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The Influence of Message and Audio Modalities in Augmented Reality Mobile Advertisements on Consumers' Purchase Intention

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THE INFLUENCE OF MESSAGE AND AUDIO MODALITIES IN AUGMENTED REALITY MOBILE ADVERTISEMENTS ON CONSUMERS' PURCHASE INTENTION

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ABSTRACT

THE INFLUENCE OF MESSAGE AND AUDIO MODALITIES IN AUGMENTED REALITY MOBILE ADVERTISEMENTS ON CONSUMERS' PURCHASE INTENTION

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Evidence shows that augmented reality (AR) technology is an effective advertising approach to raise a brand's awareness, so many big brands implement AR into their marketing strategy. However, the effectiveness of AR mobile advertisements on consumers' purchase intentions remains unclear. To fill this dearth in the literature, this study examined how message and audio modalities of AR mobile advertisements influenced consumers' purchase intentions by surveying 120 participants in an online experiment. Based on the uses and gratifications perspective, this experiment manipulated the message type (emotional/factual) and audio-verbal appeal (present/absent) of AR advertisements to investigate their impact on consumers' attitudes towards buying a watch. The results showed that audio-verbal appeal played a salient role in the emotional message to positively influence consumers' perceived entertaining gratification and intention to buy the watch. However, the audio-verbal factual message negatively influenced consumers' purchase intention and did not influence their perceived information gratification. Future research should test other multimedia such as images, video, or animations to better understand the interaction effect between AR mobile advertisements and consumers' purchase intentions.

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Introduction

In the age of new media, advertisers have begun to use augmented reality (AR) to attract consumers. According to Scholz and Smith (2016), AR provides an interactive experience with the product in a virtual environment that enhances consumers' online shopping experiences. Many big brands such as Lacoste, Ikea, and Starbucks use AR technology into their marketing strategies to give consumers an immersive product experience. In 2016, Lacoste used a mobile AR advertisement to allow users to virtually try out shoes. Similarly, Ikea lets consumers virtually visualize furniture in their home whereas Starbucks uses AR to display animated information on coffee products (Tabusca, 2014). However, researchers have yet to analyze the effectiveness of AR mobile advertising on consumers' purchase intentions.

Previous studies show that adding AR to mobile advertisements influences consumers to think positively about a brand and leads to greater purchase intentions (Raska & Richter, 2017; Rauschnabel, Felix & Hinsch, 2019). For instance, one study examined IKEA's AR app and 2D website ads to understand their impact on purchase intentions of 177 Swedish consumers (Raska & Richter, 2017). The study found that AR product experiences were more entertaining and useful than the website advertisements; furthermore, one of the main factors influencing consumers' buying intention was the interactive experience with AR advertisements (Raska & Richter, 2017). Another recent study used IKEA Planner and Tunnel (an AR music app) to generate a consumer-driven environment and evaluated the AR experience of 201 consumers in Germany. This study found that hedonic and utilitarian values of a product are significant user gratifications

that contribute to consumers' improved perspectives on brands (Rauschnabel, Felix & Hinsch, 2019). However, these studies have not investigated how message type and audio-verbal appeal of AR mobile advertisements influence consumers' purchase intentions and what gratifications they fulfilled.

Using the theoretical perspective of uses and gratifications (U&G), this study examined how manipulating the message type and presence or absence of audio-verbal in AR mobile advertisements impact consumers' gratifications and purchase intentions. The U&G perspective states that audiences filter messages based on one specific type of media to fulfill their needs (DeFleur, 1969). There are two important factors: first, consumers do not passively receive information, but they have the ability to choose the kind of content that provides gratification; second, consumers' need for information is different based on their demographics and learning (DeFleur, 1969).

In one study, consumers were asked to try on make up in AR versus non-AR (consumer photograph or photograph of a model) to understand their purchase intentions in the Netherlands (Smink, Frowijin, Reijmersdal, Noort, & Neijens, 2019). The researchers found that gratifications of perceived informativeness and enjoyment obtained from AR technology were higher compared to the gratifications obtained from non-AR context (Smink et al., 2019). Moreover, perceived informativeness positively influenced consumers' purchase intention while perceived enjoyment enhanced consumers' attitude towards the brand (Smink et al., 2019). On the other hand, Connolly and colleagues (2010) manipulated a car advertisement to examine the extent to which students at a Midwestern university could retain information. It was found that the

students could retain 82% of the factual information about the vehicle in a print ad compared to only 59% of the information in an AR ad. The scholars concluded that AR advertisements were less effective in delivering factual messages of product information compared to normal 2D ads when consumers had similar product knowledge and likelihood to purchase (Connolly, Chambers, Eagleson, Matthews, & Rogers, 2010). Due to such contradictory evidence on the effectiveness of AR advertisements, this thesis examines how the uses of AR based on the advertising values (hedonic vs. utilitarian) influence consumers' purchase intentions.

This study will help marketers and advertisers to better understand how to design AR advertisements and enhance marketing practice effectiveness to provide engaging experiences and product knowledge.

Literature Review

Augmented Reality Advertisements

AR is an interactive experience in a virtual environment that resembles a real-world environment within the computer-generated virtual information (Scholz & Smith, 2016). Mobile AR advertising is an innovative marketing method that applies AR to media such as advertisements and presents it on a mobile platform. In this thesis, AR mobile advertisements are immersive media that present consumers with products in a virtual environment.

Marketers use AR to craft immersive experiences that enhance consumers' visual experiences with the brand and increase sales (Scholz & Smith, 2016; Smink et al., 2019). This thesis utilizes the immersive experience that consumers receive in AR advertising by manipulating two modalities. The two modalities are message types (emotional message vs. factual message) and audio-verbal appeal (present vs. absent). Javornik (2016) defines modality as a feature such as audio or visuals that AR platforms present to consumers. Through a review of previous studies on AR, Javornik (2016) studied the relationship between seven AR modalities (interactivity, hypertextuality, modality, connectivity, location-specificity, mobility, and virtuality) and the effects of modalities on consumer behaviors. Javornik (2016) concluded that consumers' cognitive response (perceived information) about products interacted with their affective response (mood) to influence their purchase intentions.

Li and Meshkova (2013) studied the impact of using multimedia in a virtual experience on consumers' willingness to purchase shoes. Li and Meshkova (2013)

examined three different formats of shoe advertisements: static conditions, videos, and virtual product experiences. Static advertisements were found to be the least effective in influencing consumers while virtual advertisements were the most effective in influencing purchase intention (Li & Meshkova, 2013). Additionally, Li and Meshkova (2013) found that video advertisements had an indirect impact on consumers' willingness to buy, but the virtual product experience provided direct impact on consumers' purchase intentions due to the interactive modality.

Scholars such as Javornik (2016) suggested that future researchers should examine how modalities interact with AR to influence consumers. Hence, this thesis investigates how the two modalities of message type and audio appeal of AR mobile advertisements influence consumers' purchase intentions.

Empirical research on AR shows that AR advertisements viewed on a mobile phone maximize consumers' product experiences by providing interactive engagements (Scholz & Smith, 2016; Smink et al., 2019). For instance, Scholz and Smith (2016) content-analyzed more than 50 AR marketing cases and extracted three types of consumer engagement: user-user engagement, user-brand engagement, and user-bystander engagement. Scholz and Smith (2016) found that marketing paradigms in the user-brand engagement category use AR content that allows users to interact with the promoted products, aiming at the highest level of engagement. The scholars explained that Pepsi Max used AR to create a Monster Mirror in public bathrooms that randomly displayed monster-shaped filters when consumers looked into the mirror (Scholz & Smith, 2016). This AR advertisement generated over one million views on Twitter and indicated a high-

level prevalence of AR users' engagement (Scholz & Smith, 2016). Hence, this thesis examines how different type of messages and the presence or absence of audio in AR advertisements influence consumers.

McLean and Wilson (2019) used AR mobile applications from three giant retailers (Amazon, ASOS, and IKEA) to understand the relationship between user engagement and AR. McLean and Wilson (2019) surveyed 41 consumers to evaluate their past usage of AR applications in the UK and found that novelty, interactivity, and vividness could enable brand awareness and users' engagement. McLean and Wilson (2019) argued that consumers who perceived enjoyment attributed this engagement to the AR interactivity and AR vividness. At the same time, AR interactivity and AR vividness also provided cognitive responses towards the products' presentations (McLean & Wilson, 2019).

