful than will males.	Hypothesis not supported
H2.5	Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM.	Hypothesis not supported
H2.6	Consumers will consider product-only image to be more helpful than product with face image and text-only.	Hypothesis is not supported
H2.7	Male and female consumers will differ in their rating of helpfulness in EWOM.	Hypothesis not supported
H2.8	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed for males but not for females.	Hypothesis not supported
H2.9	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed.	Hypothesis not supported
H2.10	Product-only image will lead to a higher purchase intention than product with face image and text-only for males than will females.	Hypothesis not supported
H2.11	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM for males than it will for females.	Hypothesis not supported

H2.12	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM.	Hypothesis supported
H2.13	Product-only image will lead to a higher purchase intention than product with face image and text-only.	Hypothesis not supported
H2.14	Male and female consumers will differ in purchase intention.	Hypothesis not supported

4.8 Hypothesis Testing of Study 3: Vitamin Water

4.8.1 Helpfulness

H3.1 Female consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed, and this will be more so than for males.

H3.2 Consumers will consider mixed EWOM to be more helpful than positive and negative when the product-only image is disclosed.

H3.3 Females will consider product-only image to be more helpful than will males.

H3.4 Females will consider mixed EWOM more helpful than will males.

H3.5 Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM.

H3.6 Consumers will consider product-only image to be more helpful than product with face image and text-only.

H3.7 Male and female consumers will differ in their rating of helpfulness of EWOM.

These hypotheses tested whether there was a significant difference in the perceived helpfulness of posts about vitamin water according to EWOM type (positive, mixed and negative), visual dimension (product-only image, product with face image and text-only) and gender (male and female). The helpfulness scale encompassed 7 items that were measured on a 7-point scale, with 1 representing less useful information about the product and 7 representing more useful information.

A three-way ANOVA was conducted on the influence of three independent variables (EWOM type, visual dimension and gender) of helpfulness. Levene's test was conducted, and the results indicated that there was a significant difference $p = .001$, indicating that the assumption of equality of variances was violated. In fact, violation of equality of variances assumption is not seen as a critical issue for the current design because (1) the sample sizes exceeded 30 ($n = 60$), and (2) the sample sizes were equal across the nine experimental conditions (Fidell & Tabachnick, 2003). As indicated in Table 4.15, there was no statistically significant three-way interaction between EWOM type, visual dimension and gender, $F(4,522) = 1.350$, $p = .250$. There was a statistically significant two-way interaction between visual dimension and EWOM type, $F(4,522) = 2.846$, $p = .024$.

Table 4.16

Three-way Analysis of Variance Results: Perceived Helpfulness of EWOM about Vitamin Water by EWOM Type, Visual Dimension and Gender

Source	Type III Sum of squares	*df*	Mean square	*F*	Sig.
Corrected Model	116.732[a]	17	6.867	3.159	<.001
Intercept	8640.027	1	8640.027	3975.030	<.001
Gender	36.641	1	36.641	16.858	<.001
Visual_dim	11.121	2	5.561	2.558	.078
EWOM_type	20.283	2	10.142	4.666	.010
Gender * Visual_dim	4.513	2	2.257	1.038	.355
Gender * EWOM_type	7.692	2	3.846	1.769	.171
Visual_dim * EWOM_type	24.744	4	6.186	2.846	.024
Gender * Visual_dim * EWOM_type	11.737	4	2.934	1.350	.250
Error	1134.606	522	2.174		
Total	9891.364	540			
Corrected Total	1251.338	539			

a. R Squared = .093 (Adjusted R Squared = .064)

A simple effects analysis was used to explore the interaction between visual dimension and EWOM type. The simple main effect of EWOM type on mean of helpfulness for product with face image was statistically significant $F(2, 522) = 7.899$, $p < .001$, but not for product-only image $F(2, 522) = 2.186$, $p = .113$ and text-only $F(2, 522) = 0.273$, $p = .761$. Multiple comparisons were tested with a Bonferroni adjustment applied as indicated in Table 4.16. For females at the product with face level, the vitamin water posts about helpfulness in the negative EWOM group was 1.544 higher than for positive and mixed EWOM groups. There was a statistically significant mean difference between negative and positive EWOM, $p < .0005$, and between negative and mixed EWOM, $p < .001$. However, the difference between positive and mixed EWOM was not statistically significant, $p = 1.00$. There was a statistically significant relationship between level of EWOM, $F(4,522) = 4.66$, $p = .010$. Finally, there was a statistically significant difference between males and females, $F(522) = 16.85$, $p < .001$. Thus, only H3.7 was supported.

Table 4.17

*Multiple Comparisons: Visual Dimension*EWOM Type*

Gender	Visual_ dim	(I) EWOM_type	(J) EWOM_type	Mean difference (I-J)	*SE*	Sig.[b]	95% Confidence interval for difference[b]	
							Lower bound	Upper bound
Male	Product-only image	Positive EWOM	Mixed EWOM	.078	.381	1.000	−.836	.992
			Negative EWOM	−.367	.381	1.000	−1.281	.548
		Mixed EWOM	Positive EWOM	−.078	.381	1.000	−.992	.836
			Negative EWOM	−.444	.381	.731	-1.359	.470
		Negative EWOM	Positive EWOM	.367	.381	1.000	−.548	1.281
			Mixed EWOM	.444	.381	.731	−.470	1.359
	Product with face image	Positive EWOM	Mixed EWOM	.311	.381	1.000	−.603	1.225
			Negative EWOM	−.133	.381	1.000	−1.048	.781
		Mixed EWOM	Positive EWOM	−.311	.381	1.000	−1.225	.603
			Negative EWOM	−.444	.381	.731	−1.359	.470
		Negative EWOM	Positive EWOM	.133	.381	1.000	−.781	1.048
			Mixed EWOM	.444	.381	.731	−.470	1.359
	Text-only	Positive EWOM	Mixed EWOM	−.300	.381	1.000	−1.214	.614
			Negative EWOM	.067	.381	1.000	−.848	.981
		Mixed EWOM	Positive EWOM	.300	.381	1.000	−.614	1.214
			Negative EWOM	.367	.381	1.000	−.548	1.281
			Positive EWOM	−.067	.381	1.000	−.981	.848

		Negative EWOM	Mixed EWOM	−.367	.381	1.000	−1.281	.548
Female	Product-only image	Positive EWOM	Mixed EWOM	−.267	.381	1.000	−1.181	.648
			Negative EWOM	−.689	.381	.213	−1.603	.225
		Mixed EWOM	Positive EWOM	.267	.381	1.000	−.648	1.181
			Negative EWOM	−.422	.381	.804	−1.336	.492
		Negative EWOM	Positive EWOM	.689	.381	.213	−.225	1.603
			Mixed EWOM	.422	.381	.804	−.492	1.336
	Product with face image	Positive EWOM	Mixed EWOM	4.441	.381	1.000	−.914	.914
			Negative EWOM	−1.544*	.381	.000	−2.459	−.630
		Mixed EWOM	Positive EWOM	−4.441	.381	1.000	−.914	.914
			Negative EWOM	−1.544*	.381	.000	−2.459	−.630
		Negative EWOM	Positive EWOM	1.544*	.381	.000	.630	2.459
			Mixed EWOM	1.544*	.381	.000	.630	2.459
	Text-only	Positive EWOM	Mixed EWOM	.178	.381	1.000	−.736	1.092
			Negative EWOM	.200	.381	1.000	−.714	1.114
		Mixed EWOM	Positive EWOM	−.178	.381	1.000	−1.092	.736
			Negative EWOM	.022	.381	1.000	−.892	.936
		Negative EWOM	Positive EWOM	−.200	.381	1.000	-1.114	.714
			Mixed EWOM	−.022	.381	1.000	−.936	.892

Based on estimated marginal means.

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

4.8.2 Purchase Intention

H3.8 Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed for males but not females.

H3.9 Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed.

H3.10 Product-only image will lead to a higher purchase intention than product with face image and text-only for males than it will for females.

H3.11 Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM for males than it will for females.

H3.12 Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM

H3.13 Product-only image will lead to a higher purchase intention than product with face image and text-only.

H3.14 Male and female consumers will differ in purchase intention.

These hypotheses related to the purchase intention of vitamin water tested whether there was a significant difference in the purchase intention based on the EWOM type (positive, mixed and negative), visual dimension (product-only image, product with face image and text-only) and gender (male and female). The purchase intention scale comprised 5 items that were measured on a 5-point scale, with 1 indicating lower purchase intention about the product and 5 representing higher intention to purchase the vitamin water.

A three-way ANOVA was conducted to examine the interaction of three independent variables (EWOM type, visual dimension and gender). Levene's test was conducted, and the results indicated that there was no significant difference, $p = .074$, indicating that the assumption of equality of variances was not violated. The findings in Table 4.18 suggested

that there was no statistically significant interaction between EWOM type, visual dimension and gender on the purchase intention of vitamin water, $F(4,522) = .422$, $p = .793$.

Table 4.18

Three-way Analysis of Variance Results: Vitamin Water Purchase Intention by EWOM Type, Visual Dimension and Gender

Source	Type III Sum of squares	*df*	Mean square	*F*	Sig.
Corrected Model	55.588[a]	17	3.270	3.493	<.001
Intercept	3308.646	1	3308.646	3534.488	<.001
EWOM_type	7.142	2	3.571	3.815	.023
Gender	7.119	1	7.119	7.605	.006
Visual_dim	19.021	2	9.510	10.160	<.001
EWOM_type * Gender	12.801	2	6.400	6.837	.001
EWOM_type * Visual_dim	4.255	4	1.064	1.136	.338
Gender * Visual_dim	3.670	2	1.835	1.960	.142
EWOM_type * Gender * Visual_dim	1.580	4	.395	.422	.793
Error	488.646	522	.936		
Total	3852.880	540			
Corrected Total	544.234	539			

a. R Squared = .102 (Adjusted R Squared = .073)

There was a statistically significant two-way interaction between gender and EWOM type, $F(522) = 6.83$, $p = .001$. A simple effects analysis was utilised to further examine the interaction (Field, 2014). The simple main effect of EWOM type on mean of purchase intention for males was statistically significant $F(2, 522) = 9.451$, $p < .001$, but not for females, $F(2, 522) = 1.201$, $p = .302$. Based on the pairwise comparisons in Table 4.19, there was a statistically significant difference on mean of purchase intention for males between positive and mixed EWOM, $p < .001$. There was also a statistically significant difference between positive and negative EWOM, $p < .001$.

Table 4.19

*Pairwise Comparisons: Gender*EWOM Type*

Gender	(I) EWOM_type	(J) EWOM_type	Mean Difference (I-J)	SE	Sig. [b]	95% Confidence Interval for Difference [b]	
						Lower Bound	Upper Bound
Male	Positive EWOM	Mixed EWOM	.556*	.144	<.001	.209	.902
		Negative EWOM	.530*	.144	<.001	.183	.876
	Mixed EWOM	Positive EWOM	-.556*	.144	<.001	-.902	-.209
		Negative EWOM	-.026	.144	1.000	-.372	.320
	Negative EWOM	Positive EWOM	-.530*	.144	<.001	-.876	-.183
		Mixed EWOM	.026	.144	1.000	-.320	.372
Female	Positive EWOM	Mixed EWOM	-.181	.144	.627	-.528	.165
		Negative EWOM	.022	.144	1.000	-.324	.369
	Mixed EWOM	Positive EWOM	.181	.144	.627	-.165	.528
		Negative EWOM	.204	.144	.475	-.143	.550
	Negative EWOM	Positive EWOM	-.022	.144	1.000	-.369	.324
		Mixed EWOM	-.204	.144	.475	-.550	.143

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Further, there was a statistically significant relationship between EWOM type levels, $F(522) = 3.815$, $p = .023$. Based on the pairwise comparisons in Table 4.20, positive EWOM was .275 higher than negative., $p = .021$.

Table 4.20

Pairwise Comparisons: EWOM Type

(I) EWOM_type	(J) EWOM_type	Mean difference (I-J)	*SE*	Sig.	95% Confidence interval	
					Lower bound	Upper bound
Positive EWOM	Mixed EWOM	.1870	.10199	.202	−.0579	.4320
	Negative EWOM	.2759*	.10199	.021	.0310	.5209
Mixed EWOM	Positive EWOM	−.1870	.10199	.202	−.4320	.0579
	Negative EWOM	.0889	.10199	1.000	−.1560	.3338
Negative EWOM	Positive EWOM	−.2759*	.10199	.021	−.5209	−.0310
	Mixed EWOM	−.0889	.10199	1.000	−.3338	.1560

Based on observed means.

The error term is Mean Square(Error) = .936.

*. The mean difference is significant at the 0.05 level.

There was a statistically significant relationship between the level of visual dimension, $F(2,522) = 10.160$, $p <. 001$. According to the pairwise comparisons in Table 4.21, text-only was .324 higher than products-only image and .444 higher than product with face, $p < .05$.

Table 4.21

Pairwise Comparisons: Visual Dimension

(I) Visual_dim	(J) Visual_dim	Mean difference (I-J)	*SE*	Sig.	95% Confidence interval	
					Lower bound	Upper bound
Product-only image	Product with face image	.1204	.10199	.715	−.1246	.3653
	Text-only	−.3241*	.10199	.005	−.5690	−.0791
Product with Face image	Product-only image	−.1204	.10199	.715	−.3653	.1246
	Text-only	−.4444*	.10199	<.001	−.6894	−.1995
Text-only	Product-only image	.3241*	.10199	.005	.0791	.5690
	Product with face image	.4444*	.10199	<.001	.1995	.6894

Based on observed means.
The error term is Mean Square(Error) = .936.
*. The mean difference is significant at the 0.05 level.

There was also a statistically significant relationship between gender, F(1,522) = 7.605, p = .006. Thus, H3.11, H3.12 and H3.14 were supported.

4.8.3 Correlation between Helpfulness and Purchase Intention of Vitamin Water

A Pearson's product-moment correlation was run to assess the relationship between helpfulness and purchase intention. When EWOM was positive, there was a statistically significant positive correlation between helpfulness and purchase intention, r = .584, n = 180, p < .001. Thus, the more helpful the positive EWOM about vitamin water was, the more the purchase intention. When EWOM was mixed, there was a statistically significant positive correlation between helpfulness and purchase intention, r = .485, n = 180, p < .001. Thus, the more helpful the mixed EWOM about vitamin water was, the more the purchase intention. When EWOM was negative, there was a statistically significant negative correlation between helpfulness and purchase intention, r = -.199, n = 180, p = .007. Thus, the more helpful the

negative EWOM about electric toothbrush was, the less the purchase intention. In short, the magnitude of the correlation between helpfulness and purchase intention is stronger for positive EWOM than for negative EWOM. Correlation tables related to the vitamin water product are indicated in Appendix 5.

4.8.4 Summary of Findings

The results of hypothesis testing of Study 3, vitamin water, are outlined as follows in Table 4.22.

Table 4.22

Summary of Hypothesis Testing Related to Vitamin Water Study

No.	Hypothesis	Result
H3.1	Female consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed, and this will be more so than for males.	Hypothesis not supported
H3.2	Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed.	Hypothesis not supported
H3.3	Females will consider product-only image to be more helpful than will males.	Hypothesis not supported
H3.4	Females will consider mixed EWOM more helpful than will males.	Hypothesis not supported
H3.5	Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM.	Hypothesis not supported
H3.6	Consumers will consider product-only image to be more helpful than product with face image and text-only.	Hypothesis is not supported
H3.7	Male and female consumers will differ in their rating of helpfulness of EWOM.	Hypothesis is supported
H3.8	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed for males but not for females.	Hypothesis not supported
H3.9	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed.	Hypothesis is not supported
H3.10	Product-only image will lead to a higher purchase intention than product with face image and text-only for males than it will for females.	Hypothesis not supported

H3.11	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM for males than it will for females.	Hypothesis is supported
H3.12	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM.	Hypothesis is supported
H3.13	Product-only image will lead to a higher purchase intention than product with face image and text-only.	Hypothesis not supported
H3.14	Male and female consumers will differ in purchase intention.	Hypothesis is supported

4.9 Hypothesis Testing of Study 4: Multivitamins

4.9.1 Helpfulness

H4.1 Female consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed, and this will be more so than for males.

H4.2 Consumers will consider mixed EWOM to be more helpful than positive and negative when the product-only image is disclosed.

H4.3 Females will consider product-only image to be more helpful than will males.

H4.4 Females will consider mixed EWOM more helpful than will males.

H4.5 Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM.

H4.6 Consumers will consider product-only image to be more helpful than product with face image and text-only.

H4.7 Male and female consumers will differ in their rating of helpfulness of EWOM.

These hypotheses tested whether there was a significant difference in the helpfulness of posts about multivitamin according to EWOM type (positive, mixed and negative), visual dimension (product-only image, product with face image and text-only) and gender (male and female). The helpfulness scale encompassed 7 items that were measured on a 7-point scale,

with 1 representing less useful information about the product and 7 representing more useful information.

A three-way ANOVA was conducted on the influence of three independent variables (EWOM type, visual dimension and gender) of helpfulness. Levene's test was conducted, and the results indicated that there was no significant difference $p = .517$, indicating that the assumption of equality of variances was not violated. There was no statistically significant three-way interaction between EWOM type, visual dimension and gender, $F(4,522) = .137$, $p = .968$, as indicated in Table 4.23. There was a statistically significant two-way interaction between EWOM type and visual dimension, $F(4,522) = 3.286$, $p = .011$. A simple effects analysis was utilised to invistigate this interaction (Field, 2014).

