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HOW SMARTPHONE ADVERTISING INFLUENCES CONSUMERS' PURCHASE INTENTION

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Dissertation presented as partial requirement for obtaining the Master's degree in Information Management

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by

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ABSTRACT

In the last decade, the use of smartphones has grown steadily. The way consumers interact with brands has changed owing to the accessibility of an internet connection on smartphones, and ubiquitous mobility. It is crucial to understand the factors that motivate consumers to interact with smartphone advertisements and therefore what stimulates their decision to purchase. To achieve this goal, we proposed a conceptual model that combines Ducoffe's web advertising model and flow experience theory. Based on the data collected from 303 respondents, from a European country, we empirically tested the conceptual model using a partial least squares (PLS) estimation. The results showed that advertising value, flow experience, web design quality, and brand awareness explain purchase intention. The study provides results that allow marketers and advertisers to understand how smartphone advertisements contribute to consumer purchase intention.

KEYWORDS

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LIST OF ABBREVIATIONS AND ACRONYMS

SEM   Structured Equation Modelling

PLS   Partial Least Squares

CR   Composite Reliability

CA   Cronbach's Alpha

AVE   Average Variance Extracted

INF   Informativeness

CRED   Credibility

ENT   Entertainment

IRR   Irritation

INC   Incentives

AV   Advertising Value

FE   Flow Experience

PI   Purchase Intention

EV   Emotional Value

WDQ   Web Design Quality

BA   Brand Awareness

1. INTRODUCTION

The number of smartphone users has been increasing significantly because of the growth of the smartphone industry that develops new operating systems and a proliferation of applications. According to Gartner (2016), global sales of smartphones to end users totaled 349 million units in Q1 2016, a 3.9 percent increase over the same period in 2015. Moreover, smartphone sales represented 78 percent of total mobile phone sales in Q1 2016. Smartphones have been influencing the way people communicate with each other. The devices have become a necessity in both private and professional lives and are changing the way people find information, have fun and get connected within social networks. The unprecedented growth of smartphones has attracted academic attention, becoming an important aspect to finding the motivations that explain smartphone use (Park et al., 2013; Yeh et al., 2016).

Prior studies focused mainly on antecedents of advertising value and flow experience on mobile advertising, to study attitude toward mobile advertising or intention to read or click (Tsang, 2004; Chowdhury et al., 2006; Xu et al.,2008; Blanco et al. , 2010; Ünal et al., 2011; Liu et al., 2012; Yang et al., 2013;). There is little research about what leads to advertising value, flow experience, and purchase intention on smartphone advertising (Kim and Han, 2014). Therefore, the aim of this study is to analyze the factors that influence consumers' purchase intention after seeing smartphone advertisements. To do so we developed a model that combines Ducoffe's web advertising model, flow experience theory and three additional variables (emotional value, web design quality, and brand awareness) to understand the antecedents of purchase intention on smartphone advertising. The research questions (RQs) that emerged are as follows:

> RQ1 – What are the factors that influence advertising value and flow experience?
> RQ2 – Do emotions add significance to advertising value in smartphone advertisements?
> RQ3 – Does web design quality influence flow experience in smartphone advertisements?
> RQ4 – Does brand awareness play an important role in forming purchase intention in smartphone advertisements?

The contributions of this research are threefold. Firstly, it will be a guideline for marketers and advertisers to understand the factors that play an important role in smartphone advertising. Secondly, it provides valuable insights on how smartphone advertisements contribute to forming consumer purchase intention. Thirdly, we investigate the elements that influence best communication strategies for brands, in the smartphone advertising market.

This article is structured as follows: Section 2 contains the theoretical background, viz. the concept of mobile advertising, smartphone advertising and purchase intention, and theoretical foundation. Then, in Section 3 it presents the conceptual model, followed by Section 4 which covers the method used in the research. Sections 5 and 6, contain data analysis and discussion, respectively. Finally ending with conclusions in Section 7.