Digital Interactive Advertising versus Traditional Advertising

Information technology has developed rapidly over the past decade and led to a new format of communication and interaction between consumers and advertisers, digital interactive advertising (Pavlou & Stewart, 2000). Unlike traditional advertising that uses the one-way model to deliver product information, interactive advertising uses the two-way communication model that allows audiences to react to product information (Pavlou & Stewart, 2000; Stewart & Zhao, 2000). Moreover, scholars studied the differences between interactive advertising and traditional advertising (print or TV commercials), and their effect on consumers' engagement with products (Bezjian-Avery, Calder, & Acobucci, 1998). Participants were asked to select their favorite advertisements and recall the content. The scholars found that interactive advertisements allowed consumers

to experience the products in a realistic way, but they forgot the key features of the product (Bezjian-Avery et al., 1998). Compared to the interactive advertisements, consumers better comprehended the product features through traditional advertisement because of the one-way flow of information (Bezjian-Avery et al., 1998). Thus, they concluded that although interactive advertising provides consumers with the entertainment gratification, its effectiveness in delivering the product's message is weaker than traditional advertising (Bezjian-Avery et al., 1998).

Other scholars such as Pavlou and Stewart (2000) investigated the differences in the effectiveness of traditional and interactive advertisements by examining the traditional measures such as recall, attitude change, and brand choice and observing the new measures such as satisfaction, trust, persuasion, and brand equity. Pavlou and Stewart (2000) examined previous literatures and discussed the contrast between traditional advertisements (print, television, and radio) and interactive advertisements (website and mobile Internet). They found out that consumers responded more to interactive advertisements because those advertisements provided both fun and personalized product experience (Pavlou & Stewart, 2000). Due to such contrary evidence about the impact of interactive technology on purchase intention, this thesis studies the effectiveness of AR mobile advertisements and consumers' purchase behavior.

Purchase Intention

Purchase intention is a common measure to test the effectiveness of an advertisement and evaluate consumers' responses to the advertisement (Beerli & Santana, 1999). In this thesis, the dependent variable is purchase intention. To measure this variable, participants

were asked to rate the extent to which they agree or disagree with the certain statements using a 7-points Likert scale (see Appendix B).

In one study, Ling, Chai, and Piew (2010) surveyed 242 Malaysian consumers to understand the influence of three online shopping orientations (purchase, quality, and brand) on consumers' purchase intentions. It was found that consumers who gave more priority to their emotional rather than rational thoughts while they impulsively shopped online led to more online purchases (Ling et al., 2010). Likewise, another study examined 3-D advertisements and their impact on purchase intentions and product knowledge of 93 consumers at a midwestern university (Li, Daugherty, & Biocca, 2002). This study found that compared to 2-D advertisements, user involvement provided by 3-D advertisements increased consumers' virtual experiences and product knowledge. However, 3-D advertisements were not found to increase purchase intentions (Li et al., 2002). In an experiment, He, Wu, and Li (2018) manipulated information cues (dynamic visual vs. dynamic verbal) and virtual presence (high vs. low) to test how AR technology influenced people's intentions to travel. It was found that a high level of interactivity in AR tourism advertisements led to a better effect on consumers' aesthetic experiences, thereby increasing their purchase intentions (He et al., 2018). Therefore, this thesis aims to examine the message and audio appeals of AR mobile advertisements and their influence on consumers' purchase intentions.

Theoretical Framework

This thesis uses a theoretical perspective of uses and gratifications (U&G) to understand the influence of the message and audio modalities in AR mobile

advertisements on consumers' purchase intentions. Research on U&G perspective has evolved as media technology has developed (DeFleur, 1969; Katz, Blumler, & Gurevitch, 1973; Sundar & Limperos, 2013). Early perspectives from Katz and colleagues (1973) on U&G show that when users were exposed to different media, it satisfied their different social and psychological needs. DeFleur (1969) states that in U&G perspective audiences filter messages based on specific type of media to fulfill their needs. Additionally, DeFleur (1969) argued that there are two important factors: first, consumers do not passively receive information, but they have the ability to choose the kind of content that provides gratification. Second, consumers' needs for information are different based on their demographics and learning abilities.

In the same vein, Katz and colleagues (1973) explicate the U&G perspective on the basis of three traditional media: newspaper, radio, and television. They argued that these traditional media connect individuals and society and satisfy one of the common gratifications of socialization (Katz et al.,1973). Newspapers provide the audiences with information, but radio and television are both informational and entertaining (Katz et al.,1973). During the 1980s, Rehman (1983) applied the U&G perspective to the study related to the movies in theatre. In the next stage, communication scholars such as Ruggerio (2000) applied U&G to new media, such as the Internet. About a decade ago, Kaye and Johnson (2002) studied the Internet using the U&G perspective and found that the Internet provides diverse gratifications due to its interactivity and variety in content. Kaye and Johnson (2002) found that the Internet, similar to television, provides users

with entertainment and social interactions, along with the capacity to quickly find information.

Recent empirical research examines AR technology using the U&G perspective (Sundar & Limperos, 2013; Hamari, Malik, Koski, & Johri, 2018). These studies show that new gratifications such as enjoyment, navigation aids, dynamic control, and outdoor activity among others emerge with new media technology. For instance, Hamari and colleagues (2018) examined Pokémon Go to understand what gratifications 1,190 players from multiple countries obtained from this location-based application. It was found that enjoyment, outdoor workout, ease of use, and nostalgia are motivations to the app; while outdoor activity, competition, socializing, and nostalgia are positively associated with in-app purchase intentions (Hamari et al., 2018). According to Smink and colleagues (2019), consumer reactions and persuasion allow advertiser to evaluate the effectiveness of AR technology. Virtual information in AR advertisements is interactive and can be viewed in real time (Azuma, 1997). AR can co-exist with customized 3-D face filters to let consumers "virtually try-on" products in a 3-D environment (Sung & Cho, 2012). AR brings direct product experience by providing both information and entertainment to consumers (Sung & Cho, 2012).

Hence, this thesis proposes to examine two gratifications: hedonic value (perceived enjoyment gratification) and utilitarian value (perceived information gratification) as two independent variables and study their influence on consumers' purchase intentions. Figure 1. shows the experimental framework of this thesis.

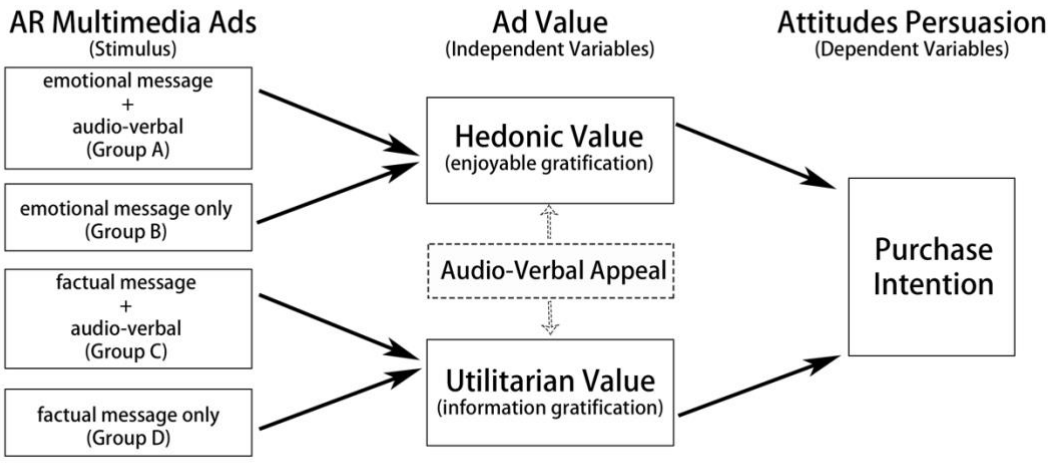

Figure 1. Conceptual model of interaction between consumers' perceived gratifications and their purchase intention

Emotional and Factual Appeals

Over the past several decades, emotional and factual appeals are two common modalities that are adopted to understand advertising strategies (Liu & Stout, 1987; McGuire, 1978; Ruiz & Sicilia, 2004). Researchers investigated the effect of logical (thinking advertisement) and emotional (feeling advertisement) appeals on the effectiveness of advertising by measuring 80 consumers' affect and recall on information and purchase intentions (Golden & Johnson, 1983). The researchers found that consumers who viewed "thinking" advertisements perceived more information while consumers who viewed "feeling" advertisements experienced higher emotions (Golden &

Johnson, 1983). Furthermore, it was found that consumers' purchase intention was positively related to the rational message type cue in the advertisements (Golden & Johnson, 1983).