Table 4.23

Three-way Analysis of Variance Results: Perceived Helpfulness of EWOM about Multivitamin by EWOM Type, Visual Dimension and Gender

Source	Type III Sum of squares	*df*	Mean square	*F*	Sig.
Corrected Model	73.853[a]	17	4.344	1.711	.037
Intercept	9344.469	1	9344.469	3681.029	<.001
Gender	10.603	1	10.603	4.177	.041
EWOM_type	15.057	2	7.529	2.966	.052
Visual_dim	4.598	2	2.299	.906	.405
Gender * EWOM_type	5.025	2	2.513	.990	.372
Gender * Visual_dim	3.808	2	1.904	.750	.473
EWOM_type * Visual_dim	33.366	4	8.342	3.286	.011
Gender * EWOM_type * Visual_dim	1.396	4	.349	.137	.968
Error	1325.122	522	2.539		
Total	10743.444	540			
Corrected Total	1398.975	539			

a. R Squared = .053 (Adjusted R Squared = .022)

The simple main effect of EWOM type on mean of helpfulness for product-only image F(2, 522) = 4.497, p = .012 and product with face image F(2, 522) = 4.719, p = .009 were statistically significant, but not for text-only F(2, 522) = 0.322, p = .725. There was also a statistically significant main effect between males and females, $F(1,522) = 4.177$, $p = .041$. Further, multiple comparisons were conducted with a Bonferroni adjustment at levels of product-only image and product with face image within groups of EWOM as indicated in Table 4.24. For females at the product-only image level, the mean helpfulness of posts about multivitamins in mixed EWOM was 1.011 higher than positive EWOM. Thus, there was a statistically significant mean difference between mixed EWOM and positive EWOM groups at the product-only image level. For females at the product with face level, the mean helpfulness of posts about multivitamins in negative EWOM was 1.056 higher than positive EWOM and 1.011 higher than mixed EWOM. Thus, there was a statistically significant mean difference between negative and positive EWOM, $p = .011$, and between negative and mixed EWOM, $p = .014$. To conclude, H4.2 and H4.7 were supported.

Table 4.24

*Multiple Comparisons: EWOM Type*Visual Dimension*

Gender	Visual_dim	(I) EWOM_type	(J) EWOM_type	Mean Difference (I-J)	*SE*	Sig.[b]	95% Confidence interval for difference[b]	
							Lower Bound	Upper Bound
Male	Product-only image	Positive EWOM	Mixed EWOM	-.733	.411	.075	-1.542	.075
			Negative EWOM	-.144	.411	.726	-.953	.664
		Mixed EWOM	Positive EWOM	.733	.411	.075	-.075	1.542
			Negative EWOM	.589	.411	.153	-.219	1.397
		Negative EWOM	Positive EWOM	.144	.411	.726	-.664	.953
			Mixed EWOM	-.589	.411	.153	-1.397	.219
	product with Face image	Positive EWOM	Mixed EWOM	-.200	.411	.627	-1.008	.608
			Negative EWOM	-.600	.411	.145	-1.408	.208
		Mixed EWOM	Positive EWOM	.200	.411	.627	-.608	1.008
			Negative EWOM	-.400	.411	.331	-1.208	.408
		Negative EWOM	Positive EWOM	.600	.411	.145	-.208	1.408
			Mixed EWOM	.400	.411	.331	-.408	1.208
	Text-only	Positive EWOM	Mixed EWOM	-.089	.411	.829	-.897	.719
			Negative EWOM	.267	.411	.517	-.542	1.075
		Mixed EWOM	Positive EWOM	.089	.411	.829	-.719	.897
			Negative EWOM	.356	.411	.388	-.453	1.164

		Negative EWOM	Positive EWOM	-.267	.411	.517	-1.075	.542
			Mixed EWOM	-.356	.411	.388	-1.164	.453
Female	Product-only image	Positive EWOM	Mixed EWOM	-1.011*	.411	.014	-1.819	-.203
			Negative EWOM	-.756	.411	.067	-1.564	.053
		Mixed EWOM	Positive EWOM	1.011*	.411	.014	.203	1.819
			Negative EWOM	.256	.411	.535	-.553	1.064
		Negative EWOM	Positive EWOM	.756	.411	.067	-.053	1.564
			Mixed EWOM	-.256	.411	.535	-1.064	.553
	product with Face image	Positive EWOM	Mixed EWOM	-.044	.411	.914	-.853	.764
			Negative EWOM	-1.056*	.411	.011	-1.864	-.247
		Mixed EWOM	Positive EWOM	.044	.411	.914	-.764	.853
			Negative EWOM	-1.011*	.411	.014	-1.819	-.203
		Negative EWOM	Positive EWOM	1.056*	.411	.011	.247	1.864
			Mixed EWOM	1.011*	.411	.014	.203	1.819
	Text-only	Positive EWOM	Mixed EWOM	.022	.411	.957	-.786	.830
			Negative EWOM	.100	.411	.808	-.708	.908
		Mixed EWOM	Positive EWOM	-.022	.411	.957	-.830	.786
			Negative EWOM	.078	.411	.850	-.730	.886
		Negative EWOM	Positive EWOM	-.100	.411	.808	-.908	.708
			Mixed EWOM	-.078	.411	.850	-.886	.730

Based on estimated marginal means.

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

4.9.2 Purchase Intention

H4.8 Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed for males but not females.

H4.9 Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed.

H4.10 Product-only image will lead to a higher purchase intention than product with face image and text-only for males than it will for females.

H4.11 Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM for males than it will for females.

H4.12 Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM.

H4.13 Product-only image will lead to a higher purchase intention than product with face image and text-only.

H4.14 Male and female consumers will differ in purchase intention.

These hypotheses related to the purchase intention of multivitamins tested whether there was a significant difference in the purchase intention based on the EWOM type (positive, mixed and negative), visual dimension (product-only image, product with face image and text-only) and gender (male and female). The purchase intention scale comprised 5 items that were measured on a 5-point scale, with 1 indicating lower purchase intention about the product and 5 representing higher intention to purchase the multivitamins.

A three-way ANOVA was conducted to examine the interaction of three independent variables (EWOM type, visual dimension and gender). Levene's test was conducted, and the results indicated that there was a significant difference, $p = .022$, indicating that the assumption of equality of variances was violated. In fact, a violation of equality of variances assumption is not seen as a critical issue for the current design because (1) the sample sizes

exceeded 30 (n = 60), and (2) the sample sizes were equal across the nine experimental conditions (Fidell & Tabachnick, 2003). The findings in Table 4.25 suggested that there was no statistically significant three-way interaction between EWOM type, visual dimension and gender, $F(4,522) = .198$, $p = .940$. Further, there was a statistically significant interaction between gender and EWOM type, $F(2,522) = 3.166$, $p = .043$.

Table 4.25

Three-way Analysis of Variance Results: Multivitamin Purchase Intention by EWOM Type, Visual Dimension and Gender

Source	Type III Sum of squares	*df*	Mean square	*F*	Sig.
Corrected Model	56.235[a]	17	3.308	3.275	<.001
Intercept	3161.795	1	3161.795	3130.042	<.001
Gender	6.088	1	6.088	6.027	.014
Visual_dim	3.211	2	1.605	1.589	.205
EWOM_type	24.775	2	12.388	12.263	<.001
Gender * Visual_dim	1.246	2	.623	.617	.540
Gender * EWOM_type	6.397	2	3.198	3.166	.043
Visual_dim * EWOM_type	13.720	4	3.430	3.395	.009
Gender * Visual_dim * EWOM_type	.798	4	.200	.198	.940
Error	527.295	522	1.010		
Total	3745.324	540			
Corrected Total	583.530	539			

a. R Squared = .096 (Adjusted R Squared = .067)

A simple effects analysis was utilised to explore this interaction (Field, 2014). The simple main effect of EWOM type on the mean of purchase intention for males was statistically significant, $F(2,522) = 13.938$, $p < .001$, but not for females, $F(2,522) = 1.492$, $p = .226$. Pairwise comparisons were run for males at levels of EWOM type with a

Bonferroni adjustment as indicated in Table 4.27. For males, the mean of purchase intention in positive EWOM was .770 higher than negative EWOM. Mixed EWOM was .541 higher than negative EWOM. Thus, there was a statistically significant mean difference between positive and negative EWOM, $p < .001$, but not between positive and mixed EWOM type, $p = .378$. There was also a statistically significant mean difference between mixed EWOM and negative EWOM, $p < .0005$.

Table 4.27

*Pairwise Comparisons: EWOM*Gender*

Gender	(I) EWOM_type	(J) EWOM_type	Mean difference (I-J)	*SE*	Sig.[b]	95% Confidence interval for difference[b]	
						Lower bound	Upper bound
Male	Positive EWOM	Mixed EWOM	.230	.150	.378	−.130	.589
		Negative EWOM	.770*	.150	<.001	.411	1.130
	Mixed EWOM	Positive EWOM	−.230	.150	.378	−.589	.130
		Negative EWOM	.541*	.150	.001	.181	.901
	Negative EWOM	Positive EWOM	−.770*	.150	<.001	-1.130	−.411
		Mixed EWOM	−.541*	.150	.001	−.901	−.181
Female	Positive EWOM	Mixed EWOM	.093	.150	1.000	−.267	.452
		Negative EWOM	.256	.150	.266	−.104	.615
	Mixed EWOM	Positive EWOM	−.093	.150	1.000	−.452	.267
		Negative EWOM	.163	.150	.831	−.197	.523
	Negative EWOM	Positive EWOM	−.256	.150	.266	−.615	.104
		Mixed EWOM	−.163	.150	.831	−.523	.197

Based on estimated marginal means.

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Further, there was a statistically significant interaction between visual dimension and EWOM type, $F(4,522) = 3.395$, $p = .009$. A simple effects analysis was utilised to examine this interaction (A. Field, 2014). The simple main effect of EWOM type on mean of purchase

intention was statistically significant for product-only image, $F(2, 522) = 6.615$, $p < .001$, product with face image $F(2, 522) = 3.498$, $p = .031$, and text-only, $F(2, 522) = 8.941$, $p < .001$. Moreover, multiple comparisons were made with a Bonferroni adjustment applied as shown in Table 4.26. For males at the product-only image level, the mean of multivitamin purchase intention in mixed EWOM was .789 higher than for negative EWOM. Hence, there was a statistically significant mean difference between mixed and negative EWOM, $p = .007$. Moving to the product with face level for males, the mean of multivitamin purchase intention in positive EWOM was .667 higher than negative EWOM. Thus, there was a statistically significant mean difference between positive and negative EWOM, $p = .031$. For males at the text-only level, the mean of multivitamin purchase intention in positive EWOM was .656 higher than mixed EWOM and 1.122 higher than negative EWOM. Thus, there was a statistically significant mean difference between positive and mixed EWOM, $p = .035$, and between positive and negative EWOM, $p < .001$. To conclude, H4.11, H4.12 and H4.14 were all supported.

Table 4.26

*Multiple Comparisons: EWOM*Visual Dimension*

Gender	Visual_dim	(I) EWOM_type	(J) EWOM_type	Mean Difference (I-J)	*SE*	Sig.[b]	95% Confidence Interval for Difference[b]	
							Lower Bound	Upper Bound
Male	Product-only image	Positive EWOM	Mixed EWOM	-.267	.260	.914	-.890	.357
			Negative EWOM	.522	.260	.134	-.101	1.145
		Mixed EWOM	Positive EWOM	.267	.260	.914	-.357	.890
			Negative EWOM	.789*	.260	.007	.166	1.412
		Negative EWOM	Positive EWOM	-.522	.260	.134	-1.145	.101
			Mixed EWOM	-.789*	.260	.007	-1.412	-.166
	product with Face image	Positive EWOM	Mixed EWOM	.300	.260	.745	-.323	.923
			Negative EWOM	.667*	.260	.031	.043	1.290
		Mixed EWOM	Positive EWOM	-.300	.260	.745	-.923	.323
			Negative EWOM	.367	.260	.475	-.257	.990
		Negative EWOM	Positive EWOM	-.667*	.260	.031	-1.290	-.043
			Mixed EWOM	-.367	.260	.475	-.990	.257
	Text-only	Positive EWOM	Mixed EWOM	.656*	.260	.035	.032	1.279
			Negative EWOM	1.122*	.260	<.001	.499	1.745
		Mixed EWOM	Positive EWOM	-.656*	.260	.035	-1.279	-.032
			Negative EWOM	.467	.260	.218	-.157	1.090
		Negative EWOM	Positive EWOM	-1.122*	.260	<.001	-1.745	-.499
			Mixed EWOM	-.467	.260	.218	-1.090	.157
Female	Product-only image	Positive EWOM	Mixed EWOM	-.456	.260	.239	-1.079	.168
			Negative EWOM	.089	.260	1.000	-.534	.712

	Mixed EWOM	Positive EWOM	.456	.260	.239	-.168	1.079
		Negative EWOM	.544	.260	.109	-.079	1.168
	Negative EWOM	Positive EWOM	-.089	.260	1.000	-.712	.534
		Mixed EWOM	-.544	.260	.109	-1.168	.079
product with Face image	Positive EWOM	Mixed EWOM	.367	.260	.475	-.257	.990
		Negative EWOM	.278	.260	.855	-.345	.901
	Mixed EWOM	Positive EWOM	-.367	.260	.475	-.990	.257
		Negative EWOM	-.089	.260	1.000	-.712	.534
	Negative EWOM	Positive EWOM	-.278	.260	.855	-.901	.345
		Mixed EWOM	.089	.260	1.000	-.534	.712
Text-only	Positive EWOM	Mixed EWOM	.367	.260	.475	-.257	.990
		Negative EWOM	.400	.260	.371	-.223	1.023
	Mixed EWOM	Positive EWOM	-.367	.260	.475	-.990	.257
		Negative EWOM	.033	.260	1.000	-.590	.657
	Negative EWOM	Positive EWOM	-.400	.260	.371	-1.023	.223
		Mixed EWOM	-.033	.260	1.000	-.657	.590

Based on estimated marginal means

*. The mean difference is significant at the 0.05 level.

b. Adjustment for multiple comparisons: Bonferroni.

4.9.3 Correlation between Helpfulness and Purchase Intention of Multivitamins

A Pearson's product-moment correlation was run to assess the relationship between helpfulness and purchase intention. When EWOM was positive, there was a statistically significant positive correlation between helpfulness and purchase intention, $r = .678$, $n = 180$, $p < .001$. Thus, the more helpful the positive EWOM about multivitamins was, the more the purchase intention. When EWOM was mixed, there was a statistically significant positive correlation between helpfulness and purchase intention, $r = .429$, $n = 180$, $p < .001$. Thus, the more helpful the mixed EWOM about multivitamins was, the more the purchase intention. When EWOM was negative, there was a statistically significant negative correlation between helpfulness and purchase intention, $r = -.193$, $n = 180$, $p = .010$. Thus, the more helpful the negative EWOM about multivitamins was, the less the purchase intention. In short, the magnitude of the correlation between helpfulness and purchase intention is stronger for positive EWOM than for negative EWOM. Correlation tables related to the multivitamins product is indicated in Appendix 6.

4.9.4 Summary of Findings

The results of hypothesis testing of Study 4, multivitamins, are outlined as follows in Table 4.28.

Table 4.28

Summary of Hypothesis Testing Related to Multivitamin Study

No.	Hypothesis	Result
H4.1	Female consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed than will males.	Hypothesis not supported
H4.2	Consumers will consider mixed EWOM to be more helpful than positive and negative when the product-only image is disclosed.	Hypothesis supported
H4.3	Females will consider product-only image to be more helpful than will males.	Hypothesis not supported

H4.4	Females will consider mixed EWOM more helpful than will males.	Hypothesis not supported
H4.5	Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM.	Hypothesis not supported
H4.6	Consumers will consider product-only image to be more helpful than product with face image and text-only.	Hypothesis is not supported
H4.7	Male and female consumers will differ in their rating of helpfulness of EWOM.	Hypothesis supported
H4.8	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed for males but not for females.	Hypothesis not supported
H4.9	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed.	Hypothesis is not supported
H4.10	Product-only image will lead to a higher purchase intention than product with face image and text-only for males than it will for females.	Hypothesis not supported
H4.11	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM for males than it will for females.	Hypothesis is supported
H4.12	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM.	Hypothesis supported
H4.13	Product-only image will lead to a higher purchase intention than product with face image and text-only.	Hypothesis not supported
H4.14	Male and female consumers will differ in purchase intention.	Hypothesis is supported

4.10 Common Method Bias Test

To investigate common method bias, the single factor test by Harman was employed. (Podsakoff et al. 2003). If a single factor explains 50% or more of the covariance among the variables, the data likely contain a significant degree of common method variance (Podsakoff et al. 2003). This study's 24 factors were fully examined. These factors are relevant to helpfulness and purchase intention on four products, where each person answered three items for each scale. As indicated in Table 4.29, the first factor explains 26.17% of the total variance. It is clear that this value has no impact on the study's findings because it is below the 50% threshold.