2. THEORETICAL BACKGROUND

2.1. THE CONCEPTS OF MOBILE ADVERTISING, AND SMARTPHONE ADVERTISING

Mobile advertising is defined by The Mobile Marketing Association as "*a form of advertising that transmits advertisement messages to users via mobile phones or other wireless communication devices*" (Chen and Hsieh, 2012). The mobile phone is the most personal medium since each device is associated with one particular individual and therefore allows for very personalized targeting campaigns (Truong et al. 2010). The existing main research on mobile advertising is illustrated in Table 1. Based on Chen and Hsieh (2012) the mobile advertising market has enormous potential, because it provides great business opportunities, due to mobile advertisements providing real-time interactive communication, multimedia content, and being consistently available. Nevertheless, there is a lack of study of these topics on smartphone advertising.

Topic	Research	References
Contextualized mobile advertising	Discussed how to design a recommendation mechanism for contextualized mobile advertising	Yuan and Tsao (2003)
Location-based services	Conducted research on how to develop location-based services in mobile advertising	Varshney (2003)
Consumer attitude	Reviewed the general attitude of consumers toward mobile advertising	Tsang et al. (2004)
Factors influencing consumers' acceptance	Published papers on the factors influencing consumers' acceptance of mobile advertising	Leppäniemi and Karjaluoto (2005) Drossos et al.(2007)
Advertising platform management	Conducted research on the mechanisms of mobile advertising platform management	Mahmoud and Yu (2006)
Influence of content presentation methods	Published a paper on the influence of perception and recall of mobile advertising content presentation methods	Lee et al. (2006)
Mobile advertising influence on consumer perception	Discussed the influence of mobile advertising on consumer memory and perception	Nasco and Bruner (2007)
Relationship between consumer attitude and presentation style	Published a paper on the relationship between mobile advertising presentation style and consumers' attitude	Merisavo et al. (2007)
Business model	Discussed how to design a mobile advertisement business model and its related development strategy	Park et al. (2008)
Policy issues	Reviewed the policy and regulatory issues of mobile advertising	Cleff (2008)
Personalized mobile advertisement	Discussed personalized mobile advertisement applications issues in the catering industry	Xu et al. (2008)
Consumer behavior	Studied the factors influencing consumers' behavior in response to mobile advertisements from the perspective of social morals	Soroa and Yang (2010)

Table 1 - Previous research studies on mobile advertising

A smartphone is a technological product, which integrates components such as a processor, camera, display panel, battery, and memory capacity into a handheld device. A smartphone is a telecommunications device and a tool that can be used for listening to music, editing documents, and taking pictures (Liao and Hsieh, 2013; Park and Han, 2013). A smartphone also has an internet connection to access online services like e-mail, maps, and location-based services (Okazaki and Mendez, 2012). Thus, a smartphone is able to deliver various functional benefits to consumers, such as emotional value, brand identification and brand loyalty (Yeh et al., 2016). Smartphones, different from standard mobile phones in terms of the operating system, have been attracting a substantial number of users and have become a perceived necessity in personal and work lives. People use them for social networking purposes, for features and functions like reading e-books, answering e-mails,

sending messages, and playing games. Usually, people use smartphones for entertainment or to relieve stress (Wang et al., 2015). The Smartphone is a quite new technology and it has received minor attention in academic research, in terms of understanding users' mind-sets about the adoption of smartphones (Joo and Sang, 2013). Nevertheless, smartphone advertisements play an increasing role in the decision-making process in supporting consumer purchases (Kim and Han, 2014).