On the contrary, Liu and Stout (1987) concluded that emotional appeal compared to rational appeal plays an important role in the acceptance of a message. Liu and Stout (1987) experimented on 98 consumers from a southwestern university to examine the effectiveness of message modalities (emotional vs. rational) in a coffee commercial. Emotional messages of the product elicited responses such as joy, love, and excitement, while rational messages were associated with cognitive responses (Liu & Stout, 1987). Based on such contradictory findings, the answer to whether there is a difference in using emotional and factual appeals in AR advertisements remains unknown. Hence, this thesis aims to investigate how the message type in AR mobile advertisements influences consumers' purchase intentions and what consumer gratifications they fulfil.

In one study, Ruiz and Sicilia (2004) asked 260 students from a Spanish university to view three camera advertisements (emotional, informational, informational-emotional) that elicited different levels of information and emotions. While emotional appeals elicited affective responses and informational appeals elicited cognitive responses, the informational-emotional appeal elicited mixed responses based on consumers' personality (Ruiz & Sicilia, 2004). Consumers who prefer to be emotional thinkers perform in an affective way while consumers who are logical thinkers perform in a cognitive way (Ruiz & Sicilia, 2004). Additionally, scholars concluded that consumers

were persuaded better when the type of message matched their information processing styles (Ruiz & Sicilia, 2004). Based on the above discussion, this thesis argues:

Hypothesis 1a. AR advertisements with an emotional message is positively associated with consumers perceived hedonic gratification.

Hypothesis 1b. AR advertisements with a factual message is positively associated with consumers perceived utilitarian gratification.

Audio-verbal Appeal

This thesis used audio-verbal appeal as one of the independent variables, because previous scholars found that a verbal or audio element in advertisements is essential supplementary to attract consumers' attention (Huang, Reiley, & Riabov, 2018; Zhang, Li, & Zhao, 2012). So, this thesis intends to discover whether or not hearing audio changes the consumers' gratifications and attitudes towards purchase intention.

In a previous study, Liu and Stout (1987) found that an audiovisual-plus-emotional message is the best combination to influence consumers. Hence, this thesis also examines the audio appeal of AR mobile advertisements and its influence on consumers' purchase intention. However, research results from Kim and colleagues (2009) showed that audio does not play a dominant role in influencing consumer responses to online advertisements. Kim and colleagues (2009) manipulated an apparel advertisement to examine the purchase behavior of 272 participants from a Midwestern university and found that advertisements with background music showed no difference compared to the advertisements without on consumers' emotional responses. Therefore, they explicated

that the background music did not influence consumers' responses due to the selected music genre not matching the category of the product (Kim, Kim, & Lennon, 2009).

Recent studies also found that AR advertisements with verbal narration have stronger impact on enhancing consumers' engaging experience than those without (Hilken, Ruyter, Chylinski, Mahr, & Keeling, 2017; Huang, Reiley, & Riabov, 2018). For instance, previous researchers studied 359 consumers to understand whether consumers' information processing style swayed the effectiveness of AR advertisements by utilizing L'Oréal's AR virtual mirror as a platform (Hilken et al., 2017). As a result, they confirmed that the effect of AR product experience on utilitarian value is greater when the consumers' preferred verbal processing style is followed (Hilken et al., 2017). Hence, this thesis hypothesizes:

Hypothesis 2a. AR advertisements with an emotional message but without audio-verbal will elicit less hedonic value than AR advertisements with both an emotional message and audio-verbal.

Hypothesis 2b. AR advertisements with factual message but without audio-verbal will elicit less utilitarian value than AR advertisements with both a factual message and audio-verbal.

Hedonic Value and Utilitarian Value

Based on previous studies about U&G perspective, hedonic value (perceived enjoyment gratification) and utilitarian value (perceive information gratification) are two common types of gratifications derived from AR (Rauschnabel et al., 2019; Sung & Cho, 2012; Hamari et al., 2018). Therefore, this thesis proposed to measure these two

gratifications as independent variables to understand consumers' purchase intentions. Park, Kim, Funches, and Foxx (2012) investigated the relationship between consumers' purchase intention and the gratifications satisfied through web browsing (hedonic vs. utilitarian). Using a web-based apparel platform to evaluate online shopping experience of 356 consumers in Korea, Park and colleagues (2012) found that consumers' hedonic preference is positively correlated to their impulse buying while utilitarian preference is negatively correlated to that.

Moreover, McLean and Wilson (2019) examined the differences in utilitarian value and hedonic value of AR featured applications to understand their influence on consumers' responses. McLean and Wilson (2019) found that perceived usefulness of AR is more related to the utilitarian value compared with the hedonic value, while perceived interactivity, vividness, and novelty of AR attribute more to the hedonic value. Furthermore, consumers were more likely to make purchase decisions when they obtained high hedonic value (McLean & Wilson, 2019). The above studies do not investigate what consumer gratifications do message and audio modalities of AR mobile advertisements fulfil and how gratifications influence consumers' purchase intentions. Hence, this thesis predicts that:

Hypothesis 3. Perceived higher hedonic value will positively impact consumers' purchase intentions as compared with perceived higher utilitarian value.

Personal Traits: Familiarity with AR and Online Shopping

Based on a previous study about U&G perspective, gratifications obtained from interactive media are constrained by personal traits (Rubin, 2009). The researcher argued

that there are nuanced expectations to consumers' responses when technology is served as a source of gratifications. Those differences may be caused by personal traits, such as social context, involvement of certain activities, and knowledge level of technology (Rubin, 2009). For example, when a social media user is checking their Facebook news feed, the user's gratifications obtained from this specific medium is moderated by this user's personal experience, educational level, and frequency of involvement with Facebook (Rubin, 2009). However, Sundar and Limperos (2013) also found out that to what extent that personal traits could influence the consumers' responses depends on which specific gratification they obtained. They stated that content gratifications are hardly changed by the technology, but process gratifications are more easily altered by technology (Sundar & Limeros, 2013). According to Lin (1999), content gratification is found to be a key element to every media user regardless of whether the gratification is obtained from a traditional medium or new medium format. On the contrary, process gratification is regularly associated with interactive media that are powered by certain technology, such as the Internet or AR (Stafford, Stafford, & Schkade, 2004). Therefore, this thesis proposed these research questions:

RQ1. Is there any two-way interaction between message and audio-verbal modalities on consumers' purchase intention with covariate factors, including a) familiarity with AR, and b) involvement with online shopping?

Methods

A 2 (message type: factual vs. emotional) x 2 (audio-verbal appeal: present vs. absent) factorial experiment was conducted to examine consumers' purchase intentions and the type of gratifications obtained from AR advertisements. For the independent variables, four different AR advertisements were designed using Unity 3D software. To control the other variables, consumers' involvement with online shopping, their familiarity with AR, and the influence of product price were measured.

In this thesis, a total of 120 participants were recruited using Amazon Mechanical Turk (MTurk), with 41.7% of being female and 57.5% of being male. Participants were paid $0.80 for each response. In terms of their ages, 25.8 % of participants were 18-25 years old; 38.3% were 26-35 years old; 19.2% were 36-45 years old; and 4.2% were above 55. They were randomly assigned to one of the four experimental treatments. Each of group had 30 participants.

Stimuli Design

Factual framing messages focus on tangible, logical and objectively verifiable facts about the product, while emotional framing messages emphasize the intangible, emotional and unverifiable product information in the AR advertisements (Liu & Stout, 1987; Ruiz & Sicilia, 2004). The following content was used as message stimuli:

Emotional Message: Time is what you make of it. Start to enjoy your time with the cutting-of-edge techniques, a delicate design, and a worthy price.

