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Proceedings of the IWEMB 2017

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Preface

The International Workshop on Entrepreneurship in Electronic and Mobile Business (IWEMB) is a joint initiative of the Center of Advanced E-Business Studies (CAEBUS) at the RheinMain University of Applied Sciences in Wiesbaden, Germany, and the International College of the National Institute of Development and Administration (ICO NIDA) in Bangkok, Thailand.

The aim of the initiative is to offer a platform for researchers in the fields of E- and Mobile-Business in order to generate relevant new insights and international exchange of ideas. The mission of this workshop is to bring together young and experienced researchers from institutions all over the world to discuss current e- and m-business research topics as well as innovations and trends in related markets. A particular interest of the initiative is to strengthen cooperation in academia between researchers from Europe and Asia.

The first IWEMB was held Novermber 8 and 9, 2017 in Bangkok. All the papers in these proceedings were reviewed and accepted for publication by the program committee and presented at the conference.

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Factors Affecting Consumers' Perceived Advertising Value Regarding Augmented Reality Ads

Ela Sibel Bayrak Meydanoğlu and Müge Klein

Turkish-German University, Istanbul, Turkey
e-mail: meydanoglu@tau.edu.tr; klein@tau.edu.tr

Abstract—Augmented Reality (AR) advertising has emerged as a potentially powerful tool for digital advertisers and marketers. However, not much information is available about the factors that might affect the effectiveness of AR ads in exerting a direct impact on consumers' attitudes toward them. On the basis of a literature survey on the topic, the antecedents of consumer-perceived AR advertising value and the impact of advertising value on their attitudes toward AR ads are discussed in this study. Interactivity, informativeness, entertainment, credibility, and irritation are considered as the antecedents of AR advertising ads. By introducing these factors, the study aims to explain consumers' perceptions related to AR advertising value and its antecedents.

Keywords—Advertising attitude; advertising value; Augmented Reality (AR); credibility; entertainment; informativeness; interactivity; irritation.

1. Introduction

The development of digital technologies has enabled companies to reach and interact with consumers. One of the new interactive technologies is the Augmented Reality (AR), which has been used recently for the marketing environment. "AR overlays the physical environment with virtual ele-

ments such as information or images, which can interact with the physical environment in real time" (Javornik, 2016: 252). It is believed that the use of this technology in marketing communication enables consumers to experience products in a virtual environment before making a buying decision (Mauroner & Best, 2016). It is estimated that the AR technology will generate a revenue of USD 120 billion by 2020 (Gaudiosi, 2015). In this context, it would not be wrong to expect that more and more marketing campaigns will incorporate AR technology. Despite this expectation, it is essential for companies to know consumers' attitudes toward AR ads before investing on them. One of the factors that affect consumers' attitude is the advertising value that denotes the effectiveness of advertising. It indicates consumers' satisfaction regarding the communication about a product by a company (Ducoffe, 1996). This study deals with the advertising value of AR ads and their impact on consumers' attitudes toward AR ads. The study is organized as follows: In Section 2, the AR technology is introduced briefly. In Section 3, the use of this interactive technology in advertising is discussed. In Section 4, a conceptual research model is developed, which describes the factors affecting the perceived value of AR advertising and its impact on consumers' attitudes toward AR ads. In the same section, the relevant hypotheses are also proposed. Section 5 concludes the study and Section 6 discusses the limitations of the study and proposes the future research areas.

2. Augmented Reality

Augmented Reality is an interactive technology that modifies physical objects (product, person) or surrounding space with superimposed virtual (computer-generated) objects such as textual information, images, videos, and so on in real-time (Javornik, 2016).

AR technology combines real and virtual objects in the real world (Azuma et al., 2001). With this feature, it enables the user to see virtual objects superimposed on the real world. Different from Virtual Reality (VR) technology, which enables users to immerse inside a synthetic, artifi-

cial environment (virtual environment), AR is applied in a real environment (De Paolis & Aloisio, 2010).

3. Augmented Reality in Advertising

AR apps are used in the following sectors for various purposes (Schart & Tschanz, 2015):

- Automotive industry
- Medicine
- Real estate
- Interior architecture
- Military
- Aviation
- Gaming, entertainment
- Education, training
- Navigation
- Tourism
- Retail
- Marketing, media, and communication

The methods, business models, and structures used in the advertising industry have changed as a result of rapid developments in the digital technologies. It is believed that AR apps will be a great step in the evolution of advertising media (Baratalı et al., 2016). For example, via an AR app on a smart device you can superimpose a virtual element (e.g., virtual furniture) on a physical room base (Javornik, 2016).