Table 4.29

Harman's Single Factor Test

Total Variance Explained									
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.282	26.176	26.176	6.282	26.176	26.176	3.310	13.790	13.790
2	4.116	17.149	43.325	4.116	17.149	43.325	2.684	11.183	24.973
3	2.392	9.965	53.290	2.392	9.965	53.290	2.658	11.077	36.050
4	1.710	7.125	60.415	1.710	7.125	60.415	2.512	10.465	46.515
5	1.550	6.460	66.875	1.550	6.460	66.875	2.472	10.302	56.817
6	1.337	5.570	72.445	1.337	5.570	72.445	2.419	10.077	66.894
7	1.080	4.502	76.947	1.080	4.502	76.947	2.413	10.053	76.947
8	.906	3.775	80.722						
9	.608	2.533	83.255						
10	.482	2.007	85.263						
11	.368	1.531	86.794						
12	.361	1.503	88.297						
13	.341	1.422	89.719						
14	.327	1.364	91.083						
15	.274	1.140	92.223						
16	.266	1.107	93.330						
17	.251	1.047	94.377						
18	.229	.956	95.333						
19	.228	.950	96.283						
20	.210	.877	97.160						
21	.194	.807	97.967						
22	.184	.766	98.733						
23	.156	.649	99.382						
24	.148	.618	100.000						

Extraction Method: Principal Component Analysis.

4.11 Products Comparison

After the hypotheses were tested for each product separately, it was necessary to conduct a comparison between the four products based on the dependent variables of the current study: helpfulness and purchase intention. These products were: earbuds, which represented a high-involvement and conspicuous product; electric toothbrush, which represented a low-involvement and non-conspicuous product; vitamin water, which represented a low-involvement and conspicuous product; and multivitamins, which represented a low-involvement and non-conspicuous product. The comparisons identified the product with the highest versus the lowest level of mean in relation to the dependent variables of helpfulness and purchase intention. The factors of EWOM type and visual dimension with its levels were averaged across the nine conditions in these comparisons for both dependent variables. The next two sections are dedicated to the comparison between products and relevant hypotheses.

4.11.1 Product Comparison According to Helpfulness

H15: EWOM featuring high-involvement/high conspicuous product will be perceived as more helpful than for high-involvement/low conspicuous product, low-involvement/high conspicuous product, and low-involvement/low conspicuous product.

The overall means of helpfulness across the four products of earbuds, electric toothbrush, vitamin water and multivitamins were plotted in Figure 4.7 to identify the product evaluations ranked as most and least helpful. Overall, the posts about earbuds as a high-involvement product were ranked as the most helpful (M = 5.1), compared with the electric toothbrush (M = 4.8). For the low-involvement products, posts about multivitamin rated M = 4.2, compared with vitamin water posts at M = 4.0. There was a difference between earbuds and electric toothbrush in relation to helpfulness (0.3%). Similarly, the difference between the low-involvement products of vitamin water and multivitamins regarding

helpfulness was (0.2%). To find a significant difference between the four products in helpfulness of posts, a repeated measures ANOVA was conducted. For the high-involvement products, there was a statistically significant difference in perceived helpfulness between earbuds as a product of high conspicuousness and electric toothbrush as a product of low conspicuousness, $p < .001$. Similarly, for the low-involvement products, there was a statistically significant difference regarding helpfulness between vitamin water as a product of high conspicuousness and multivitamins as a product of low conspicuousness, $p < .001$. However, high-involvement products were clearly ranked higher than low-involvement products, $p < .001$. In short, posts about earbuds as a high-involvement and high-conspicuousness product were ranked as the most helpful. Posts about multivitamins as a low-involvement and low-conspicuousness product were ranked higher in relation to helpfulness than were those about vitamin water, a low-involvement and high-conspicuousness product. Thus, H15 was accepted.

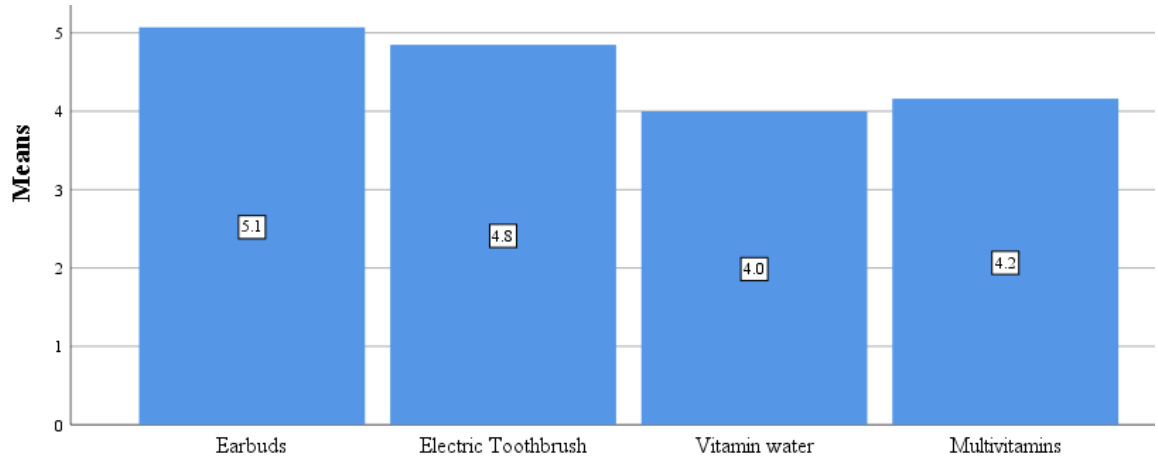

Figure 4.7. Means of helpfulness across products.

4.11.2 Product Comparison According to Purchase Intention

H16: EWOM featuring high-involvement/high conspicuous product will lead to a higher purchase intention than high-involvement/low conspicuous product, low-involvement/high conspicuous product, and low-involvement/low conspicuous product.

The purchase intention overall means are indicated in Figure 4.8 for the four products of earbuds, electric toothbrush, vitamin water and multivitamins to identify the products associated with the highest and lowest purchase intention. As can be seen from the chart, the posts about the electric toothbrush as a high-involvement product led to higher intention (M = 2.8), followed by earbuds (M = 2.6). For the low-involvement products, posts about vitamin water rated M = 2.5 compared with multivitamin posts at M = 2.4. There was a slight difference (0.2%) between electric toothbrushes and earbuds as high-involvement products. Likewise, there was a small difference (0.1%) in relation to purchase intention between vitamin water and multivitamins as low-involvement products. To find a significant difference in purchase intention between the four products, a repeated measures ANOVA was conducted. For the high-involvement products, there was a statistically significant difference between earbuds and electric toothbrush in the purchase intention, $p < .001$. Similarly for the low-involvement products, there was a statistically significant difference between vitamin water and multivitamins regarding purchase intention, $p < .001$. In summary, the electric toothbrush as a high-involvement and low-conspicuousness product attracted a higher purchase intention, and vitamin water as a low-involvement and high-conspicuousness product also led to a higher purchase intention. Thus, H16 was not supported.

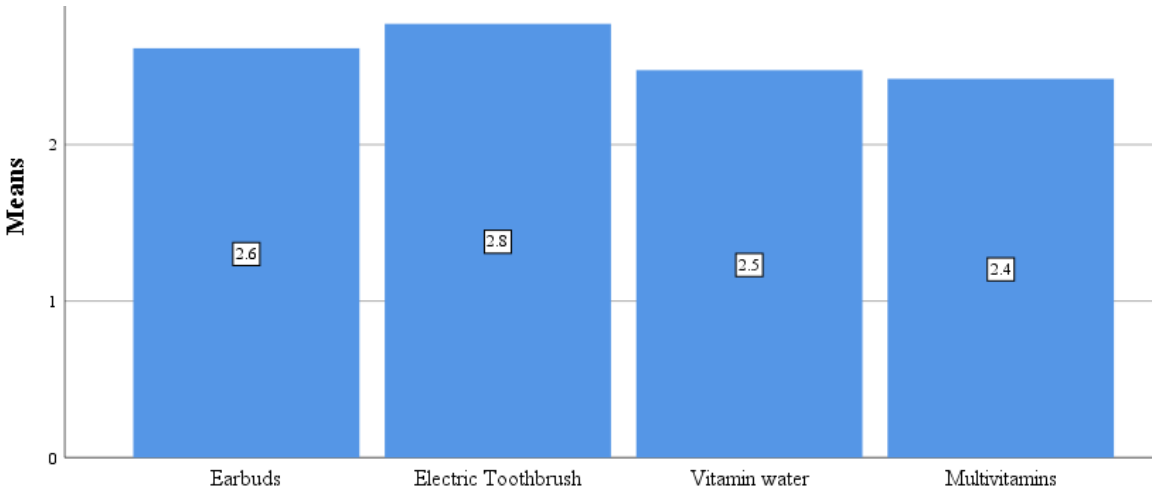

Figure 4.8. Means of purchase intention across products.

4.12 Chapter Summary

This chapter presented the research outcomes using ANOVA. It began with screening the data and outliers; then it presented the manipulation check results and the ANOVA assumptions. It also showed the results of the hypotheses testing for each product and finally outlined the comparisons among products based on averaged mean of helpfulness and purchase intention.

Chapter 5: Discussion

5.1 Introduction

This chapter offers a discussion of the findings presented in Chapter 4. Since Chapter 4 showed the results of the tests involving high- and low-involvement products separately, this chapter discusses the results collectively. To answer the research questions, the EWOM type and visual dimensions are discussed separately and conjointly in relation to helpfulness and purchase intention. Then, the three-way interaction of EWOM type, visual dimension and gender are discussed. This chapter concludes by summarising the research hypotheses for helpfulness and purchase intention for each product.

5.2 Helpfulness

In this section, the helpfulness of EWOM type is discussed in relation to high- and low-involvement products, followed by a discussion about the helpfulness of the visual dimension. Then, a two-way interaction between EWOM type and visual dimension is explained. Finally, a three-way interaction between EWOM type, visual dimension and gender is discussed for earbuds only.

5.2.1 Helpfulness and EWOM Type

The current study provided partial support for the proposition that mixed EWOM was more helpful than positive and negative EWOM. According to the examination of means of the products in Figure 5.1, male and female consumers showed a similar pattern regarding the perceived helpfulness of the high-involvement products of earbuds and the electric toothbrush. Thus, the relationship between EWOM type and gender did not show a strong association, resulting in a rejection of H1.7 and H2.7. The similarity between males and females in their evaluation of the high-involvement products across different levels of EWOM is depicted in Figure 5.1.

Although both males and females rated the high-involvement products of earbuds and electric toothbrushes in the mixed EWOM category as being slightly more helpful than positive and negative EWOM, this was not statistically significant, and thus resulted in a rejection of H1.4, H1.5, H2.4 and H2.5.

Further, reviews of the high-involvement product of earbuds were judged to be more helpful than those of an electric toothbrush, regardless of EWOM type. It was suggested that publicly visible consumption is more susceptible to being influenced. This may be because earbuds are visible to others and used publicly, whereas electric toothbrushes are usually used privately at home. This in fact supported H15.

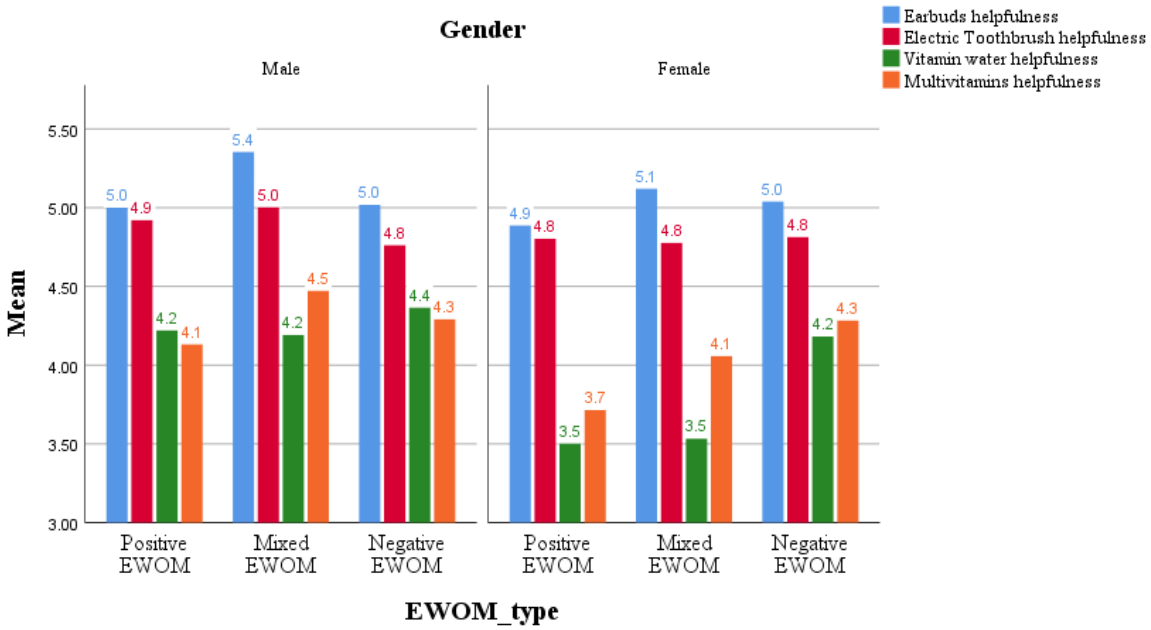

Figure 5.1. Mean of products helpfulness by EWOM type and gender.

With respect to low-involvement products, males found the reviews of multivitamins at the mixed EWOM level to be the most helpful type of EWOM, but this was not statistically significant. However, females found the negative EWOM about vitamin water to

be more helpful than positive and mixed EWOM, achieving a significant difference. In fact, females' evaluation about vitamin water at the negative EWOM level did not differ from that of males. What *did* differ was that females rated the EWOM about vitamin water less helpful for the positive and mixed modes of EWOM. This tendency echoes the literature that consumers with low involvement levels exhibit more attitude shift in response to negative EWOM (Ahluwalia, Burnkrant, & Unnava, 2000). Consumers with high involvement do not change their attitudes significantly because they do not consider the diagnostic value of the negative information (Ahluwalia et al., 2000). Another explanation might reflect the fact that negative emotions have more impact on female than male consumers (B. Sun, Mao, & Yin, 2020). Moreover, women are usually cautious and show higher levels of compassion and sensitivity to events, translating into a more negative impact than for men (B. Sun et al., 2020). It is worth noting that negative EWOM tends to increase consumers' awareness of unknown brands (Allard, Dunn, & White, 2020; Berger, 2014), which might be the reason that female consumers found negative EWOM about vitamin water more helpful than they did positive and mixed EWOM.

As regards the gender variable regarding the low-involvement products of vitamin water and multivitamins, male and female consumers differed in their evaluation of the overall helpfulness of reviews (i.e. irrespective of EWOM type and visual dimension). This resulted in a statistical difference between genders, supporting H3.7 and H4.7. However, male and female consumers did not differ in their evaluation of helpfulness for the reviews of the high-involvement products of earbuds and the electric toothbrush, resulting in a rejection of H1.7 and H2.7.

To conclude, mixed EWOM did not achieve a statistical difference with positive and negative EWOM for the high-involvement products of earbuds and electric toothbrush. For low-involvement products, females showed a different pattern to males in rating EWOM

about vitamin water less helpful at the positive and mixed EWOM levels. This tendency led women to rank EWOM about vitamin water more helpful for negative EWOM than for positive and mixed EWOM.

5.2.2 Helpfulness and the Visual Dimension

The current study could not provide support for the proposition that consumers will consider a product-only image to be more helpful than product with face image and text-only across high- and low-involvement products. Unexpectedly, the product-only image was not rated as more helpful than text-only and product with face image, leading to a rejection of H1.6, H2.6, H3.6, and H4.6. In fact, the text-only condition was rated higher than a product with face for the high-involvement products of earbuds and electric toothbrush.

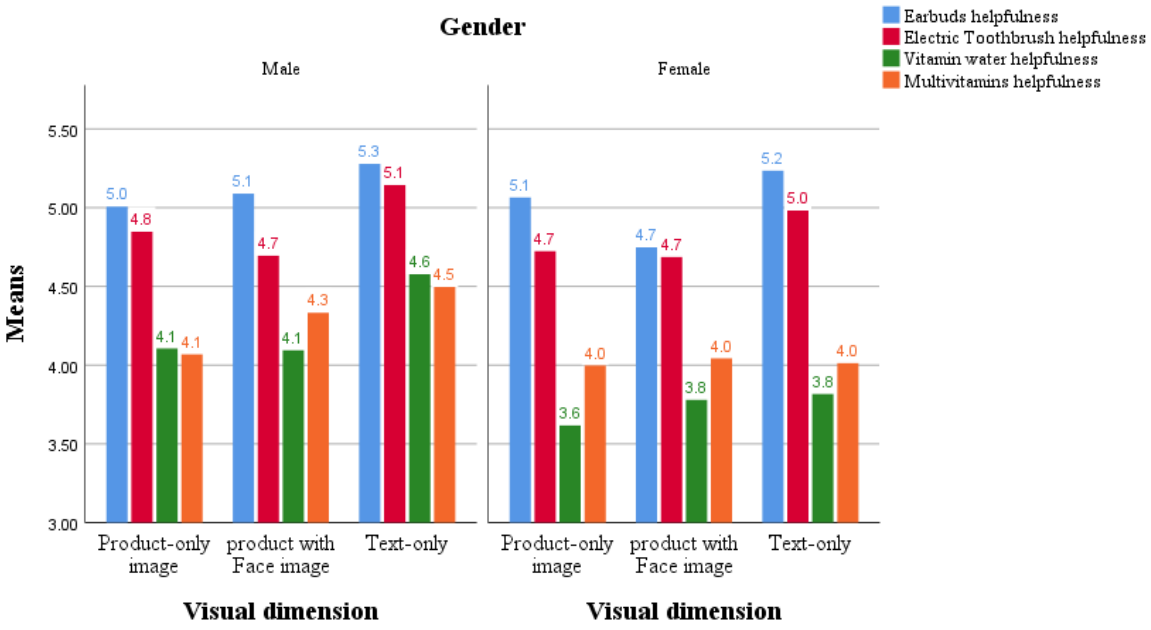

Figure 5.2. Mean of review helpfulness by visual dimension and gender.