Factual Message: This Watch has a 34 mm diameter, 12 mm thickness with a blue or red strap and standard buckle. Water-resistant. Made in Swiss.

To eliminate bias, the audio-verbal message was generated through an online software and mimicked the natural human voice (Natural Reader https://naturalreaders.com/). The AR advertisements were designed by Unity platform within Vuforia engine. The layout and features of the advertisements in different treatment groups were exactly the same and only differed in the messages and audio-verbal appeals (see Appendix A).

Pilot Study

The pilot study was conducted in two phases. In the first phase, 10 participants were recruited from San Jose State University using convenient sample. They were randomly assigned to message type conditions (emotional vs. factual) to examine effectiveness of message design. In the second phase, 63 participants were recruited from Amazon Mechanical Turk (MTurk) with the selection of location in the United States. To ensure the quality of answers, this thesis uses attentions check as a simple way to filter out those participants who did not pay attention to the survey questions. Two participants failed the attention check test, resulting in 61 validate responses. Among those 61 responses, seven responses were found to be invalid as the participants did not remember the experimental group they were assigned to.

Variables such as consumers' prior experience with online purchase, their familiarity of AR, and the price of the product were added as controlled variables by a pre-stimuli section in the questionnaire of main study. The word count in both emotional and factual messages were also controlled for. Additionally, a post-stimulus section was created to understand why participants did not want to purchase the watch. Participants were asked,

"Where do consumers look for information on a product they wish to buy?", "Can you briefly explain why you want to seek additional information before making a decision to purchase this watch?".

Manipulation Check. Independent Samples t-Tests were used to check the manipulation of the message type (emotional vs. factual) and audio-verbal appeal (present vs. absent). Participants were asked to rate the levels of information gratification obtained from the AR advertisements by rating the statement, "This augmented reality advertisement provides me relevant information on this product" on a 7-point scale. To evaluate the levels of entertaining gratification, participants were asked the statement, "This augmented reality advertisement is entertaining" on a 7-point scale. Participants in the factual message groups reported higher level of information gratification (M=5.26) compared to the participants who saw the emotional messages (M=3.78). The result showed that the manipulation of the message appeal was successful, p <.01. Similarly, manipulation checks were conducted to test the other treatment conditions. Participants in factual message with audio-verbal perceived lower level of information gratification (M=5.50) compared to the participants who were in factual message without audio-verbal (M=6.07, p= .309). Meanwhile, participants in emotional message with audio-verbal group (M=4.92) perceived higher entertaining gratification than participants in emotional message but without (M=3.02, p<.05).

Procedure

Four versions of the questionnaire were uploaded to MTurk. Next, participants were randomly assigned to one of the four treatment groups (Group A: emotional message

with audio-verbal message; Group B: emotional message without audio-verbal message; Group C: factual message with audio-verbal message; Group D: factual message without audio-verbal message). Participants in all conditions first read the consent form and answered three pre-stimulus questions (see Appendix B*).* These questions served as control measures. Each group then watched a video of one of the four AR watch advertisements. Participants in Group A saw an emotional message that described the watch and heard the audio-verbal version of the message. In contrast, participants in Group B saw the emotional message but could not hear the audio-verbal version. Participants in Group C saw a factual message about the watch and heard the audio-verbal version of the message whereas participants in Group D saw the factual message only. Next, answered the post-stimuli questionnaire to indicate their attitudes towards the advertisement values (hedonic and utilitarian), audio-verbal appeal, and purchase intention (see Appendix B). Participants were also asked to answer demographic questions.

Measurements

This thesis employed a questionnaire to evaluate three independent variables: participants' perception of hedonic value, utilitarian value, audio-verbal appeal, and their purchase intention (See Appendix B). Specifically, scales for each variable were created to measure the following:

Hedonic Value (HV). This was measured using a seven-point semantic differential scale ranging from "strongly disagree (0)" to "strongly agree (7)". Participants rated statements such as, "This augmented reality advertisement is interesting"; "This

augmented reality advertisement attracts me"; "Playing with this augmented reality advertisement is entertaining"; and "Trying out the watch in this augmented reality advertisement on my smartphone is pleasing". The scale was adapted from Yang et al. (2013).

Utilitarian Value (UV). This was measured using a seven-point semantic differentials scale adapted from Liu et al. (2012). Participants rated statements such as, "This augmented reality advertisement provides relevant information on this product"; " This augmented reality advertisement is a good source of information"; "This augmented reality advertisement is convincing"; and "This augmented reality supplies credible information" on a scale ranging from "strongly disagree (0)" to "strongly agree (7)".

Audio-verbal Appeal (AVA). To measure audio-verbal appeal, participants were required to rate statements such as, "The audio-verbal message enhances my experience of viewing this watch advertisement"; "The audio-verbal message motivates me to learn more about this watch"; "The audio-verbal message makes the advertisement more effective"; and "The audio-verbal message helps to remember the details of this watch". Participants rated the questions on a seven-point Likert scale ranging from "strongly disagree (0)" to "strongly agree (7)". The scale was adapted from Liu and Stout (1987).

Purchase Intention (PI). To measure purchase intention, this study adapted a seven-point semantic differential scale adapted from Hsu and Lin (2015) and Kumar, Lee, and Kim (2009). Each item anchored with a range from "strongly disagree" to "strongly agree": "I would like to purchase this watch"; "I would save this advertisement for

buying the watch in the future"; "I strongly recommend others to purchase this watch"; and "I would want to seek information about the watch before making a decision on buying this watch".

In addition to the variables listed above, participants were asked to indicate to what extent they desired to purchase online, their familiarity of AR, and their demographic information (e.g. gender and age).

Results

This thesis examined how the message type (emotional vs. factual) and audio-verbal appeal (present vs. absent) of AR mobile advertisements influence consumers' gratifications and purchase intentions. Data were collected from a total of 120 participants. Group A (emotional/with audio-verbal, n = 30); Group B (emotional/without audio-verbal, n = 30); Group C (factual/with audio-verbal, n = 32) and Group D (factual/without audio-verbal, n = 28). There were 41.7% females (n = 50), and 57.5% male respondents (n = 69). One respondent preferred not to answer the question about gender. SPSS 25.0 was used for all data analyses. Two one-way ANOVA tests were used to analyze the differences among group means. To identify the significant differences between groups, Independent Samples t-Tests were used. Analysis of covariance (ANCOVA) was used to test the interaction between independent variables and covariates.

Reliability. Prior to hypotheses testing, Cronbach's alpha was measured to evaluate the internal consistency of the multiple-item indexes.

Table 1

Cronbach's Alpha for Multiple-Item Indexes

Variables	α	Number of items
Hedonic Value (HV)	.923	5
Utilitarian Value (UV)	.908	4
Audio-verbal Appeal (AVA)	.891	4
Purchase Intention (PI)	.855	4

According to George and Mallery (2003), alpha values between .80 and 1.00 indicate that the selected scales are reliable. All the items were found to be reliable to conduct further analyses. See Table 1.

Descriptive Statistics

The total score of items that measure each variable was calculated for each respondent. To compare the means of variables, one-way ANOVA tests were run among two pairs of groups. The means and standard deviations of dependent variable hedonic value in the four conditions are reported in Table 2.

Table 2

One-way ANOVA on Dependent Variable: Hedonic Value

Independent Variables	Conditions	Mean	Std. Deviation	N
Type of Message	Emotional Message	4.789	1.332	60
	Factual Message	4.789	1.360	60
Audio-verbal Appeal	With	4.726	1.497	62
	Without	4.856	1.315	58

The results showed that factual message (*M*=4.789, *SD*=1.360) and emotional message yielded similar level of hedonic gratification (*M*=4.789, *SD*=1.332) in AR advertisements; yet AR advertisements with audio-verbal appeal produced lower level of hedonic gratification (*M*=4.726, *SD*=1.497) than without audio-verbal appeal (*M*=4.856, *SD*=1.315).