There are also some AR apps that augment a place with virtual elements so that users of the apps can get information about the place. For example, via an AR app, the screen of a smart device can show you the view of a street augmented with virtual elements that give you information about the location of a nearby coffee place (Javornik, 2016). Through scanning a related image you can also have access to additional digital content with AR apps. For example, through scanning a magazine ad

about a product, reviews or a video regarding the product can be displayed on the screen of a smart device (Javornik, 2016).

Some apps exist for self-augmentation. Through these apps, screens of smart devices convey a reflection of your body or of its parts (e.g., head, face). Users can make a trial on this reflection with virtual add-ons such as glasses, make-up, and clothes (Javornik, 2016).

4. A Conceptual Model of Advertising Value and Attitude

4.1 Theoretical Background

Among the earlier studies concerning advertising perceptions, two different approaches exist in explaining the constructs "advertising value" and "advertising attitude". According to some studies (e.g., Alwitt & Prabhaker 1994; Bezjian-Avery et al. 1998; Chen & Wells 2000), no difference exists between advertising value and attitude. However, there are some studies that define value and attitude as separate constructs (e.g., Ducoffe, 1995; Ducoffe 1996; Brackett & Carr, 2001).

Ducoffe (1995, 1996) defines informativeness, entertainment, and irritation as three antecedents of advertising value. Informativeness represents the extent to which an advertising message fulfills consumers' requirements related to informational content (Aaker & Norris, 1982). "Entertainment denotes the ability to fulfill consumers' needs for diversion, esthetic enjoyment or emotional release" (McQuail, 1983). Irritation refers to "the extent to which the advertising message is messy and irritating to consumers" (Kim & Han 2014: 257). Through applying his model in the area of web advertising, Ducoffe finds that attitude toward web advertising depends directly on advertising value. This result validates the results of his previous studies concerning advertising value (Ducoffe, 1996).

Brackett and Carr (2001) extend Ducoffe's model through two more constructs: credibility and consumer demographics. Credibility is a factor that directly affects both the advertising value and the attitude toward advertising. Demographic variables (e.g., college major, gender) are the factors that affect only attitude toward advertising (Brackett & Carr, 2001). Advertising credibility denotes "consumers' perception of the

truthfulness and believability of advertising in general" (MacKenzie & Lutz, 1989: 51).

New trends in digital technologies, such as Quick Response (QR) codes and AR technologies, provide interactive advertising and enable consumers to experience interactivity. In this context, the level of interactivity experienced with an AR ad is also an important factor that affects consumers' perceptions on the ad value and attitude (Chang-Hoan & Leckenby, 1999; Wu, 1999). Therefore, in this study, interactivity is also considered as an antecedent of advertising value.

Based on these considerations, Figure 1.1 shows the underlying structure of the proposed research model.

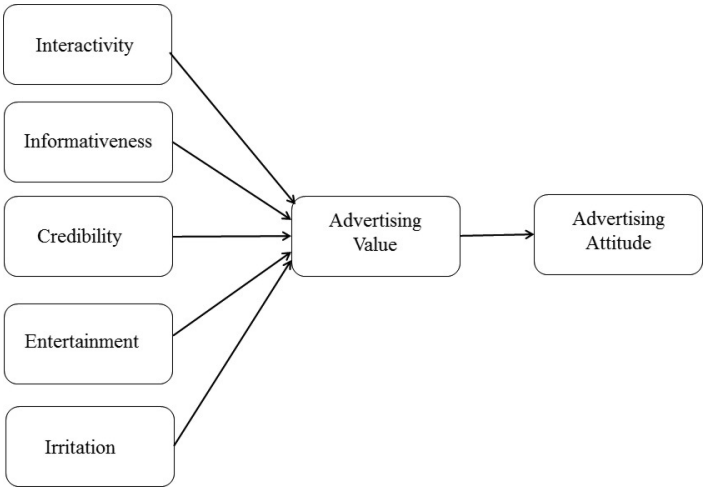

Figure 1.1 Proposed Research Model

4.2 Hypothesis Development

The advertisements utilizing AR technology allow consumers to interact with brands and to get more information about an advertised product/service. Though interactive advertising is not new, the current AR apps differ from existing interactive technologies by enabling consumers to obtain almost real product experience via virtual information. Thus, these

apps offer an additional, experiential value for consumers (Eyüboğlu, 2011). In this context, the following hypothesis is proposed:

H1: *Interactivity of AR ads has a positive impact on AR advertising value.*

The factor "information" relates to an advertisement's ability to supply information to the consumers (Ducoffe, 1996). Previous studies express a strong and positive relationship between the informativeness of ads and consumers' attitude toward advertising (Ducoffe, 1996; Haghirian & Madlberger, 2005). According to Brackett and Carr (2001), an advertisement should provide good information related to the advertised product. The information provided via advertisements should have qualitative features like accuracy, timeliness, and usefulness (Siau & Shen, 2003). Accessing information quickly is also an important feature for consumers (Kaasinen, 2003). Ads with high informativeness are likely to be considered more by consumers. In this context, the following hypothesis is proposed:

H2: *Perceived informativeness of AR ads has a positive impact on advertising value.*

Entertainment is also a crucial factor to capture consumers' attention. A pleasant, entertaining, and funny ad is likely to impact consumers' attitude toward the ad positively (Pollay and Mittal, 1993). Entertainment can increase customer loyalty and add value for customers. This affects the advertising value positively, and advertising value in turn affects the attitude (Javadi et al., 2012). Thus the following hypothesis is proposed:

H3: *The perceived entertainment of AR ads has a positive impact on advertising value.*

The advertisements that annoy, offend, and insult or are overly manipulative (Ducoffe, 1996) and intrusive (Javadi et al., 2012) are likely to irritate consumers. Irritation can reduce the value of an ad and create a negative attitude toward the ad. Therefore, the following hypothesis is proposed:

H4: *The perceived irritation of AR ads has a negative impact on advertising value.*

Several factors, especially the corporate credibility and the bearer of the message/advertising medium, affect the credibility of an advertisement (Goldsmith et al., 2000; Lafferty et al., 2002). Previous studies have observed that advertising credibility has a direct positive effect on the evaluation of customers (Choi & Rifon 2002; Tsang et al., 2004; Choi et al., 2008). On the basis of these studies, in the mobile and web advertising context, it is posited that the credibility of AR ads has a positive impact on the perceived advertising value. Therefore, the following hypothesis is proposed:

H5: *The perceived credibility of AR ads has a positive impact on perceived advertising value.*

The aforementioned five factors—interactivity, informativeness, entertainment, credibility, and irritation—have an impact on the advertising value. An advertisement is defined as ineffective if it is ignored or dismissed by consumers. This reduces the advertising value, which is a sign of failure of communication exchange. Advertising value refers to the value of an ad from the customers' point of view. To draw the consumers' attention, it is essential to create an ad that is useful and valuable for consumers. It is likely that such an ad positively affects consumers' attitude toward the ad (Javadi et al., 2012). Thus, the following hypothesis is proposed:

H6: *The AR advertising value has a positive impact on the attitude toward AR advertising.*

5. Conclusion

The aim of this study was to introduce the factors that might affect consumers' perceived value regarding AR ads and the impact of the advertising value on consumers' attitude toward AR ads. In this context, certain factors were determined on the basis of the previous research on advertising value and attitude. A research model was also developed that depicts

the relation between these factors and the advertising value as well as the relation between the advertising value and attitude. Subsequently, the hypotheses were proposed that postulate a relation among the constructs of the model.

6. Limitations and Future Research

This study will contribute to understand consumers' perceptions related to AR advertising value and its antecedents as well as the impact of advertising value on consumers' attitude toward AR ads. The developed research model and the hypotheses have to be validated in a future research. In this context, this study completes the first phase of a two-phase study.

Acknowledgments

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2

Mobile Government: Users and Applications

Lasse Berntzen[1], Milena Krumova[2], and Marius Rohde Johannessen[1]

[1]*University of South-Eastern Norway, Kongsberg, Norway*
[2]*Technical University of Sofia, Sofia, Bulgaria*
e-mail: lasse.berntzen@usn.no, mkrumova-phd@gmail.com, marius.johannessen@usn.no

Abstract—The use of mobile devices allows governments to reconsider their electronic government strategies and implementations. This paper examines mobile government from the perspectives of citizens, businesses, employers, and politicians and provides examples of possible applications. The paper also links mobile government to "smart cities."

Keywords—Mobile government, m-government, apps, smart cities.

1. Introduction

The potential of using mobile technology to provide government services has been discussed in parallel with development of electronic government at least since 2002 (Heeks, 2002). In this period, mobile technology has evolved from simple mobile phones to smartphones and tablets with capabilities similar to personal computers, giving new opportunities for more complex and advanced smart applications of mobile government. In developing countries, mobile has been seen as a solution to the challenge of poor cabled networks, and in developed countries, accessibility and ease of use are mentioned as important factors for examining the potential of mobile government (Shareef et al., 2016).