For the low-involvement products, no statistically significant difference was achieved among the various visual dimensions. However, it can be seen from Figure 5.2 that the mean of text-only condition for males was higher than product-only image and product with face image for high- and low-involvement products. Females showed a similar pattern to males

only with the high-involvement products, favouring the text-only condition. However, females' evaluation of low-involvement products across visual dimensions was almost identical.

Overall, textual information, as main effect, exerts more impact on perceptions of helpfulness for products of high involvement in both male and female consumers.

5.2.3 Helpfulness of EWOM Type and Visual Dimension

This section discusses the association between type of EWOM and its visual dimension in relation to helpfulness. It was hypothesised that consumers will consider mixed EWOM more helpful than positive and negative EWOM when product-only image is disclosed. The current study provides support for the association between EWOM type and visual dimension for the low-involvement product of multivitamins. It was found that mixed EWOM was more helpful than positive EWOM with a product-only image, supporting H4.2.

Figure 5.3 presents the means of products by EWOM type and visual dimension. When examining the high-involvement products of earbuds and electric toothbrushes at the product-only image level, it could be suggested that mean helpfulness of mixed EWOM was higher than positive and negative EWOM, but this there was not a significant difference, leading to a rejection of H1.2 and H2.2. This pattern was found earlier in the helpfulness of EWOM type, where mixed EWOM by mean was higher than positive and negative EWOM. At the same time, the text-only condition presented a similar tendency to the product-only image, with the minor exception that the positive and negative EWOM were slightly higher than those in the product-only level.

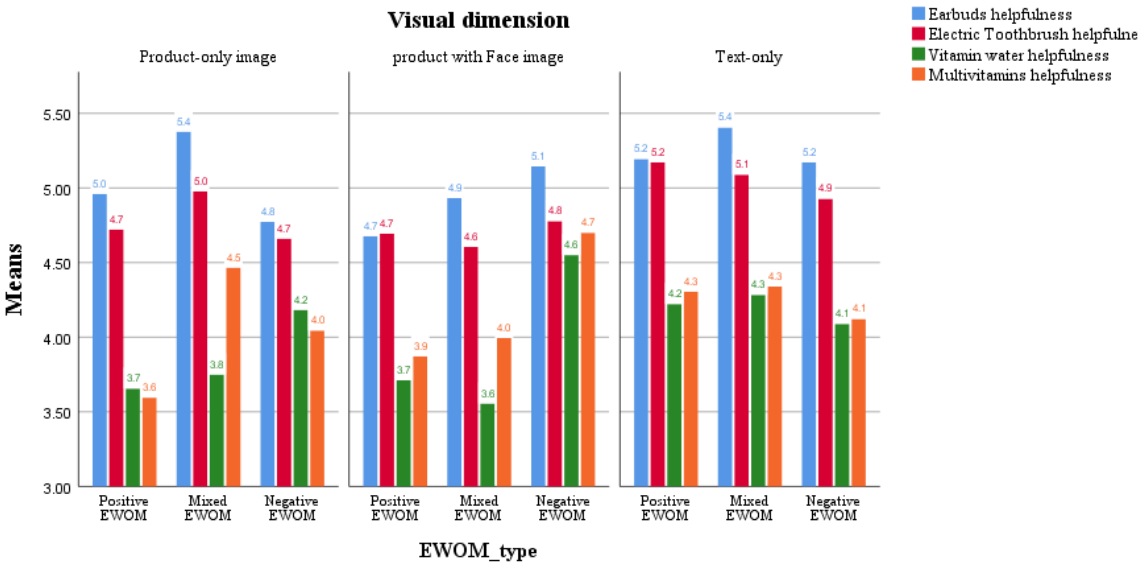

Figure 5.3. Mean of review helpfulness by EWOM type and visual dimension.

With respect to the low-involvement products, the helpfulness of posts about multivitamins in mixed EWOM was higher than for positive EWOM with the product-only image, supporting H4.2. This outcome is aligned with the view in the literature about the helpfulness of two-sided EWOM (Filieri et al, 2018; Lopes et al., 2020). The current research adds that when a product photo is attached to two arguments in a post about a product, helpfulness is enhanced. At the same level of the product-only image, mixed EWOM about vitamin water was not more helpful than positive and negative EWOM. As no significant difference was found, H3.2 was rejected. Conversely, the negative EWOM was more helpful than positive and mixed EWOM at the product with face level for the low-involvement products of vitamin water and multivitamins. Showing the face of the strong social tie may have triggered the helpfulness of negative EWOM, warning close friends of a bad experience with health products. According to self-reference theory, the customer selfie may indicate that the presence of a face draws attention away from the brand (Hartmann et al., 2021). This conclusion is consistent with research showing that the more reliable the source of negative

information, the greater the acceptance of EWOM (Brown et al., 2007; Pan & Chiou, 2011; Chang & Wu, 2014). Even though the means for the high-involvement products of earbuds and an electric toothbrush revealed that consumers exposed to mixed EWOM with the product-only image judged the reviews to have been the most helpful, this difference was not statistically significant. Further, multivitamins proved a statistically significant difference, favouring mixed EWOM over positive EWOM with a product-only image and supporting H4.2.

5.2.4 Helpfulness of EWOM Type, Visual Dimension and Gender

The current study provides support for the proposition that female consumers will consider mixed EWOM more helpful than positive and negative EWOM when a product-only image is disclosed than will males in the earbuds study only. Figure 5.4 presents the means of product reviews by EWOM type and visual dimension and gender.

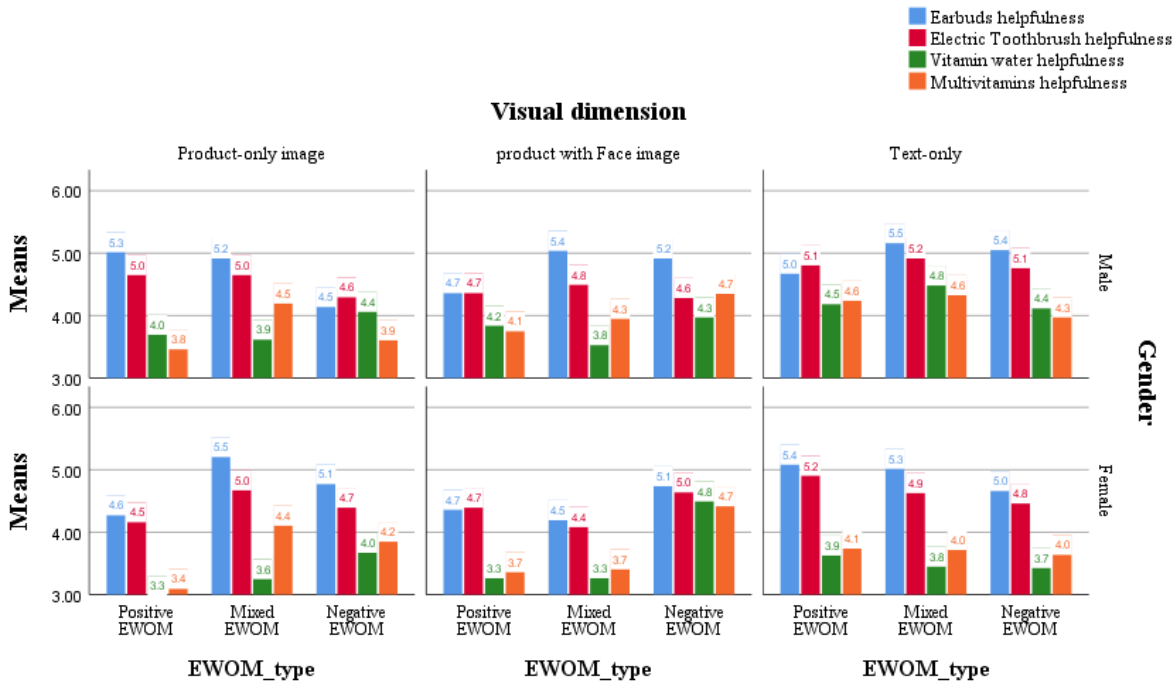

Figure 5.4. Mean of review helpfulness by EWOM type, visual dimension and gender.

For the high-involvement product of earbuds, females ranked the mixed EWOM higher than the positive EWOM at the product-only image level to a significant degree, supporting H1.1. In contrast, male consumers rated the helpfulness of posts about earbuds involving positive EWOM higher than negative EWOM at the product-only image level, to the extent of a significant difference. One possibility might be that men are more likely to seek less information (Sohaib et al., 2018). The electric toothbrush with the product-only image presented similar patterns to earbuds for males and females but no significant differences were found. For the low-involvement products with the product-only image, there was no statistical difference detected as both males and females found the reviews of vitamin water more helpful when they involved negative EWOM and the reviews of multivitamins more helpful when they involved mixed EWOM. In short, these results offer evidence that females favoured mixed EWOM, and males favoured positive EWOM when the product-only image was disclosed in social media posts.

This suggests that female participants favoured two-sided EWOM over one-sided EWOM for earbuds. Therefore, the notion in the literature that one-sided EWOM would reinforce the position of such a product stated by Cao et al.(2011) and Pentina et al.(2018) may be true only for males.

5.3 Purchase Intention

In this section, purchase intention is discussed by type of EWOM in relation to high- and low-involvement products, followed by a discussion about purchase intention and the visual dimension. Then, a two-way interaction between EWOM type and visual dimension is explained. Finally, a three-way interaction between EWOM type, visual dimension and gender is discussed.

5.3.1 Purchase Intention and Type of EWOM

The current study provides full support for the proposition that positive EWOM will lead to a higher purchase intention for both high- and low-involvement products. According to the examination of means of the products in Figure 5.5, male and female consumers showed a similar pattern regarding the purchase intention of the high-involvement products of earbuds and an electric toothbrush. Thus, the relationship between type of EWOM and gender did not result in a strong association, resulting in the rejection of H1.14 and H2.14. However, gender affected the purchase intention regarding the low-involvement products of vitamin water and multivitamins, which supports H3.14 and H4.14.

According to the results, positive EWOM about both high- and low-involvement products leads to a higher purchase intention than mixed and negative EWOM. This indeed supports H1.12, H2.12, H3.12 and H4.12, and endorses the argument that the impact of positive EWOM is more powerful than negative EWOM on purchase decisions. The findings of the current study are consistent with East et al. (2008) and East, Romaniuk, Chawdhary and Uncles (2017), who discovered that positive WOM has more impact than negative WOM. The current study adds that this finding is not only true for high-involvement products but also for low-involvement ones. Consumers' perceived risk of high-involvement products may be diminished if they acquire the information from reliable sources (Evans & Erkan, 2015). It was clear from Figure 5.5 that an electric toothbrush led to higher purchase intention than earbuds across all levels of EWOM types. A plausible explanation is that only 13% of consumers indicated that they never used earbuds, whereas about 55% of consumers stated that they never used an electric toothbrush. This gap may explain the higher intention to purchase the electric toothbrush in comparison with earbuds. This in fact supported H16.

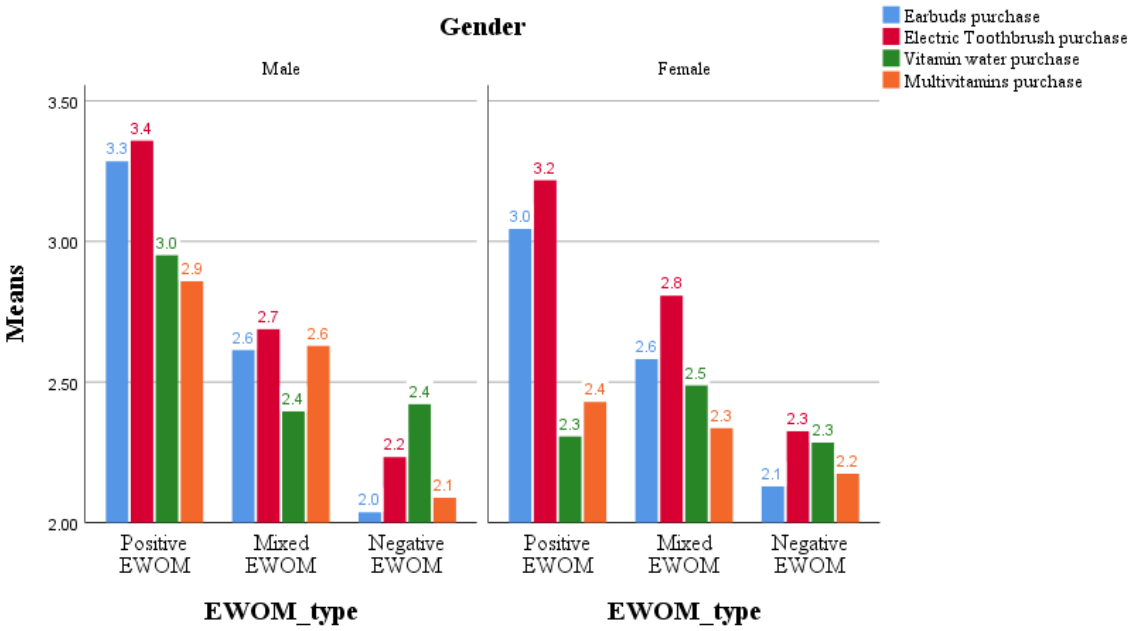

Figure 5.5. Mean of products purchase intention by EWOM type and gender.

5.3.2 Purchase Intention and Visual Dimension

The current study could not provide support for the proposition that a product-only image will lead to a higher purchase intention than product with face image and text-only. According to the means of the products in Figure 5.2, male and female consumers did not differ in their evaluation of purchase intention for the high-involvement products of earbuds and an electric toothbrush but did differ for low-involvement products. As regards the high-involvement products of earbuds and an electric toothbrush, visual dimensions presented a similar pattern, resulting in the rejection of H1.13 and H2.13. It can be seen that the means for reviews of an electric toothbrush were slightly higher than those for reviews of earbuds. This pattern was consistent with the earlier findings about EWOM.

For the low-involvement product of vitamin water, the text-only group yielded higher purchase intention than product-only image and product with face, to a significant degree.

This seemed to be true for females, but did not confirm H3.13. For multivitamins, H4.13 was not supported; nor did it reach a significant level of difference.

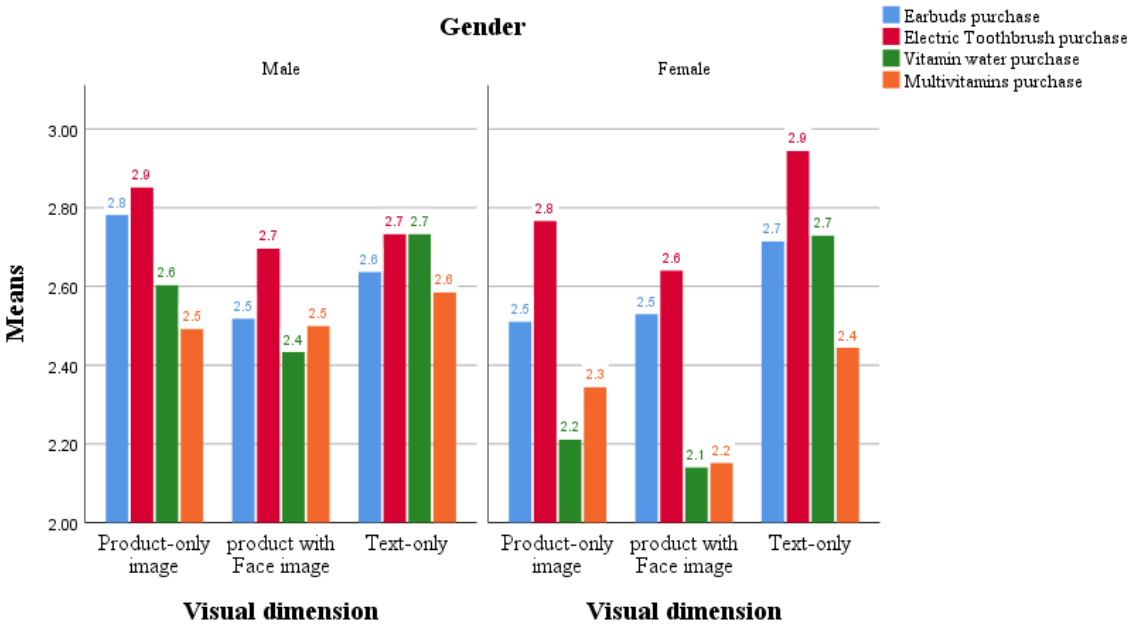

Figure 5.6. Mean of products purchase intention by visual dimension and gender.