Table 3

One-way ANOVA on Dependent Variable: Utilitarian Value

Independent Variables	Conditions	Mean	Std. Deviation	N
Type of Message	Emotional Message	4.929	1.007	60
	Factual Message	5.063	1.021	60
Audio-verbal Appeal	With	4.986	1.497	62
	Without	5.008	.873	58

In Table 3, the results indicated that the factual message (*M*=5.063, *SD*=1.021) yielded higher level of utilitarian value than the emotional message (*M*=4.929, *SD*=1.007). In addition to this result, AR advertisements without audio-verbal appeal (*M*=5.008, *SD*=.873) elicited higher utilitarian value than the group with audio-verbal appeal (*M*=4.986, *SD*=1.497).

To compare the purchase intentions of consumers in the four experimental conditions, means and standard deviations were calculated. First, the total score of items that measured purchase intentions was added. As shown in Table 4, participants who viewed the AR advertisement with emotional audio-verbal message (*M*=4.562, *SD*=1.365) highly rated their likelihood to purchase the watch than participants who watched the same advertisement without audio-verbal appeal. On the contrary, participants who viewed the factual advertisement with audio-verbal appeal (*M*=4.193, *SD*=1.414) were less likely to purchase the watch than participants who watched the same factual AR advertisement but without audio-verbal appeal.

Table 4

Means and SDs of Purchase Intention in the Four Experimental Conditions

Experimental Conditions	Purchase Intention	
	M	*SD*
Emotional message with audio-verbal appeal	4.562	1.365
Emotional message without audio-verbal appeal	4.053	1.292
Factual message with audio-verbal appeal	4.193	1.414
Factual message without audio-verbal appeal	4.478	1.197
Total: (n=120)	4.317	1.323

Research Questions and Hypotheses

H1a AR advertisements with an emotional message was not positively associated with consumers perceived hedonic gratification.

A total hedonic gratification score was calculated to examine the extent to which consumers seek entertainment gratification from emotional message and factual message. An Independent Samples t-Test was run to compare scores of participants who watched the AR advertisement with emotional vs. factual message.

Results indicated that participants perceived the same hedonic gratification from the AR advertisement with an emotional message (M=4.79, SD=1.33) compared to participants who watched the AR advertisement with a factual message (M=4.79, SD=1.34). As presented in Table 5, the hedonic gratification in is not statistically significant in terms of the different types of messages ($p > .05$). Hence, H1a was not supported.

Table 5

Independent Samples t-Test for Message Type on Hedonic Value

		Levene's test for equality of variances		t-test for equality of means		
		F	Sig.	t	Df	Sig.(2-tailed)
Hedonic Value	Equal variances assumed	.077	.781	.000	118	1.00
	Equal variances not assumed			.000	117.996	1.00

H1b AR advertisements with a factual message was positively associated with perceived high users' utilitarian value gratification.

A total utilitarian gratification score was calculated to indicate the extent to which consumers seek information about a product from an emotional message and factual message in an AR advertisement. An Independent Sample t-Test was run to test the total utilitarian gratification scores of participants who watched the AR advertisement with factual versus emotional message.

Results showed that participants perceived higher utilitarian gratification from the AR advertisement with a factual message (M=5.06, SD=0.89) compared to participants who saw an AR advertisement with an emotional message (M=4.92, SD=1.00). However, the Independent Samples t-Test showed, p =.441. Therefore, H1b was partially supported.

Table 6

Independent Samples t-Test for Message Type on Utilitarian Value

		Levene's test for equality of variances		t-test for equality of means		
		F	Sig.	t	Df	Sig.(2-tailed)
Utilitarian Value	Equal variances assumed	1.424	.235	-.773	118	.441
	Equal variances not assumed			-.773	116.254	.441

H2a AR advertisements with an emotional message but without audio-verbal appeal elicited less hedonic value than AR advertisements with both an emotional message and audio-verbal appeal.

Results showed that participants who viewed emotional message and heard audio-verbal message (*M*=4.833, *SD*=1.491) perceived higher hedonic gratification from the product compared to the participants who viewed the same message but did not hear the audio (*M*=4.373, *SD*=1.377). The influence of audio modality is significantly different under the emotional appeal conditions (see Table 7). These results show that it is important to have an audio-verbal medium assisting the participants in eliciting their emotions in an AR environment. Thus, H2a was supported, $p < .05$.

Table 7

Independent Samples t-Test for Audio-verbal Appeal on Hedonic Value

		Levene's test for equality of variances		t-test for equality of means		
		F	Sig.	t	Df	Sig.(2-tailed)
Hedonic Value	Equal variances assumed	4.070	.048	.982	58	.330
	Equal variances not assumed			.982	54.882	.330

H2b AR advertisements with factual message but without audio-verbal appeal did not elicit less utilitarian gratification than AR advertisements with both a factual message and audio.

An Independent Samples t-Test was conducted to examine the differences in utilitarian gratification that consumers get from products promoted in AR advertisements with a factual message with audio versus without audio. Results showed that participants who saw factual message and heard the audio-verbal message reported to get lower utilitarian gratification (*M*= 5.050, *SD*=.866) from the product in the AR advertisement, while participants who saw the factual message only (without audio) perceived reported to receive high utilitarian gratification from the product (*M*=5.078, *SD*=.932). These results indicated that audio-verbal appeal was negatively associated with factual message conditions towards the utilitarian value ($p > .05$). Hence, H2b was not supported.

Table 8

Independent Samples t-Test for Audio-verbal Appeal on Utilitarian Gratification

		Levene's test for equality of variances		t-test for equality of means		
		F	Sig.	t	Df	Sig.(2-tailed)
Utilitarian Value	Equal variances assumed	.008	.929	-.123	58	.903
	Equal variances not assumed			-.122	55.586	.903

H3 Perceived higher hedonic value positively impacted consumers' purchase intentions as compared with perceived higher utilitarian value.

A total purchase intention score was calculated adding scores for both emotional and factual appeal. To test the H3, Pearson's correlation test was run to test for the relationship between hedonic value (M=4.788, SD=1.331), utilitarian value (M=4.996, SD=.948), and purchase intention (M=4.317, SD=1.323). Results showed that hedonic value and utilitarian value are significantly correlated with purchase intention (p<.001) (see Table 9). Though both independent variables showed significant relationship with PI, hedonic value had a stronger correlation with purchase intention, r (120) = .699, p<.001, compared with utilitarian value, r (120) = .617, p<.001. This result concluded that hedonic value plays a more important role in influencing consumers' purchase intentions as compared with hedonic value. Therefore, H3 was supported.

Table 9

Pearson's Correlation on PI, HV, and UV Variables

		PI	HV	UV
PI	Pearson Correlation (r)	1		
	Sig. (2-tailed)			
	N	120		
HV	Pearson Correlation (r)	.699**	1	
	Sig. (2-tailed)	.000		
	N	120	120	
UV	Pearson Correlation (r)	.617**	.721**	1
	Sig. (2-tailed)	.000	.000	
	N	120	120	120

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

RQ1 Is there any two-way interaction relationship between message and audio modalities on consumers' purchase intention with covariate factors: a) familiarity with AR, and b) involvement with online shopping?

To examine the RQ1a, a two-way analysis of covariance (ANCOVA). Purchase intention was set as the dependent variable; message type and audio-verbal appeal were treated as independent variables; the familiarity with AR was set as the covariate. Results indicated that there was a two-way interaction between message appeal and audio-verbal modality on consumers' purchase intention. When audio-verbal appeal was present, the emotional appeal (M = 4.480) elicited higher consumers' purchase intentions than the factual appeal (M = 4.140). On the contrary to that, the factual appeal (M = 4.460) elicited higher consumers' purchase intentions than emotional appeal (M = 4.220) when audio-verbal appeal was not present in the AR advertisements. However, the results showed that this two-way interaction effect was not statistically significant, F (1,120) =1.785, p =.184.

Moreover, results indicated that the familiarity with AR (M=3.68) was significantly related to moderately influence purchase intention, F (1,120) = 26.539, p<.001. Hence, a positive two-way interaction between message and audio modalities towards consumers' purchase intention was found, but the relationship was not significant.

To answer the RQ1b, another two-way analysis of covariance (ANCOVA) was conducted to determine the relationship between two independent variables, purchase intention and the involvement with online shopping. The results showed that there was a two-way interaction between the message and audio-verbal appeal with purchase intention. When audio-verbal appeal was present, the emotional appeal (M=4.490) elicited higher purchase intention than the factual appeal (M=4.150). On the contrary, the factual appeal (M=4.580) elicited higher purchase intention than emotional appeal (M=4.05) when audio-verbal appeal was not present in the AR advertisements. Meanwhile, the results support the assumptions that this two-way interaction effect was significantly different, F (1,120) =3.784, p<.05. Results also showed that involvement with online shopping (M=4.25) was a significant factor that moderately influenced consumers' purchase intentions, F (1,120) = 26.539, p<.001. Therefore, it can be concluded that there was a two-way interaction between message and audio modalities towards consumers' purchase intention, and their relationship was significantly different when the involvement with online shopping was a key covariate factor.

Additional Findings

This study also asked participants about their opinions about the category of products do they mostly wish to see in an AR advertisement. The results showed that the top categories of products are jewelry, watches, clothing, and shoes. About 28.3% of participants selected “jewelry & watches” (n=34); 27.5% of participants chose “clothing & shoes” (n=33) while 20.8% of participants preferred to see AR advertisements about “electronics & computers” (n=25). See Figure 2.

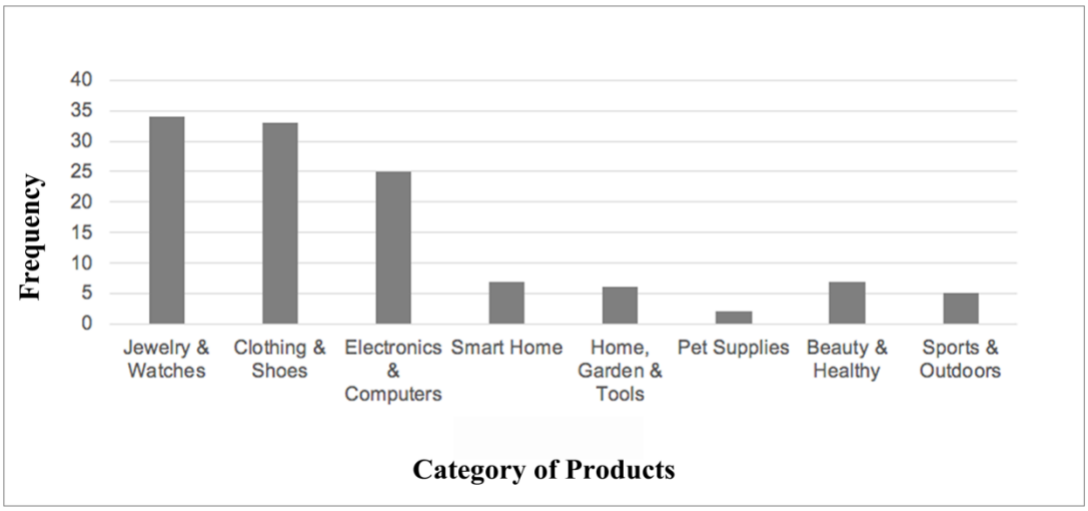

Figure 2. Products consumers mostly wish to see in AR advertisements

Discussion

This thesis examined how the message type (emotional vs. factual) and audio-verbal appeal (present vs. absent) of AR mobile advertisements influenced consumers' gratifications and purchase intentions. Using the theoretical perspective of U&G, this thesis developed a conceptual model that centered on two advertising values (hedonic value vs. utilitarian value) to examine consumers' purchase intentions.

In an online experiment, message and audio-verbal modalities were manipulated to investigate the gratifications that consumers got from AR ads. Consumers' familiarity with AR and their involvement with online shopping were treated as two control variables to understand the two-way interaction between the message types and audio-verbal appeal.

The results showed that there was a significant interaction between the message type and audio-verbal appeal when the involvement with online shopping was considered. Meanwhile, the audio-verbal appeal played an important role in the emotional message to positively impact consumers' perceived entertainment gratification and their purchase intentions. However, the audio-verbal appeal did not significantly affect consumers' perceived information gratification, but audio-verbal appeal influenced consumers' purchase intentions when they viewed the factual AR advertisement.

Key Findings and Theoretical Implications

First, consumers who viewed an AR advertisement with audio-verbal emotional message were the most likely to buy a product online. This finding was in line with previous studies (Li & Meshkova, 2013; Liu & Stout,1987). The audiovisual-plus-

emotional message is the best combination to influence consumers' online decision-making process. Li and Meshkova (2013) argued that virtual product experiences with multimedia had a higher impact on consumers' willingness to pay in online stores compared with a still medium. This result was also supported by a recent study that examined the advertising emotions with application to computational advertising (Shukla, Gullapuram, Katt, Kankanhalli, Winkler, & Subramanian, 2020). It was found that computational advertising, such as AR advertisements, generated strong emotions to catch consumers' attention and deliver a more affective message compared with a rational message (Shukla, et al., 2020).

Second, factual messages in AR advertisements were positively associated with consumers' perceived information gratification, but the participants who saw factual message with audio-verbal appeal rated the information gratification lower than those who saw the same advertisement without audio. Consumers who watched factual audio-verbal advertisement rated purchase intention lower than those who saw the same message without audio. One assumption could be that factual message satisfied the need for information, but consumers also wish to obtain other gratifications from AR advertisements, such as authenticity and novelty in the products (Sundar & Limperos, 2013).

Third, emotional messages in AR advertisements were not positively associated with consumers' perceived entertainment gratification. However, consumers who saw an AR advertisement with emotional audio-verbal message rated the perceived entertainment gratification higher than those who saw the same advertisement without audio. In

contrast, to the factual message condition, one reason for this could be that consumers responded to the emotional and factual appeal in different ways. Ruiz and Sicilia (2004) argue that consumers use cognitive processing style to understand factual message, while they use affective processing style to deal with the emotional message; affective processing style is easily influenced (Ruiz & Sicilia, 2004). As a result, verbal-audio appeal easily touches the emotions of consumers and their likelihood of purchasing the product.

Moreover, involvement with online shopping was a big factor to mediate consumers' purchase intention between message types and presence of audio. This finding is aligned with a previous research that studied the relationship between purchase intention and the moderating role of involvement (Park, Lee & Han, 2014). Based on the online consumers' reviews, Park and colleagues (2014) found that consumers' purchase intentions increased when they had a higher level of involvement with online shopping, such as rating the products, commenting on products, and writing online reviews.

The familiarity with AR was found not to be a significant factor in influencing the purchase intentions when message and audio modalities were present. One possible assumption was that the familiarity with AR only had positively moderating effects on advertising performance. This assumption was supported by Yang, Carlson, and Chen (2020) who investigated how AR affects advertising effectiveness and its mediating factors. Yang and colleagues (2020) found consumers were curious towards the ad when they were not very familiar with the AR ad technology. However, when consumers were

familiar with AR technology, AR's effectiveness to improve sales of certain products was limited.

Conclusion

As advertisers start integrating AR into their marketing strategies, AR advertising will be the next generation of media that serves as a main channel of digital advertising (Sarvaiya, 2019). As a consequence, research that is related to AR advertisements becomes more necessary than ever.

This thesis contributes to literature on augmented reality technology and interactive media. The other finding was that there is a two-way correlation between the message types and audio-verbal modalities in AR advertising on consumers' purchase intention when the involvement with online shopping was served as a significant factor.

As augmented reality technology matures, more researchers will start to focus on studies that are relevant with AR advertising. According to Carnahan (2019), AR technology has grown rapidly to serve as one of the techniques applied in social media advertising (such as Facebook news feed ad). Yet, the ability of AR to deliver advertising messages and contribute in the persuasive process in digital advertising is still not clear. By providing evidence that shows what factors influence the effectiveness of AR advertising, results of this study will help researchers, marketers, and advertisers to better understand the difference between message type and audio-verbal medium in an AR advertising environment.

Limitations and Future Research

Consumers' online choices are influenced by a number of factors, including content gratifications and process gratifications. This thesis only examined two of the content factors: message and audio modalities. Scholars should consider other multimedia factors such as images, video, animations, or any combination of these three. They should also investigate process gratifications such as user flow and interactivity in AR advertisements to understand how these factors influence purchase intentions and consumer gratifications. Furthermore, this study only used a watch as the displayed product in the advertising stimuli. However, based on our findings, consumers are also interested to see other categories of products in an AR advertisement, such as jewelry, clothing, shoes, electronics, pet supplies. Future studies should test the different functionalities of AR advertisements on various products and investigate their effectiveness on purchase intentions.