Overall, none of the hypotheses related to the visual dimension of product-only image and purchase intention showed a significant difference. It seems that text-only resulted in higher purchasing intention than did product-only images and products with faces, reaching a significant difference for vitamin water only. With regards to other products, text-only was associated with slightly higher purchase intention than other visual dimensions but was not significant. Although earlier research on advertising literature confirms that pictures attached to textual content tend to be better evaluated by consumers, resulting in a positive attitude towards products (Lin et al., 2012; Miniard et al., 1991; Phillips, 2000; Shin et al., 2019), the findings about visual dimension lean towards contradicting the view that ‘a picture is worth thousand words’.

5.3.3 Purchase Intention of EWOM Type and Visual Dimension

This section discusses the association between EWOM type and visual dimension in relation to purchase intention. It was hypothesised that positive EWOM would lead to a higher purchase intention when the product-only image was disclosed. The current study could not provide support for the association between EWOM type and visual dimension for either high or low involvement products, rejecting H1.9, H2.9, H3.9 and H4.9. Figure 5.7 presents the means of products by EWOM type and visual dimension. Examining the high-involvement products of earbuds and an electric toothbrush, it can be seen that positive EWOM led to stronger purchasing intention than mixed and negative EWOM. This is consistent with the previous findings about the helpfulness of types of EWOM. The highest visual dimension consumers ranked by mean in relation to purchase intention was text alone, which was consistent with previous outcomes.

With respect to reviews of the low-involvement products of vitamin water and multivitamins, they show relatively similar patterns. For vitamin water, mixed EWOM was associated with higher purchase intention than positive EWOM and negative EWOM with a product-only image, but failed to reach a significant difference. Further, the positive EWOM was higher than mixed negative EWOM at the product with face level. At the text-only level, positive EWOM was also higher than mixed and negative EWOM by mean. The multivitamin stimulus displayed similar trends to those of responses to reviews of vitamin water, with the exception that it achieved a statistical significance. For the multivitamins, mixed EWOM was associated more strongly with purchase intention than negative EWOM at product-only image, showing a significant difference. Also, the positive EWOM was higher than negative EWOM at the product with face level, achieving a significant difference. At the text-only level, positive EWOM was higher than mixed and negative EWOM, showing a significant difference. It can be concluded that the positive EWOM at the text-only level

received the highest rank by consumers, making it a clear trend. This was true especially for the low involvement products.

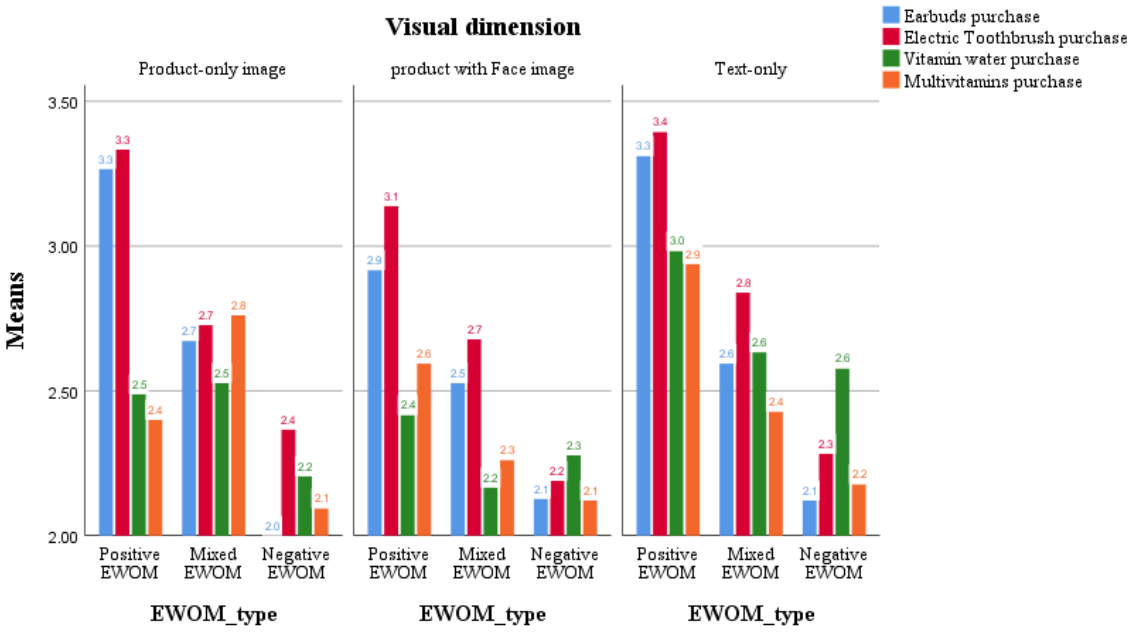

Figure 5.7. Means of intent to purchase product by EWOM type and visual dimension.

5.3.4 Purchase Intention of EWOM Type, Visual Dimension and Gender

The hypothesis that female consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed than will males was rejected and in fact failed to be statistically significant. Figure 5.8 shows the tendencies.

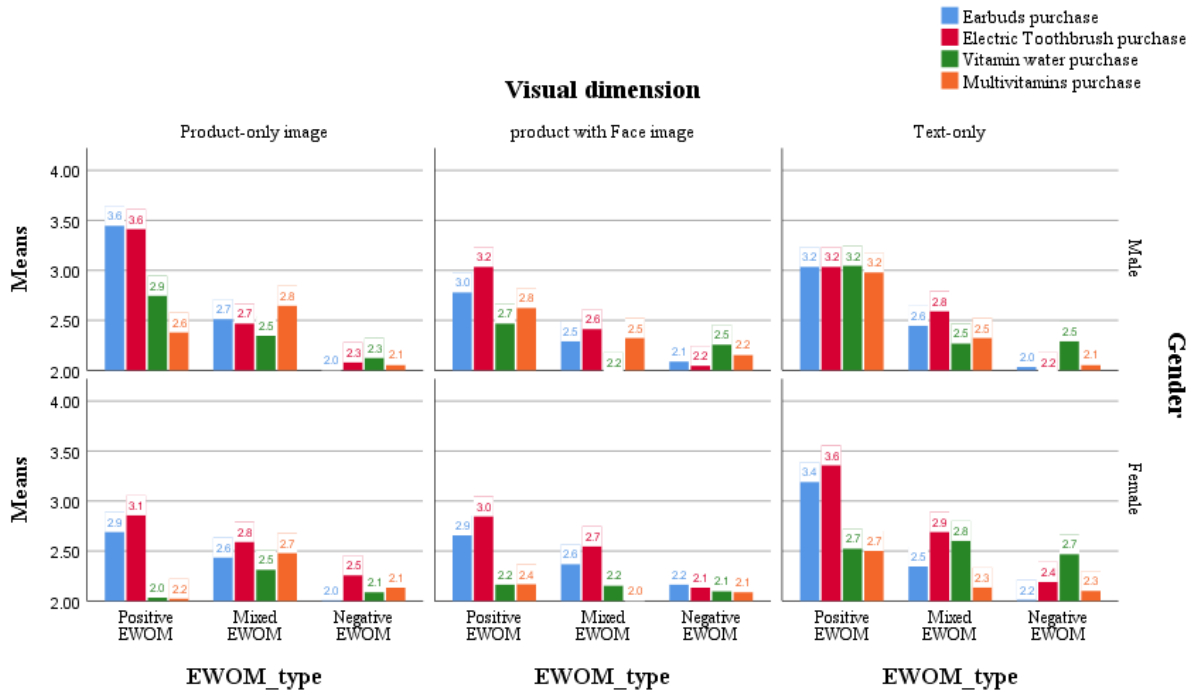

Figure 5.8. Means of intent to purchase product by EWOM type, visual dimension and gender.

5.4 Summary of Research Hypotheses

For helpfulness, three-way interaction between EWOM type, visual dimension and gender was supported for earbuds. That is, female consumers consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed than do males only for earbuds. The two-way interaction between EWOM type and visual dimension was supported for multivitamins. Specifically, consumers consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed for multivitamins. None of the two-way interactions between EWOM and gender or visual dimension with gender were supported. None of the main effect of EWOM type or visual dimension were supported. Finally, gender made a difference only in response to reviews of the low involvement products of vitamin water and multivitamins.

For purchase intention, none of the three-way interactions between EWOM type, visual dimension and gender were supported. The two-way interactions between EWOM type

and gender were supported for the low involvement products. To be precise, positive EWOM leads to a higher purchase intention than negative and mixed EWOM for males than it does for females only in the low involvement products of vitamin water and multivitamins. None of the two-way interactions between EWOM type and the visual dimension or visual dimension and gender were supported. The main effect of EWOM type was supported for both high and low involvement products. That is, positive EWOM led to a higher purchase intention than negative and mixed EWOM for both high involvement and low involvement products. There was no relationship found between the levels of visual dimension. Lastly, like helpfulness, gender differed only in the low-involvement products of vitamin water and multivitamins. Table 5.1 summarises the research hypotheses and results for all products.

Table 5.1

Summary of Research Hypotheses

No.	Hypothesis	Result
H1	Female consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed, and this will be more so than for males.	✓ Earbuds × e-toothbrush × Vitamin water × Multivitamins
H2	Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed.	× Earbuds × e-toothbrush × Vitamin water ✓ Multivitamins
H3	Females will consider product-only image to be more helpful than males will.	× Earbuds × e-toothbrush × Vitamin water × Multivitamins
H4	Females will consider mixed EWOM more helpful than will males.	× Earbuds × e-toothbrush × Vitamin water × Multivitamins
H5		× Earbuds

	Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM.	× e-toothbrush × Vitamin water × Multivitamins
H6	Consumers will consider a product-only image to be more helpful than product with face image and text-only.	× Earbuds × e-toothbrush × Vitamin water × Multivitamins
H7	Male and female consumers will differ in their rating of helpfulness of EWOM.	× Earbuds × e-toothbrush ✓ Vitamin water ✓ Multivitamins
H8	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed for males but not for females.	× Earbuds × e-toothbrush × Vitamin water × Multivitamins
H9	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed.	× Earbuds × e-toothbrush × Vitamin water × Multivitamins
H10	Product-only image will lead to a higher purchase intention than product with face image and text-only for males than it will for females.	× Earbuds × e-toothbrush × Vitamin water × Multivitamins
H11	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM for males than it will for females.	× Earbuds × e-toothbrush ✓ Vitamin water ✓ Multivitamins
H12	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM.	✓ Earbuds ✓ e-toothbrush ✓ Vitamin water ✓ Multivitamins
H13	Product-only image will lead to a higher purchase intention than product with face image and text-only.	× Earbuds × e-toothbrush × Vitamin water

H14	Male and female consumers will differ in purchase intention.	× Multivitamins × Earbuds × e-toothbrush ✓ Vitamin water ✓ Multivitamins
H15	EWOM featuring high-involvement/high-conspicuous product (earbuds) will be perceived as more helpful than high-involvement/low-conspicuous product (e-toothbrush), low-involvement/high-conspicuous product (vitamin water), and low-involvement/low-conspicuous product (multivitamins).	✓ Supported
H16	EWOM featuring high-involvement/high-conspicuous product (earbuds) will lead to a higher purchase intention than high-involvement/low-conspicuous product (e-toothbrush), low-involvement/high-conspicuous product (vitamin water), and low-involvement/low-conspicuous product (multivitamins).	× Not supported

5.5 Summary of Products Reviewed

This research aimed to include two product categories to make a solid and generalisable conclusion. The first category included two conspicuous products, of which earbuds required high involvement and vitamin water, low involvement. The second category comprised two non-conspicuous products, of which an electric toothbrush represented a high involvement product and vitamin supplements, a low involvement product. It was expected that the high level of conspicuousness and involvement would be consistent regarding the dependent and independent variables. Although conclusions supported the helpfulness of the reviews and the resulting purchase intentions concerning the high involvement products, the results regarding conspicuousness showed rather inconsistent trends. That is, the reviews of the earbuds as a conspicuous product were ranked as the most helpful, and the reviews of the electric toothbrush as a non-conspicuous product led to a higher purchase intention. Moreover, the level of conspicuousness was rather inconsistent in relation to the EWOM type, visual dimension and gender. The next chapter will discuss several implications of the

level of involvement, conspicuousness and cultural issues, along with the contributions and limitations of this project and opportunities for future research.

5.6 Chapter Summary

This chapter discussed the findings of the research based on the dependent variables. It started by discussing the helpfulness of reviews in relation to the independent factors, EWOM, visual dimension and gender according to the level of involvement and conspicuousness. Then, a discussion about purchase intention in relation to the independent factors addressed the four products. Lastly, a summary of the research hypotheses and results as well as a product evaluation summary were given.

Chapter 6: Conclusion

6.1 Introduction

This chapter concludes the current research. It starts with a summary of the research undertaken. Next, it outlines the research questions and presents their answers with reference to helpfulness and purchase intention. Then, the theoretical and practical implications are discussed. Limitations of the study and opportunities for future research follow. The chapter concludes with some final reflections.

6.2 Summary of the Research

Given the significance and paucity of research on the joint impact of EWOM's multi-visual dimensions and textual characteristics on its helpfulness and intention to purchase, it was essential to gain insight into this topic, and that was the aim of this study. The primary objective of this research was to examine the effects of visual and textual features of EWOM on its perceived helpfulness and on purchase intention.

An extensive literature review on the helpfulness and purchase intention of EWOM multimodal content as well as an evaluation of established theories were conducted to achieve the objective of this research and to provide answers to the questions posed. A review of prior research also led to the development of a detailed design to determine the impact of the visual dimension (product-only image, product with face image and text-only) on helpfulness and purchase intention in the context of social media.

The design addressed several important factors that were expected to influence the helpfulness of EWOM, and associated purchase intentions. The experiment provided a deep understanding of the impact of both EWOM type and visual dimension, their interactions with gender as well as their effects on helpfulness and purchase intention. Through the literature review, the research showed that conflicting views existed among scholars on the effects of one-sided and two-sided EWOM on perceptions of helpfulness and credibility

(Lopes et al., 2020; Park et al., 2019). The current study attempted a comprehensive review of the effect of one-sided and two-sided EWOM both in relation to helpfulness and also to purchase intention. That is, positive, mixed and negative EWOM were nominated as the three main types of EWOM.

It was argued that visual EWOM shared by customers was vital to prospective customers within the travel industry (Lee & Tussyadiah, 2016; Roy et al., 2021). This was because of it providing valuable information and knowledge as well as generating a strong influence on consumers' perceptions of travel destinations during the process of decision-making (Konijn et al., 2016). Social media posts comprising photos were found to receive more likes and shares than posts without photos. Therefore, the selection of visual dimension was inspired from the literature's call to investigate its effect on consumers' decision-making (Lin et al., 2012; Roy et al., 2021; Serrano & Ramjaun, 2018). The selection of the levels of visual dimension was drew on an online content analysis to detect how consumers share their images about their products or services on social media as well as on shopping websites. Thus, product-only image, product with face image and text-only were selected as the three main visual dimensions. This study was underpinned by dual-coding theory (Paivio, 1969, 1971, 1990) and multimedia learning theory (Mautone & Mayer, 2001; R. Mayer & Mayer, 2005; Mayer & Moreno, 2003), which suggest that visual information along with verbal information boosts both individuals' understanding and recall (Lenzner et al., 2013).

Moreover, the research implemented an online factorial experiment that was embedded in Qualtrics software. The factorial experiment covered systematic variation of independent variables to explore the causal relationship between factors (Cook et al., 2002; Perdue & Summers, 1986). The experiment was a 3 (visual dimension: product-only image, product with face image, text-only) × 3 (EWOM type: positive only, both positive and negative, and negative only) full factorial design. Four different products were used, based on

the combination of two dimensions (high vs low involvement; conspicuous vs non-conspicuous).

After the survey was professionally translated from English to Arabic language utilising a conceptual translation technique (McKay et al., 1996), the study recruited 540 Saudi college students using a convenience sampling technique. The current research employed a three-way ANOVA to test the helpfulness and purchase intention associated with the two product categories. This resulted in 14 hypotheses for each product (14 × 4 = 56) and two hypotheses about the level of involvement and conspicuousness; thus, 58 hypotheses were tested in total. The next section revisits the research questions.

6.3 Re-examining the Research Questions

The current research designed a robust experiment to address the four research questions. The experimental design aimed at examining how multimodal EWOM contents about four products affect helpfulness and purchase intention. Following are the responses to the study's four research questions.

6.3.1 RQ1: To What Extent Does the Interrelationship between Type of EWOM and Visual Dimension, when Considering Gender, Affect (1) Helpfulness and (2) Purchase Intention?

An extensive literature review was employed to comprehend visual and textual EWOM in order to respond to this research problem. While the literature showed conflicting results regarding the effect of positive and negative EWOM, and there were also inconsistent outcomes concerning the impact of one-sided versus two-sided EWOM. The current study examined positive, negative and mixed EWOM. For the visual dimension, it was discovered that visual elements of EWOM are nuanced and underdeveloped. Thus, an online content analysis was conducted to examine the elements of visual EWOM. Many items were found but two were selected to be compared with text-only, namely the product photo with and

without a face. Gender was a third factor, but the results were varying according to two-way and three-way interactions. The two-way interaction of EWOM type and visual dimension in relation to helpfulness was significant for some products but not significant for purchase intention. Similarly, the three-way interaction of EWOM type, visual dimension and gender was only significant for helpfulness.