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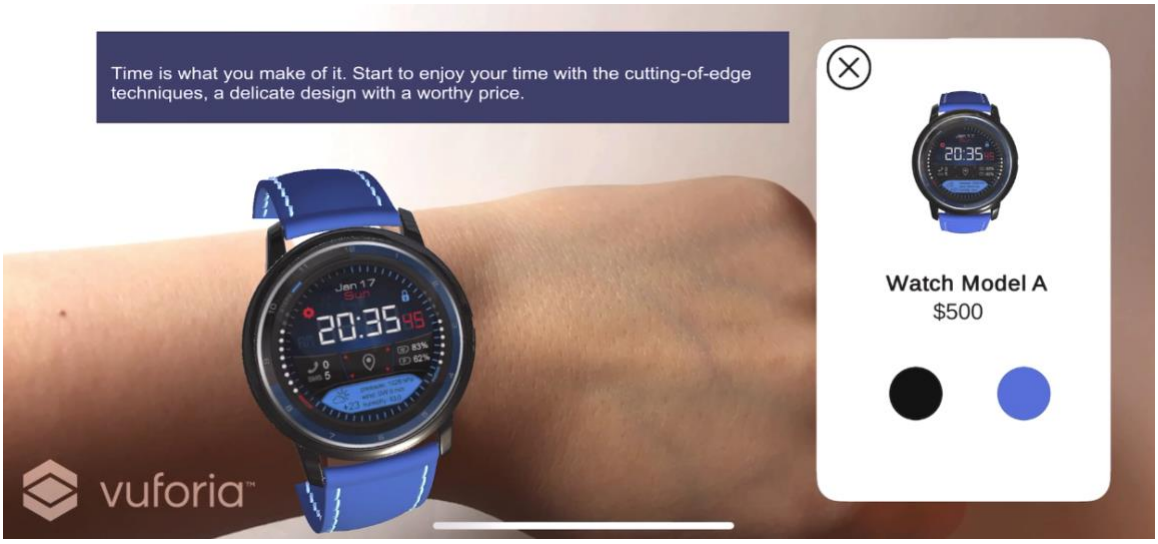
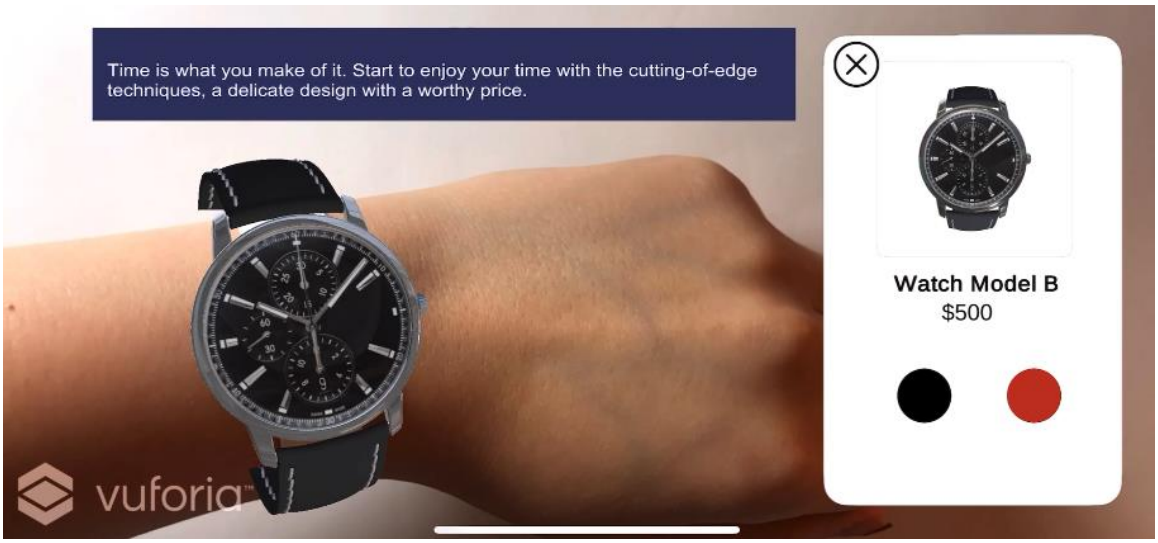
Appendix A

Stimuli Design

Emotional Message Appeal

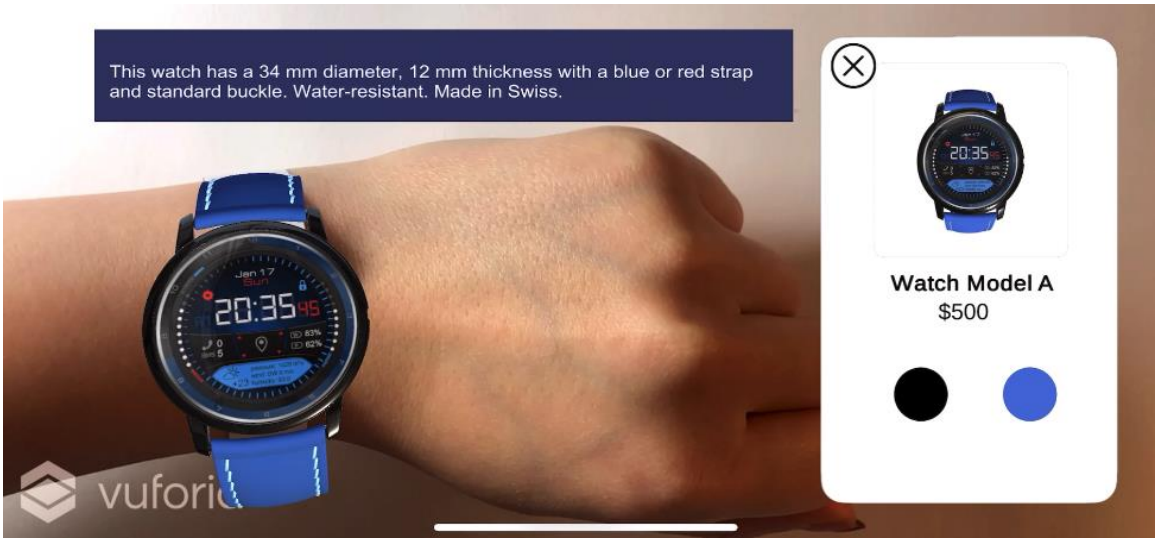


(Watch Model A)

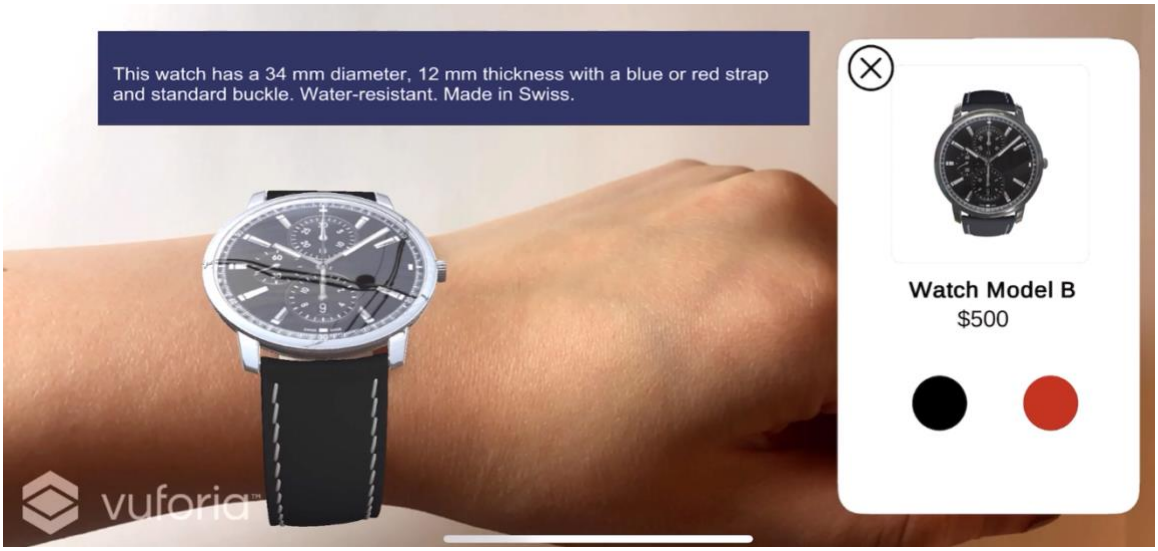


(Watch Model B)