6.3.1.1 Helpfulness: EWOM Type Visual Dimension*

The interaction between EWOM type and visual dimension was significant for the low involvement and low-conspicuousness product of multivitamins. This supported the hypothesis that mixed EWOM was more helpful than positive and negative EWOM when the product-only image was disclosed. The current research provides support to the view that two-sided EWOM is more helpful than positive or negative EWOM. According to published data, the population of Saudi Arabia is close to 100% deficient in vitamin D (Al-Alyani, Al-Turki, Al-Essa, Alani, & Sadat-Ali, 2018) because of limited exposure to sunlight. This may explain why the posts about multivitamins were perceived as being more helpful. The fact that two-sided EWOM was perceived as more helpful than one-sided information was because of the acknowledgement of two arguments, which provided a comprehensive opinion about the advantages and disadvantages to consumers. In their study, Park et al. (2019) confirmed that the number of arguments was significant for highly involved consumers. The current study adds that this is also true for low involvement products when visual and textual EWOM are presented together.

Concerning visual EWOM, the present study offers support to the findings of dual-coding theory (Paivio, 1969, 1971, 1990) and multimedia learning theory (Mautone & Mayer, 2001; Mayer & Mayer, 2005; Mayer, 2003; Mayer & Moreno, 2003) that visual information along with verbal information is more helpful than text alone. This is also aligned with self-reference theory, which has found that consumer selfies featuring a face are

generally less effective than brand selfies at evoking thoughts of using the products oneself (Hartmann et al., 2021). Finally, this conclusion is consistent with advertising studies that have asserted the superior effect of visual information (Childers & Houston, 1984; Childers et al., 1985; Keller, 1987; Shin et al., 2019; Wyer et al., 2008).

The current research uncovered dynamics regarding how the helpfulness of posts containing images of products and a face related to low-involvement products. It was found that negative EWOM was perceived as more helpful than positive and mixed EWOM for products with a face image, especially for female consumers. In this scenario, females may have engaged with the sender featuring negative EWOM more than engaging with the low-involvement products. According to self-reference theory, the customer selfie may indicate that the presence of a face draws attention away from the brand (Hartmann et al., 2021). The showing of a strong tie's face may have sparked the helpfulness of negative EWOM that warned close friends about the vitamin water and multivitamins. This was salient for females, who found the negative EWOM more helpful than male consumers when the face was disclosed. This conclusion is consistent with research showing that the more reliable the source of negative information, the greater the acceptance of EWOM (Brown et al., 2007; Pan & Chiou, 2011). Therefore, this research suggests that while it is true that consumer selfies (products with face images) generally appear less effective than brand selfies at evoking thoughts of using the products oneself (Hartmann et al., 2021), this is not true when a consumer receives negative EWOM. In short, this research adds to the self-reference theory that female consumer selfies featuring a face with a brand and discussing negative EWOM are found to be more helpful than positive and mixed EWOM.

6.3.1.2 Helpfulness: EWOM Type Visual Dimension*Gender*

The interaction between EWOM type, visual dimension and gender was significant for the high involvement and high-conspicuousness product of earbuds. This supported the

hypothesis that mixed EWOM was the most helpful type of EWOM for females more often than for males when the product-only image was disclosed. Similarly to the outcome of reviews of multivitamins, the results about the high involvement and conspicuous earbuds gave support to the view that two-sided EWOM is more helpful than positive or negative EWOM alone. These results were consistent with Lopes et al. (2020), in whose study consumers put more weight on the number of arguments (mixed EWOM) for highly involved products. However, the two-sided EWOM preference applied only to female consumers as male consumers found positive EWOM more helpful. One explanation could be that males are more prone to seek less information (Sohaib et al., 2018). Further, females may be more socially connected and hence place a significant emphasis on social media WOM and suggestions from friends (Hupfer & Detlor, 2006). In a similar manner, the literature suggests that a message that is information-rich tends to attract women to read verbal arguments and carry out more comprehensive message processing. Women are more motivated to elaborate on the message content than males, so they tend to appreciate the additional information supplied in information-rich ads (Meyers-Levy & Maheswaran, 1991; Putrevu, Tan, & Lord, 2004).

Male and female consumers found the product-only image to be more helpful than a product with face image and text-only. The present study provides support to dual-coding theory and multimedia learning theory on the importance of visual information. Judging from the results, women put slightly more weight on product-only images than do men. This outcome is consistent with Lenney, Gold, and Browning (1983), who found women tend to encode nonverbal cues in messages because they depend on visual stimuli to comprehend the arguments communicated via images. Females are therefore more likely than males to accurately encode verbal and nonverbal message cues when processing advertising claims (Chamblee, Gilmore, Thomas, & Soldow, 1993).

It was concluded that the interaction between type of EWOM and the visual dimension was significant for both males and females. More specifically, females found the mixed EWOM with the product-only photo to be more helpful than positive and negative EWOM for the earbuds. Males, in contrast, found positive EWOM with the product-only photo to be more helpful than mixed and negative EWOM. When the gender factor was eliminated, mixed EWOM was the most helpful at the product-only photo level for the multivitamins. In short, mixed EWOM and product-only photos were dominant in providing helpful information.

6.3.1.3 Purchase intention: EWOM Type Visual Dimension*

The interaction between type of EWOM and visual dimension on purchase intention was not significant for either low or high involvement products. The findings did not support the hypothesis that positive EWOM will lead to a higher purchase intention than mixed and negative EWOM when the product-only image is disclosed for all products. Therefore, the current research suggests that no interaction exists between any type of EWOM with any of the visual dimensions, in any types of products studied. Further research using different products, concepts or visuals may come up with different findings.

6.3.1.4 Purchase intention: EWOM Type Visual Dimension*Gender*

Similarly to the two-way interaction, the interaction between the EWOM type and visual dimensions was not significant for the high- and low-involvement products when considering the effect of gender on purchase intention. The findings failed to support the hypothesis that positive EWOM will lead to a higher purchase intention than mixed and negative EWOM when the product-only image is disclosed for all products. Therefore, the current research suggests that no interaction exists between any type of EWOM and visual dimension, whether for male or female consumers in any types of products studied.

6.3.2 RQ2: Which Visual Dimension Has More Impact on (1) EWOM Perceived Helpfulness and on (2) Purchase Intention than the Other: The Image of the Product Only, the Image of the Product with the Person Shown, or Text Only (No Image)?

6.3.2.1 Helpfulness: Visual Dimension

The relationship between the levels of visual dimension alone was significant for the high involvement products (high and low conspicuousness) of earbuds and an electric toothbrush. However, this failed to support the hypothesis that consumers will consider product-only images to be more helpful than products with face image and text-only. Unpredictably, the results showed that text-only posts were more helpful than a product with face image. It can be concluded that text-only posts seem to be more helpful than product with face images for high involvement products.

6.3.2.2 Purchase Intention: Visual Dimension

The relationship between the levels of visual dimension irrespective of other factors was significant for the low-involvement and high conspicuousness product of vitamin water. However, this failed to support the hypothesis that product-only images will lead to a higher purchase intention than product with face images and text-only posts. The findings suggested that text-only posts tend to lead to a higher purchase intention regardless of EWOM type for vitamin water. This finding is consistent with Kim and Lennon (2008), who also found that verbal information was superior to visual information in leading to a higher purchase intention for product presentation in online shopping. Another explanation for this may be the way visual EWOM stimuli were manipulated in this study, which resulted in stronger effects of the no-image condition (text-only). More specifically, the images in all visual dimensions were natural in accordance with the suggestion of Park and Jeon (2018), which may have equalised their effect. Pictures emphasising negative or positive aspects of products or services could exert greater impact on consumers. However, the effect of the visual

dimension alone is diminished when interacting with EWOM. For the other products of earbuds, an electric toothbrush and multivitamins, no statistically significant differences were found between visual dimensions.

6.3.3 RQ3: Which EWOM Type (Valence) Has Greatest Impact on (1) EWOM Perceived Helpfulness and on (2) Purchase Intention: Positive EWOM, Mixed EWOM or Negative EWOM?

6.3.3.1 Helpfulness: EWOM Type

The main effect of EWOM type was significant for the low-involvement and high-conspicuousness product of vitamin water. However, this did not support the hypothesis that consumers will consider mixed EWOM to be more helpful than positive and negative EWOM. The findings suggested that negative EWOM was more helpful than positive and mixed EWOM. This outcome was found correct for females rather than males, which suggests that females are more prone to negative information. Further, negative emotions may have more impact on female than male consumers (Sun et al., 2020). This outcome is consistent with low-involvement products like vitamin water, which, it is argued, exhibit more attitude shift in response to negative EWOM (Ahluwalia et al., 2000). For the other products of earbuds, an electric toothbrush and multivitamins, no statistically significant differences were found between types of EWOM.

6.3.3.2 Purchase Intention: Type of EWOM

In stark contrast, the main effect of EWOM type was significant for all four products. This supported the hypothesis that positive EWOM will lead to a higher purchase intention than negative and mixed EWOM. The current research provides full support to the view that positive EWOM is more powerful in persuading consumers to purchase products than negative EWOM. The literature on EWOM has conflicting conclusions on the occurrence and the effects of positive and negative EWOM (Chen et al., 2019; Lee et al., 2008; Nam et al.,

2020a, 2020b; Sen & Lerman, 2007; Sparks & Browning, 2011; Suárez-Álvarez et al., 2019; Yang & Mai, 2010). The findings of the current study are consistent with East et al. (2008) and East, Romaniuk, Chawdhary and Uncles (2017), who found that positive WOM has more impact than negative WOM. The current research also finds that positive EWOM about the low involvement products of vitamin water and multivitamins led to a higher purchase intention for males more than for females. This conclusion is quite similar to that of Sohaib et al. (2018), who found that males are prone to seek less information and willing to take more risk when purchasing from social media. This suggests that females tend to take less risk during the process of purchasing. As regards the high-involvement products of earbuds and an electric toothbrush, the effect of gender is diminished.

In sum, the hypothesis that mixed EWOM will be more helpful than positive and negative EWOM was not supported for all products. With regards to purchase intention, it was concluded that positive EWOM in fact led to a higher purchase intention than mixed and negative EWOM.

6.3.4 RQ4: How Do Consumers Rate the Helpfulness and Their Purchase Intention According to the Levels of Involvement and Conspicuousness of the Four Products?

From an extensive literature review, the product classifications of conspicuous and non-conspicuous were developed in this study. Classifying the products by high and low visibility was mainly inspired by Choi et al. (2018), Graeff (1996) and Minyoung Lee et al. (2021). The classification of the level of involvement was inspired by De Pelsmacker et al. (2018). The examination of different product categories not only contributes to the generalisability of the results, but also reduces the specific effects of any particular product. The rating of helpfulness and purchase intention according to the levels of involvement and conspicuousness of the four products is outlined.

6.3.4.1 Helpfulness

The repeated measure analysis based on helpfulness suggested that posts of all four products significantly differed in their effects. The difference in response to helpfulness for high involvement products was higher for a product with high conspicuousness than for a product with low conspicuousness. That is, the high involvement product of earbuds was ranked as the most helpful, compared with the similarly high involvement of an electric toothbrush. This difference implied that the more visibly consumed a product is, the more helpful the tweet. This conclusion is consistent with earlier studies (Batra, Homer, & Kahle, 2001; Bearden & Etzel, 1982; Griskevicius, Tybur, & Van den Bergh, 2010). However, the low-involvement products of vitamin water and multivitamins showed an opposite pattern. That is, the low- conspicuousness multivitamins were more helpful than the high-conspicuousness vitamin water. This suggest that the level of conspicuousness only matters for high-involvement products vis-à-vis helpfulness.

6.3.4.2 Purchase Intention

Like helpfulness, results according to purchase intention suggest that posts on all four products yielded significantly diverse outcomes. The variance in response to purchase intention towards high involvement products was higher for a product with low conspicuousness than for a product with high conspicuousness. Specifically, posts on the high involvement electric toothbrush led to a higher purchase intention than earbuds. This result is contradictory to what was found for helpfulness. One explanation is that the results of this study about purchase intention stated that earbuds had more current users than did electric toothbrushes. This may raise the intention to purchase the low conspicuousness product more than the product with high conspicuousness. Nonetheless, the low involvement products were rated differently. Posts on the highly conspicuous vitamin water in fact led to a higher purchase intention than those on the less conspicuous multivitamins. Although this is

inconsistent with what was found for helpfulness, these findings are consistent with previous studies about products of low conspicuousness (Batra et al., 2001; Bearden & Etzel, 1982; Griskevicius et al., 2010). A plausible explanation is that the usage level of multivitamins was higher than for vitamin water. This suggests that the level of conspicuousness only matters for low involvement products regarding purchase intention.

6.3.4.3 Summary

It can be stated that when evaluating EWOM helpfulness, pictures do in fact contribute a large amount of value. For females, this effect is more pronounced when the EWOM is mixed. However, this is only confirmed for conspicuous and high involvement products. Visuals do not significantly contribute to greater purchasing intention. In fact, text-only posts were crucial in getting customers to buy both conspicuous and non-conspicuous high involvement products. This study adds to the body of existing theory by arguing that two-sided EWOM with a photo of conspicuous and high involvement products are seen as the most helpful for consumers, especially females. Tables 6.1 and 6.2 outline these results.

Table 6.1

Summary of Results for Helpfulness

Interactions	Hypothesis	Result	Notes
EWOM*visual dimension*gender	Female consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed than will males.	✓ Earbuds × e-toothbrush × Vitamin water × Multivitamin	
EWOM*visual dimension	Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM when the product-only image is disclosed.	× Earbuds × e-toothbrush × Vitamin water ✓ Multivitamin	->+, ± at face level
EWOM		× Earbuds	

	Consumers will consider mixed EWOM to be more helpful than positive and negative EWOM alone.	× e-toothbrush × Vitamin water × Multivitamin	
Visual dimension	Consumers will consider product-only image to be more helpful than product with face image and text-only.	× Earbuds × e-toothbrush × Vitamin water × Multivitamin	Text > face Text > face
involvement* conspicuousness	EWOM featuring high-involvement/high-conspicuous product (earbuds) will be perceived as more helpful than high-involvement/low-conspicuous product (e-toothbrush), low-involvement/high-conspicuous product (vitamin water), and low-involvement/low-conspicuous product (multivitamins).	✓ Supported	

Table 6.2

Summary of Results for Purchase Intention

Interactions	Hypothesis	Result	Notes
EWOM*visual dimension*gender	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed for males but not for females.	× Earbuds × e-toothbrush × Vitamin water × Multivitamin	
EWOM*visual dimension	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM when the product-only image is disclosed.	× Earbuds × e-toothbrush × Vitamin water × Multivitamin	
EWOM	Positive EWOM will lead to a higher purchase intention than negative and mixed EWOM.	✓ Earbuds ✓ e-toothbrush ✓ Vitamin water ✓ Multivitamin	
Visual dimension		× Earbuds × e-toothbrush	

	Product-only image will lead to a higher purchase intention than product with face image and text-only.	× Vitamin water × Multivitamin	Text > product, face
involvement* conspicuousness	EWOM featuring high-involvement/high-conspicuous product (earbuds) will lead to a higher purchase intention than high-involvement/low-conspicuous product (e-toothbrush), low-involvement/high-conspicuous product (vitamin water), and low-involvement/low-conspicuous product (multivitamins).	× Not supported	Result is significant for electric toothbrush

6.4 The relationship between Helpfulness and Purchase Intention

Several papers have examined the association between EWOM helpfulness and purchase intention (Cheung, 2014; Frasquet, Ruiz-Molina, & Molla-Descals, 2015; Gunawan & Huarng, 2015). When information is valuable in determining whether to make a purchase or not, it is seen as being helpful (Davis, 1989). It has been established that EWOM affects how people assess products and services (Mayzlin, 2006). When EWOM is helpful, it can significantly lead to purchase intention (Jeong & Koo, 2015). At the same time, EWOM can be helpful in avoiding poor products.

In this study, the helpfulness of EWOM was used to predict consumer purchase intention. It was demonstrated that the helpfulness of both positive and mixed EWOM had a significant positive impact on consumers' purchase intention. Also, it was found that the effect of negative EWOM had a substantial negative impact on purchase intention. This prediction of positive, mixed, and negative EWOM was evident for the two product categories. Consequently, the buying intention increased in proportion to how helpful the positive and mixed EWOM were. The more helpful the negative EWOM were, the less the buying intention.

While sharing product evaluations on social media, users should be encouraged to balance out the positive and negative aspects of a product. This is something that marketers should support. According to the current study, consumers' purchase intentions for both high- and low-involvement products were positively influenced by the integration of positive and negative aspects. This is a significant strategic choice since it can affect consumers' purchasing intents while minimizing their risk perception and obtaining optimum practice with better outcome (Gunawan & Huarng, 2015).