Factual Message Appeal



(Watch Model A)



(Watch Model B)

Appendix B

Main Study Survey Questionnaire

Section 1: Informed Consent Form

Title of Study:
Examining the Influence of Message and Audio Modalities in Augmented Reality Mobile Advertisements on Consumers' Purchase Intention

INVITATION TO PARTICIPATE:
Dear students,

My name is Jingyue Tao and I am a graduate student in Mass Communication at San Jose State University. Dr. Nisha Garud-Patkar is the faculty supervisor of this study. You are being asked to participate in a research study on AR mobile advertisements and their influence on consumers. Please read this form carefully and ask any questions you may have. If you agree to participate in the study, please say "YES". You must be 18 or older to participate in the study.

KEY INFORMATION ABOUT THIS RESEARCH STUDY:

The purpose of this study is to examine the message and audio modalities of AR advertisements. You will be shown advertisements that promote a product. After you see the advertisements, you will be asked to answer a questionnaire. The questions are related to your experience with the advertisements. Through this study, you will learn about AR advertising and their influence on consumers' behavior.

NUMBER OF PARTICIPANTS:
If you agree to participate, you will be one of 120 participants.

PROCEDURES FOR THE STUDY:
If you agree to be in the study, you will do the following:

- The total duration of participation in this study is not expected to exceed 30 minutes.
- You will be randomly assigned to one of the four experimental groups. So, please remember which group you are assigned to.
- You will be asked to virtually play with one of four different AR advertisements on a digital device provided by research team. Then, you will fill out a questionnaire to indicate your experience with the advertisements.

CONFIDENTIALITY:

Please be assured that anonymity and confidentiality will be maintained at all times. The research is for educational purpose only, and your identity will not be recorded or associated with your responses.

The responses if this study may be used in reports, presentations, or publications but your name will not be used. The data collected from this study will be stored on a cloud drive with password or protected computer. Only the researcher and his team will have access to the data collected from the study. All the digital files will be erased up to 1 year after the project is completed.

VOLUNTARY PARTICIPATION:
Taking part in this study is voluntary. You may choose not to take part or may leave the study at any time. Leaving the study will not result in any penalty. Your decision whether or not to participate in this study will not affect your current or future relations with San Jose State University.

QUESTIONS AND CONTACT INFORMATION:
If you have questions about the study, please contact the primary researcher at (573)529-5985 or e-mail me at jingyue.tao@sjsu.edu. You may also contact the project supervisor is Dr. Nisha Garud-Patkar at Nisha.garud@sjsu.edu. You will be given a copy of this form for your records. If you have any questions about your rights as a participant in this research or if you feel you have been placed at risk, you can contact the IRB Office at irb@sjsu.edu or (408) 924-2479.

By participating in the study, you are agreeing that you are 18 years or older. It is also implied that you have read and understand the above information.

Section 2: Pre-Stimulus Measures

Product Purchase Intention

In general, how likely are you to purchase a watch advertised online?

Extremely unlikely						Extremely likely
1	2	3	4	5	6	7

If you are willing to purchase a watch, how much would you like to spend on it?

- Below $100
- $100 - $200
- $200 - $300
- $300 - $400
- $400 - $500
- Above $500

Augmented Reality Advertisements' Familiarity

How familiar are you with Augmented Reality advertisements?

Very unfamiliar						Very familiar
1	2	3	4	5	6	7

Section 3: Experimental Stimuli

The following message will be shown before participants see the advertisement

You will see a try-on watch advertisement that plays in an augmented reality environment.

Then, participants will be shown the same augmented reality advertisement that promotes a watch in the four experimental conditions with manipulations in the audio and message of the stimuli.

A. Emotional + audio:

Time is what you make of it. Start to enjoy your time with the cutting-of-edge techniques, a delicate design with a worthy price.
(audio will play the verbal narration of the displayed message)

B. Emotional only:

Time is what you make of it. Start to enjoy your time with the cutting-of-edge techniques, a delicate design with a worthy price.
(play none)

C. Factual + audio:

This Watch has a 34 mm diameter, 12 mm thickness with a blue or red strap and standard buckle. Water-resistant. Made in Swiss.
(audio will play the verbal narration of the displayed message)

D. Factual only:

This Watch has a 34 mm diameter, 12 mm thickness with a blue or red strap and standard buckle. Water-resistant. Made in Swiss.
(play none)

Section 4: Post-Stimulus Measures

Thank you for watching the advertisements. Now please answer the following questions:

Please indicate the group to which you were assigned: A, B, C or D

The statements below ask questions about your experience with the advertisement that you just saw. Please indicate the degree to which you agree or disagree with the statements on a scale of 1 to 7 where 1 indicates that you Strongly Disagree (1) to 7 which means that you Strongly Agree (7).

1) Hedonic Value

All items measured on a 7-point semantic differential scale adapted from Liu et al. 2012

Please indicate the degree to which you agree or disagree with the statements on a scale of 1 to 7 where 1 indicates that you Strongly Disagree (1) to 7 which means that you Strongly Agree (7).

The advertising message in this augmented reality advertisement attracted me:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

The augmented reality advertisement is interesting:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

It is better to watch the advertisement of this product in augmented reality than watching the same advertisement on television:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

Playing this augmented reality advertisement is entertaining:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

Watching this augmented reality advertisement on my smartphone is enjoyable:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

Trying out the watch in this augmented reality advertisement on my smartphone is pleasing:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

2) Utilitarian Value

All items measured on a 7-point semantic differential scale adapted from Wang & Sun, 2010

Please indicate the degree to which you agree or disagree with the statements on a scale of 1 to 7 where 1 indicates that you Strongly Disagree (1) to 7 which means that you Strongly Agree (7).

The augmented reality advertisement provides me relevant information on this product:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

The augmented reality advertisement is a good source of information:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

The augmented reality advertisement is convincing:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

The augmented reality advertisement supplies credible information:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

The augmented reality advertisement provides timely information on products:

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

It's important that you pay attention to think study. Please tick 'Strongly Disagree':

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

Do you still remember details of the watch advertised in this video? (Check all that applied)

a. The color of the watch's straps
b. The style of the watch's buckle
c. The price of the watch
d. The producing area of the watch
e. The nature of the watch (water resistance)
f. I don't remember any details of the watch

3) Audio Measure

Please indicate the degree to which you agree or disagree with the statements on a scale of 1 to 7 where 1 indicates that you Strongly Disagree (1) to 7 which means that you Strongly Agree (7).

The audio-verbal message enhances my experience of viewing this watch advertisement.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

The audio-verbal message in the advertisement motivates me to learn more about this watch.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

The audio-verbal message in the advertisement makes the advertisement more effective

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

The audio-verbal message in the advertisement helps to me remember the watch

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

4) Purchase Intention

All items measured on a 7-point semantic differential scale adapted from Hsu & Lin, 2015; Kumar, Lee, & Kim, 2019

I would like to purchase this watch.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

I would save this advertisement for buying the watch in the future.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

I recommend family and friends to purchase this watch.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

I would want to seek information about the watch before making a decision on buying it.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

I would check out the watch website to make a purchase decision.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

Which category of products do you mostly wish to see in an AR advertisement?

a. Jewelry & Watches
b. Clothing & Shoes
c. Electronics & Computers
d. Smart Home
e. Home, Garden, & Tools
f. Pet Supplies
g. Beauty & Health
h. Sports & Outdoor
i. Other_____ (please mention)

What is your gender?

a. Female
b. Male
c. Prefer not to answer

What is your age?

a. 18-25
b. 26-35
c. 36-45
d. 46-55
e. Above 55