6.5 Theoretical Implications

The primary objective of this research was to examine the effects of visual and textual features of EWOM on its perceived helpfulness and on purchase intention. The context of this research was focused on EWOM within social media, which is an important area for understanding consumer behaviour. Earlier studies emphasised the impact of different EWOM valence on consumers' behaviour (Nam et al., 2020a; Zhu, 2019; Martin, 2017; Sweeney, 2013). Other studies from different disciplines asserted the role of visual information when combined with verbal information. The current study provides theoretical contributions to the field of EWOM in not only combining the EWOM valence with its sidedness, but also testing the role of different visual dimensions in the perceived helpfulness and purchase intention, considering gender as a third factor. The development of a robust experimental design comprising 18 groups tested for high and low involvement products advances the EWOM body of knowledge. This design can be used to gain a thorough understanding of the role of EWOM valence and the visual dimension on other factors in different contexts.

This study was underpinned by theories grounded in an extensive literature. The visual information factor was underpinned by both dual-coding theory (Paivio, 1969, 1971, 1990) and multimedia learning theory (Mautone & Mayer, 2001; Mayer & Mayer, 2005;

Mayer, 2003), which suggest that visual information if attached to verbal information is more powerful than text alone. This also is associated with several advertising studies that emphasised the superior effect of visual information (Childers & Houston, 1984; Childers et al., 1985; Keller, 1987; Shin et al., 2019; Wyer et al., 2008). The three visual dimensions of the current study were also underpinned by self-reference theory, which reinforced the role of brand images as opposed to consumer selfies (Bower & Gilligan, 1979; Escalas, 2007; Hartmann et al., 2021). This research adds to self-reference theory in that while product-only images were found to be more helpful for males (in the case of positive EWOM) and females (in the case of mixed EWOM) than products with face and text-only, female consumer selfies featuring a face with a brand and discussing negative EWOM about low-involvement products were found to be more helpful than positive and mixed EWOM.

While credibility was not directly measured in this study, the current research assumed an established level of trust among friends on social media—specifically, Twitter. Hence, users would accept the information received from friends more readily than accepting information from strangers (King et al., 2014). In fact, a causal link does appear to exist between recommendations made by identified consumers and an increase in purchase probability and perceived helpfulness, owing to the persuasiveness of trust (Karimi & Wang, 2017; Porter, 2017). It was found that trustworthiness can significantly affect EWOM helpfulness (Ismagilova, Slade, Rana, & Dwivedi, 2020; Verma et al., 2023). Thus, EWOM that is helpful can be implicitly credible (Gunawan & Huarng, 2015).

This research also represents an innovative attempt to propose the mixed EWOM into the positive and negative EWOM valence into visual dimension, drawing on an extensive literature review. Thus, a novel contribution is made concerning how many arguments are present in a post. Previous studies produced conflicting results about the perceived helpfulness of one-sided EWOM. This study refutes this theory as mixed EWOM with two-

sided arguments were perceived as more helpful in two different product categories. According to the literature, the quantity of arguments (both positive and negative) for high involvement products can produce central processing, which means that consumers will be engaged in extensive information processing (Cacioppo et al., 1986). But this study demonstrates that the quantity of arguments in mixed EWOM appears to be processed both centrally with high involvement (earbuds) and heuristically with low involvement (multivitamins). Thus, using the ELM to examine EWOM and addressing these challenges is another contribution offered by this research. Further, the research examined the relationship between helpfulness and purchase intention. The buying intention increased in proportion to how helpful the positive and mixed EWOM were. Also, the more helpful the negative EWOM are, the less the buying intention.

The study's focus on gender rather than treating it as a control variable is another contribution. Many studies investigate the role of EWOM, disregarding gender as a factor (Krishnapillai & Ying, 2017). However, understanding of how females and males differ from one another is important because it assists the research community to accurately depict how male and female members interact with visual and textual EWOM. Furthermore, given that gender has less of an impact in online contexts (Krishnapillai & Ying, 2017), the current study prioritises gender and fills a knowledge gap in the literature.

Further, the research tested different products, informed by a range of theories. The selection of the products according to involvement levels was underpinned by the ELM. Most of the research conducted has concerned high-involvement products (Schau, et al., 2009). However, this research expanded its product classification to include high and low product involvement, with each one representing high and low conscious products. As a result, the product categories examined using high-involvement products might not apply to low-involvement products. Further, the study adds a new perspective to the literature by looking

at how men and women participants behaved in various scenarios requiring involvement and conspicuousness. The research adds that the higher the conspicuousness of a product is, the higher the impact it may exert.

Evidently, from the literature, EWOM studies have been heavily centred on the Western world. Little attention, however, has been given to the Eastern side of the world. This gap in the literature presents an opportunity to expand the research. The selection of Saudi Arabia enabled comparison with existing Western empirical evidence. The current research found that male and female consumers behaved differently in several scenarios.

6.6 Practical Implications

The findings of this study can be used to improve EWOM marketing strategies that offer more specialised information and facilitate decision-making. The study's outcomes are not only valuable to businesses but also for consumers, since they offer some insightful conclusions from the viewpoint of social media users. Many shopping websites and internet review sites were not intended to accommodate both positive and negative information about products or services. Retailers should recognise the kinds of information that users deem valuable. This means that online businesses may enhance the appearance of their online environment and feedback structures. Drawing on the results of this study, consumers should take advantage of boosting photos with words in social media because the existence of a picture increases how useful an EWOM post is. Therefore, businesses using social media platforms may encourage their consumers to publish images of their goods or services, especially images combined with two-sided textual arguments.

Marketing professionals can decide whether they require a marketing segmentation strategy based on gender by analysing the influence of textual and visual EWOM about high and low involvement products on gender. According to these findings, marketing managers should use various strategies for each gender when it comes to high and low involvement.

Further, the use of visual EWOM along with text is preferred by consumers, mostly women when reading about high involvement products. While gender did not produce differences in high-involvement situations, they did in those with low involvement. The study demonstrates that males, as compared with females, considered posts regarding low involvement products to be more helpful, and they resulted in a higher purchase intention. Consequently, brand managers for products with high and low levels of involvement should use policies tailored to distinct genders.

The current study informs marketing professionals about the evidence that consumer images posted online have informative values that support consumers' assessment of such products. The study draws attention of the possible impact of these pictures on social media platforms even though the study's product categories were fictional. The study also demonstrates that in addition to texts, pictures shared by users can offer helpful hints for other users to assess the value of content. Accordingly, brand managers should not limit their attention to text-based EWOMs while monitoring and responding to users. Instead, they should pay attention to user-provided images in order to learn what causes customers' contentment or discontent to successfully address consumer wants and market trends.

6.7 Study Limitations

It is important to acknowledge the limitations encountered while conducting the research because it is fruitful for setting an agenda for future research. The first limitation of this study relates to the implementation of the data collection method. It was debated during the study design what context and format should be the focus of study and it was clear that running an online survey offered significant benefits, such as generating a larger effective sample size and allowing flexible study design techniques to enable filter questions, branching and question randomisation. This was suitable for the student cohort and helped control potential biases such as order effects.

In real life, EWOM often contains multiple images or video in a single tweet. One possible experimental condition was to compare reactions to tweets with multiple or single images. However, in the end, the survey only used single photos in the tweets. This was because multiple photos would be difficult to see clearly given that the survey could be taken in a smartphone. One possible extension of the current chosen design would be to direct participants to a link showing a series of photos. In this way, respondents should be able to clearly see multiple photos at the same size as those who were directed to only one photo. However, the introduction of this ordering of presentation might have led to survey attrition and non-response, because this process needed to be completed four times with four separate products.

As with all projects, the current study was limited by time and budget. The researcher experienced some resistance while contacting the universities for participation in the study. Suitable approvals from multiple universities were obtained, but it was not a straightforward task to gain consent and handle multiple university campus collections. In the end, the study collected data from male and female university students located in two universities in Riyadh. The use of a relatively homogenous sample frame helped reduce noise in terms of extraneous variables masking the experimental effects being studied. However, this raises the issue of the extent to which the results might be projected to other parts of Saudi society such as those who are married, employed or shoppers with income. This research was limited to Saudi society. Given its unique cultural characteristics, different reactions to EWOM might be found in other societies.

Many cultural issues were encountered and navigated while implementing the study. There are unique Saudi social norms often resulting from religious practice. For instance, an adult female cannot be a close friend of another adult male, unless they are married (Syed et al., 2018). The study design considered identifying interactions between males and females

by presenting the female tweets to male participants and vice versa. They would then be asked to imagine that the person of the other gender was their friend. However, this scenario was culturally inappropriate (Alsadaan et al., 2021; Syed et al., 2018). Thus, this study was restricted to introducing the female stimuli to females only, and the male stimuli to males. The research could be extended to other societies where male-female dyads are possible. Within the Saudi context, the scenario could refer to tweets from someone who is not a close friend.

Another issue regards gender and the suitable presentation of stimuli for exposure. The photographing of the female with the earbuds while in use was a complex and much debated topic. This is because Saudi females are required by their religion to cover their hair with the hijab (Karakavak & Özbölük, 2022), and in doing so the hijab covers the ears. It is true that there are number of females who may not follow this convention, but the Saudi universities we cooperated with in distributing the survey to their students required the researcher to comply with Saudi traditions, norms and prevailing religion. That is why the researcher instructed the male and female student models photographed to hold the products in their hand instead of being photographed while in use.

Selecting Twitter as the social media platform facilitated the posting of both textual and visual information, and this was considered advantageous in many respects. It is clear that there is a vast array of social media platforms and future research could study different or emerging platforms. While this study incorporated both textual and visual information in Twitter, the work does not take into account newer moving image or video posts owing to difficulties in methodology and administration. While there seem to be users of the product categories, there were no brand users due to the products being hypothetical. This could limit the diffusion feature of EWOM. Moreover, selecting health products might be of interest to one particular of gender.

The scenarios presented to respondents in the current research involved hypothetical communication from strong social ties—a post from a friend user to another friend, a Twitter user. In this way, the sender was kept constant and some form of credibility via the friend connection was already present. Thus, the study was limited to information exchanged between people presented as having strong social ties.

Although the experimental design of the current study appears robust, it should be acknowledged in a broader context that experimental designs may limit the ability to generalise every facet (Babbie, 2001). This is because the current research aimed to examine specific underlying problems that were related to a number of objects. For instance, objects of measurement were limited to two technology products and two consumables, and each product was limited to four features identified from social media. Also, objects were limited to users of one social media platform, two visual dimensions, and three types of EWOM information (i.e. positive, negative and mixed). Further, the study presented positive EWOM first and then negative EWOM in the two-sided conditions. Alteration of these facets may have elicited a different pattern of results.

Another limitation refers to lack of prior research on visual experimental design and the methods of developing the visual stimuli in the field of visual communication. The researcher depended largely on the feedback provided by the supervision team, research on advertising, political science as well as consulting several well-known scholars interested in visual experimental design.

6.8 Opportunities for Future Research

It is impossible to address all product categories within a dissertation study. Therefore, it is recommended that this study be replicated utilising services such as movies, gyms or different product categories other than those in the current study, such as holiday destinations. Future research can also consider including more than four product features in

stimuli for each product. In addition, it is suggested that future research could present negative EWOM first and then the positive EWOM in two-sided conditions. Also, future studies should explore why the level of conspicuousness only matters for high-involvement products when it comes to helpfulness. These investigations would determine whether the study's results can be extended beyond its conditions.

It would be valuable that future research would explore if this study's findings vary from other parts of Saudi and non-Saudi society, considering non-students, such as married, employed or shoppers with income. Given the unique cultural features of Saudi society, other societies may have different reactions to EWOM. This is a clear opportunity for further research.

Another direction for future research is introducing the female stimuli to males and females, and introducing the male stimuli to females and males. This could be extended to other geographical locations, such as Western societies where male-female dyads are possible. Within the Saudi and several Middle Eastern societies, this scenario could be possible if the sender of the tweet were perceived as 'not a friend'.

Future research could study other social media platforms and emerging platforms. Moreover, video EWOM (VWOM) as a new form of EWOM in social media is seen as a new avenue for future research (Bi, Zhang, & Ha, 2019). Future studies are needed to address the influence of video EWOM in social media on consumers.

Since the current study was limited to tweets exchanged between strong ties, future research could consider different settings or levels of messaging such as from weak ties or even anonymous users. This would still be distinct from product review platforms in terms of being a form of EWOM. If this were to be implemented, a credibility variable should be measured and incorporated as an intervening variable. Future studies could also examine the

causes of the different results for the two dependent variables of the current study, helpfulness and purchase intention. Purchase probability could be of interest.

6.9 Final Remarks

EWOM has been considered an influential marketing strategy in the social network context (Yan et al., 2018). Because of the strength of EWOM's efficacy, marketers are able to promote products and services to a wide range of customers by using social networking sites at a very low cost. EWOM messages can be expressed through text, images and videos in different channels. Oral EWOM communications could shape consumers' purchase intentions, but studies into the various aspects of visual features are urgently needed because it is a developing field within EWOM.

The main objective of this study was to investigate how the visual and textual elements of EWOM affect its helpfulness and purchase intention. It can be concluded that images do, in essence, add a significant amount of value when assessing EWOM helpfulness. This was especially true for females who were exposed to mixed EWOM, although this was only verified for products with high conspicuousness and involvement. With respect to low involvement products, negative EWOM was more helpful than positive and mixed EWOM at the product with face image level, especially for female consumers. Visuals do not, however, considerably increase consumers' intention of making a purchase. Getting consumers to purchase both conspicuous and non-conspicuous high involvement products was mostly dependent on text-only communication. This study contributes to the body of existing theories by emphasising that two-sided EWOM with a photo of a conspicuous and high involvement products are considered the most useful posts for consumers, especially females.

The results of this study have significant implications for academics and practitioners alike. This research has offered an experimental design to illustrate the steps that lead to a positive customer response to EWOM helpfulness and purchase intention. Additionally, this

study has empirically shown the advantages for EWOM helpfulness of product photos over other visual elements and text.

The development of a strong experimental design that included 18 groups examined for high and low involvement items advances the EWOM body of knowledge. With the help of this design, it is possible to comprehend EWOM valence and the visual dimension's impact on other variables in various circumstances. A variety of theories supported by a large body of literature served as the foundation for this investigation. The study's emphasis on gender rather than using it as a control variable is counted as another contribution. The study also examined several products based on various assumptions. This study also contributes to validating conflicted results concerning the helpfulness of one-sided and two-sided EWOM by investigating textual and visual features. Not only does validating results achieve this, but it also addresses less glaring gaps, such as limited breadth of cultural and geographic data with studies being predominantly conducted in Western countries; the small size of samples used in research undertaken; and the sampling approaches applied potentially compromising reliability and validity of established findings.

EWOM marketing strategies that provide more specialised information and aid in decision-making can be improved using the study's findings. The study's findings are beneficial for both consumers and businesses since they give some relevant insights from the perspective of social media users. These results suggest that for products with high and low involvement, marketing managers should utilise different techniques for each gender. Consumers also like to employ visual EWOM in addition to text. Gender differences existed in low-involvement circumstances but not in high-involvement contexts. The study shows that men had higher purchase intentions and perceived posts on low-involvement products to be more helpful than women did. As a result, brand managers of products with high and low degrees of involvement should consider employing gender-specific strategies.

The outcomes of the study suggest that more research is needed to ascertain the role of visual and textual EWOM in relation to other factors in consumer behaviour. Undertaking future work is necessary to validate this within a wider context.

Marketers have long understood the value of traditional WOM as a trustworthy source of influence that is frequently unmatched by paid advertising. The ability to reach and persuade a larger market is present as a result of its explosion into numerous forms of EWOM, but with the risk of even less control over what is communicated. There is no simple formula for marketers to employ because results differ depending on the type of product. They must pay close attention to how their own products are discussed and how that may affect sales. Nonetheless, this work provides further knowledge supporting the value of encouraging EWOM into the future.

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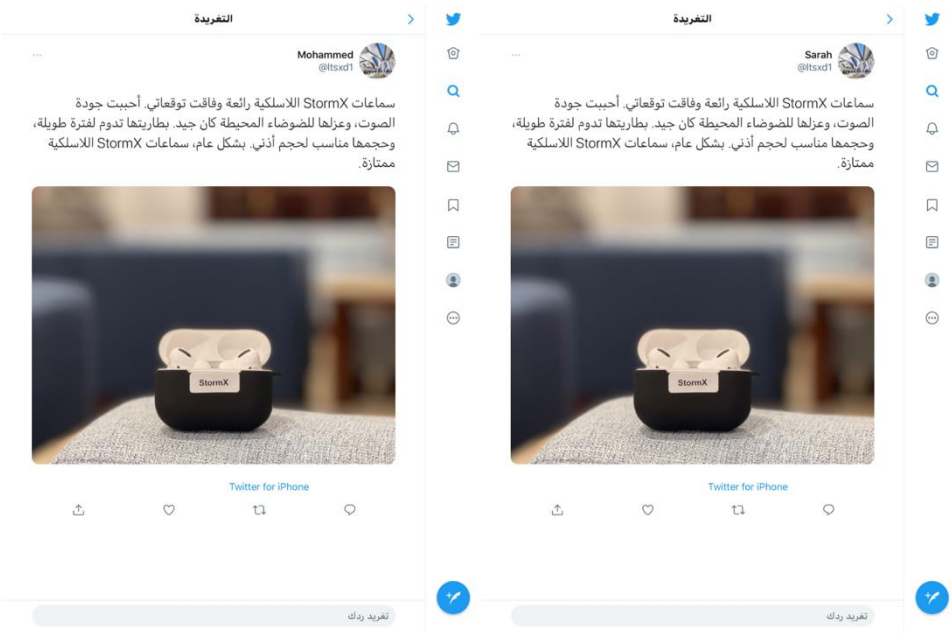
Appendix 1: Scale Items

Helpfulness
The information provided in the tweet was helpful for me to evaluate ‘the product’. The information provided in the tweet was helpful in familiarising me with ‘the product’. The information provided in the tweet was helpful for me to understand the performance of ‘the product’.
7-point Likert scale
(α = 0.858, CR = 0.913).
Purchase intention
I would consider purchasing ‘this product’. I intend to try ‘this product’. I plan on buying ‘this product’.
5-point Likert scale
(α = .94, M = 2.28, SD = 1.12).

Appendix 2: Stimuli

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Mohammed
@ltsxd1
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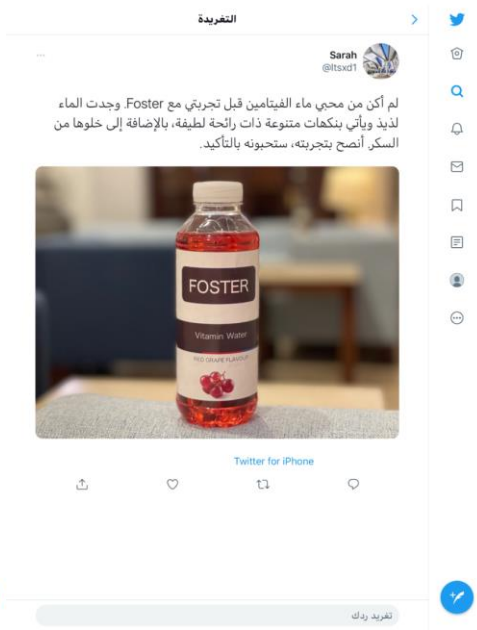
FOSTER
Vitamin Water
Twitter for iPhone
تغريد ردك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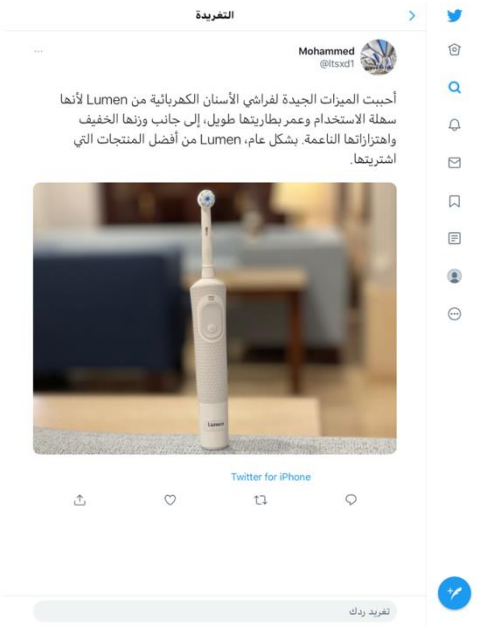
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أحببت الميزات الجيدة لفراشي الأسنان الكهربائية من Lumen لأنها سهلة الاستخدام وعمر بطاريتها طويل، إلى جانب وزنها الخفيف واهتزازاتها الناعمة. بشكل عام، Lumen من أفضل المنتجات التي اشتريتها.
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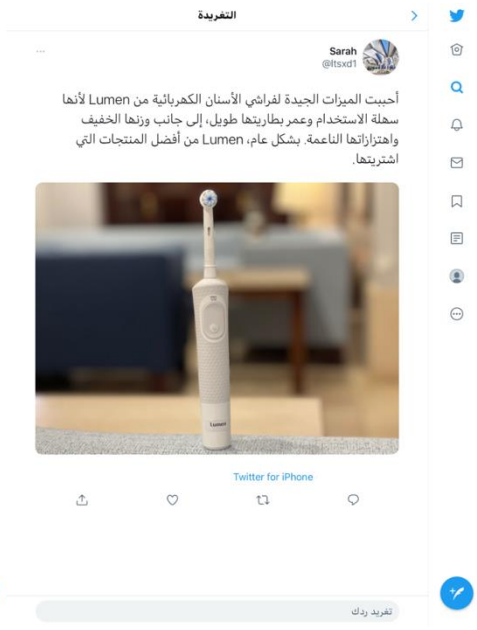
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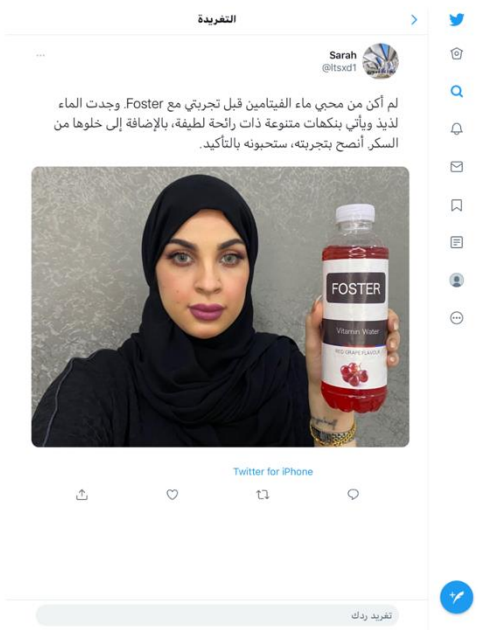
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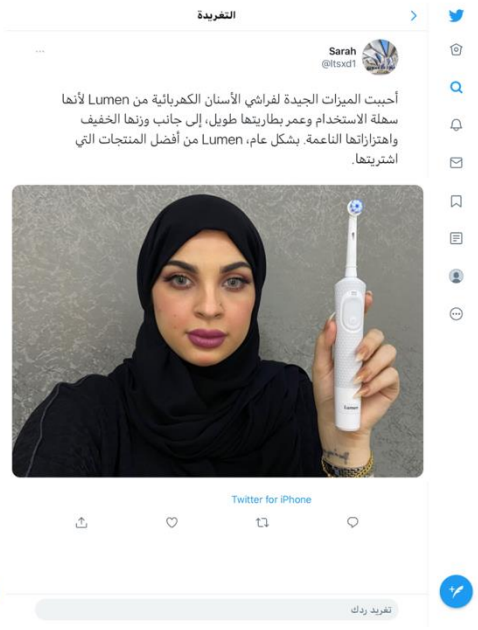
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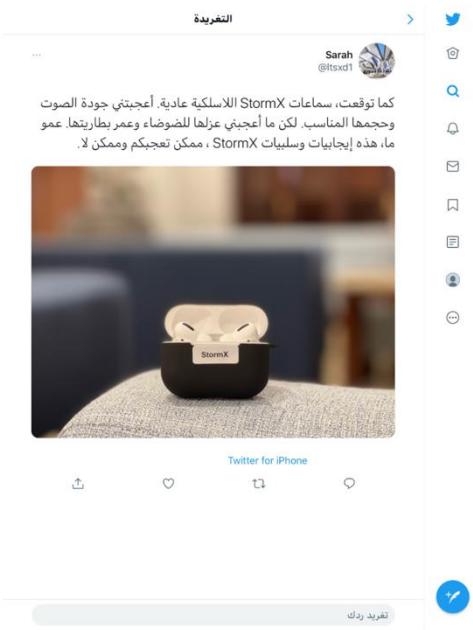
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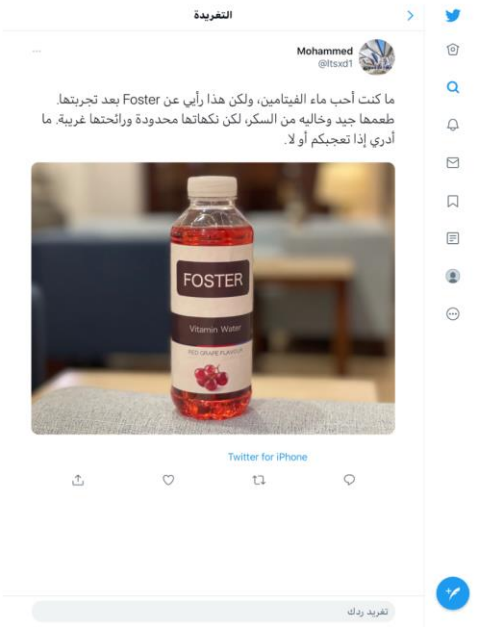
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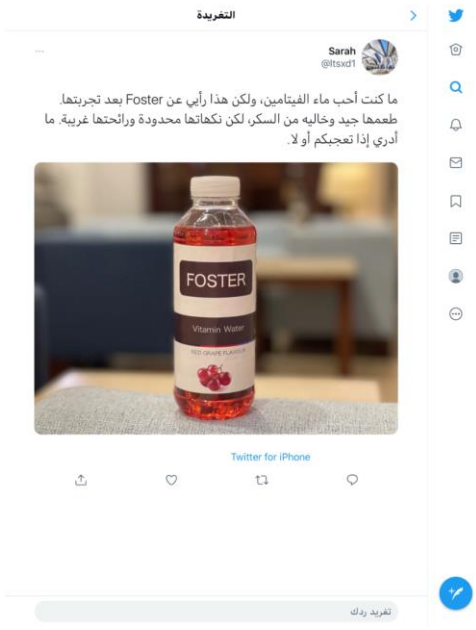
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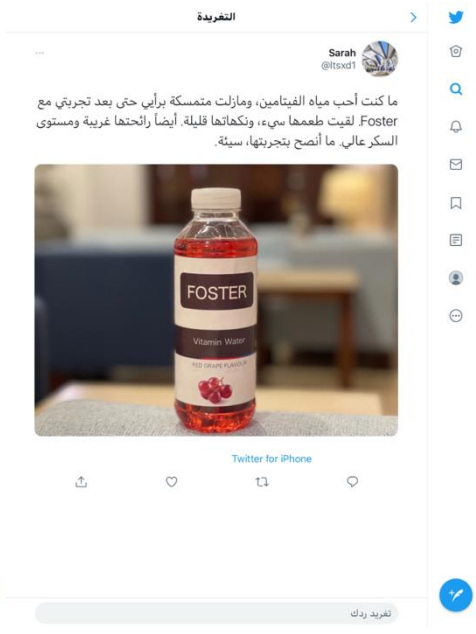
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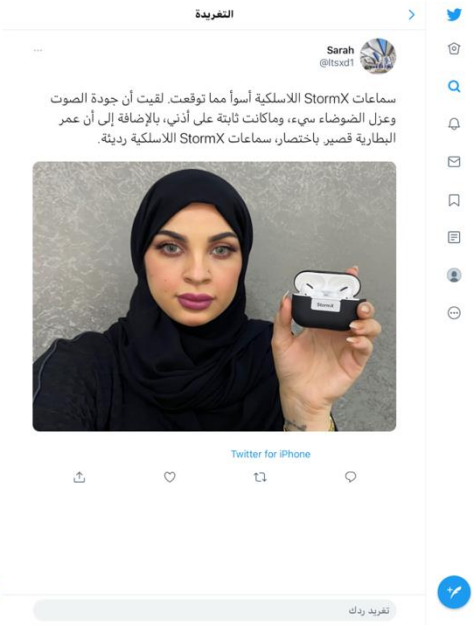
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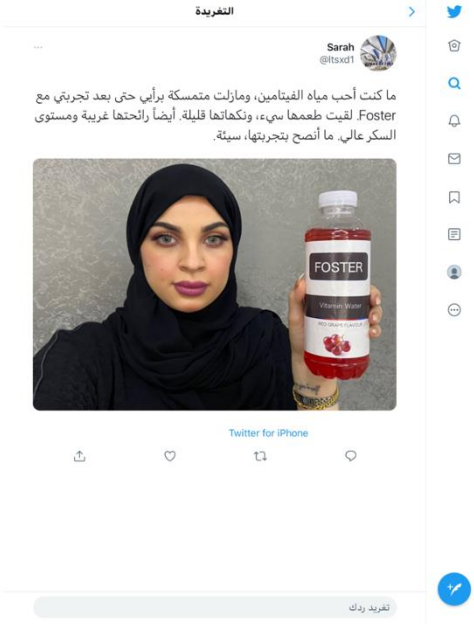
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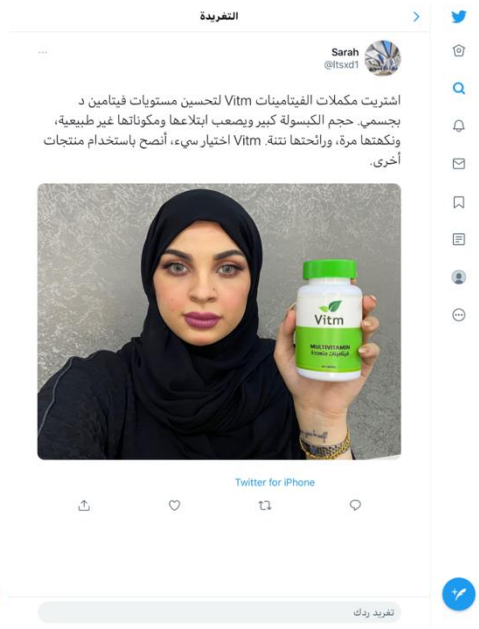
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Appendix 3: Correlation between Helpfulness and Purchase Intention for Earbuds

Correlations (Positive EWOM)			
		Helpfulness	Purchase
Helpfulness	Pearson Correlation	1	.521**
	Sig. (2-tailed)		<.001
	N	180	180
Purchase	Pearson Correlation	.521**	1
	Sig. (2-tailed)	<.001	
	N	180	180

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations (Mixed EWOM)			
		Helpfulness	Purchase
Helpfulness	Pearson Correlation	1	.156*
	Sig. (2-tailed)		.036
	N	180	180
Purchase	Pearson Correlation	.156*	1
	Sig. (2-tailed)	.036	
	N	180	180

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations (Negative EWOM)			
		Helpfulness	Purchase
Helpfulness	Pearson Correlation	1	-.379**
	Sig. (2-tailed)		<.001
	N	180	180
Purchase	Pearson Correlation	-.379**	1
	Sig. (2-tailed)	<.001	
	N	180	180

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix 4: Correlation between Helpfulness and Purchase Intention for Electric Toothbrush

Correlations (Positive EWOM)

		Helpfulness	Purchase
Helpfulness	Pearson Correlation	1	.666**
	Sig. (2-tailed)		<.001
	N	180	180
Purchase	Pearson Correlation	.666**	1
	Sig. (2-tailed)	<.001	
	N	180	180

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations (Mixed EWOM)

		Helpfulness	Purchase
Helpfulness	Pearson Correlation	1	.190*
	Sig. (2-tailed)		.011
	N	180	180
Purchase	Pearson Correlation	.190*	1
	Sig. (2-tailed)	.011	
	N	180	180

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations (Negative EWOM)

		Helpfulness	Purchase
Helpfulness	Pearson Correlation	1	-.266**
	Sig. (2-tailed)		<.001
	N	180	180
Purchase	Pearson Correlation	-.266**	1
	Sig. (2-tailed)	<.001	
	N	180	180

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix 5: Correlation between Helpfulness and Purchase Intention for Vitamin Water

Correlations (Positive EWOM)			
		Helpfulness	Purchase
Helpfulness	Pearson Correlation	1	.584**
	Sig. (2-tailed)		<.001
	N	180	180
Purchase	Pearson Correlation	.584**	1
	Sig. (2-tailed)	<.001	
	N	180	180
**. Correlation is significant at the 0.01 level (2-tailed).			

Correlations (Mixed EWOM)			
		Helpfulness	Purchase
Helpfulness	Pearson Correlation	1	.485**
	Sig. (2-tailed)		<.001
	N	180	180
Purchase	Pearson Correlation	.485**	1
	Sig. (2-tailed)	<.001	
	N	180	180
**. Correlation is significant at the 0.01 level (2-tailed).			

Correlations (Negative EWOM)			
		Helpfulness	Purchase
Helpfulness	Pearson Correlation	1	-.199**
	Sig. (2-tailed)		.007
	N	180	180
Purchase	Pearson Correlation	-.199**	1
	Sig. (2-tailed)	.007	
	N	180	180
**. Correlation is significant at the 0.01 level (2-tailed).			

Appendix 6: Correlation between Helpfulness and Purchase Intention for Multivitamins

Correlations (Positive EWOM)			
		Helpfulness	Purchase
Helpfulness	Pearson Correlation	1	.678**
	Sig. (2-tailed)		<.001
	N	180	180
Purchase	Pearson Correlation	.678**	1
	Sig. (2-tailed)	<.001	
	N	180	180
**. Correlation is significant at the 0.01 level (2-tailed).			

Correlations (Mixed EWOM)			
		Helpfulness	Purchase
Helpfulness	Pearson Correlation	1	.429**
	Sig. (2-tailed)		<.001
	N	180	180
Purchase	Pearson Correlation	.429**	1
	Sig. (2-tailed)	<.001	
	N	180	180
**. Correlation is significant at the 0.01 level (2-tailed).			

Correlations (Negative EWOM)			
		Helpfulness	Purchase
Helpfulness	Pearson Correlation	1	-.193**
	Sig. (2-tailed)		.010
	N	180	180
Purchase	Pearson Correlation	-.193**	1
	Sig. (2-tailed)	.010	
	N	180	180
**. Correlation is significant at the 0.01 level (2-tailed).			