Previous research of Zoller et al. (2001) identified three types of mobile advertisements based on the mode of interaction with the consumer: (1) permission-based advertising, (2) incentive-based advertising, and (3) location-based advertising. Mostafa (2002) identified the most common forms of mobile advertising: (1) text messaging such as SMS text messages, being the most broadly employed form of advertising, and (2) multimedia messaging. Park et al. (2008) identified *pull and push* as the main type of mobile advertisements. Pull advertising occurs when a brand links users to a web site and draws lessons from the consumers' habits and preferences, making the communication more effective by sending relevant messages (promotions and coupons). Push advertising arises when an advertising brand proactively sends information out to the consumer, if the recipient shows interest in the advertisement, they can follow through by clicking on it immediately. According to Evans (2016), advertisements on smartphones have become more sophisticated, because device screens are not suitable for showing traditional online advertising (pop up, pop under, video, and display ads). Recently, Avery (2016) studied the effectiveness of targeted, banner, disruptive, and native advertisements.

2.2. THE CONCEPT OF PURCHASE INTENTION

Purchase intention indicates likelihood that consumers will plan or be willing to purchase a certain product or service in the future (Wu et al., 2011). Past research has demonstrated that an increase in purchase intention reflects an increase in the chance of purchasing (Dodds et al., 1991; Schiffman and Kanuk, 2007). If consumers have a positive purchase intention, then a positive brand engagement will promote that purchase (Fishbein and Ajzen, 1975; Schiffman and Kanuk, 2007). Regarding the context of smartphones, one needs to consider online purchase intention which reflects the desire of consumers to make a purchase through the web (Chen et al., 2010).

2.3. THEORETICAL FOUNDATION

2.3.1. Ducoffe's web advertising model

Ducoffe (1996) developed an approach to study the effectiveness of attitude toward web advertising, focusing on advertising value. In order to understand what makes an advertisement valuable, Ducoffe (1995) found the antecedents – informativeness, irritation and entertainment – of advertising value on the World Wide Web. Firstly, informativeness, described as the ability of advertising to inform consumers of product types. Secondly, irritation reflects the techniques employed by advertisers that annoy, offend, insult or manipulate consumers. Consequently, techniques are perceived as unwanted, irritating consumers. Thirdly, entertainment is perceived as pleasant or likeable advertising and has a positive impact on brand attitudes. These three determinants were the starting point to justifying how consumers evaluate the value of advertising. The addition of credibility by Brackett and Carr (2001) and incentives by Kim and Han (2014) as antecedents of advertising value came later. Mackenzie and Lutz (1989), defines credibility as "*the extent to which the consumer perceives claims made about the*

brand in ads to be truthful and believable. Varnali et al. (2012) describes incentive as generic monetary gains (lotteries, discounts, prepaid credits, and gifts).

2.3.2. Flow experience theory

Csikszentmihalyi (1975) pioneered flow construct. Flow illustrates the best feelings (Csikszentmihalyi, 1975), and the most enjoyable experiences possible in human lives as "*the bottom line of existence*" (Csikszentmihalyi, 1982). By definition, flow is a psychological state in which an individual feels cognitively efficient, motivated, and happy (Moneta and Csikszentmihalyi, 1996). Researchers have started to recognize the value of this theory in understanding people's behavior while using the web (Chen et al., 1999; Novak et al., 2000; Hoffman and Novak, 2009). The concept of flow was first applied to the experiences of web users by Hoffman and Novak (1996) in an examination of online marketing activities.

3. CONCEPTUAL MODEL

3.1. THE CONCEPTUAL MODEL

The conceptual model, as shown in Figure 1, is based on Ducoffe's web advertising model and flow experience. The goal of this research is to determine how consumers perceive the antecedents of the interaction with smartphone advertisements, and consequently how it influences their purchase intention. The constructs, advertising value and flow experience have the five common variables: (1) informativeness; (2) credibility; (3) entertainment; (4) irritation; and (5) incentives. A new variable was added to advertising value, viz. emotional value. Similarly, the web design quality variable was added to flow experience. We added brand awareness and the antecedent emotional value. Purchase intention is depicted as the consequence of advertising value, flow experience, web design quality, and brand awareness. Each of these constructs is discussed in the following sections.
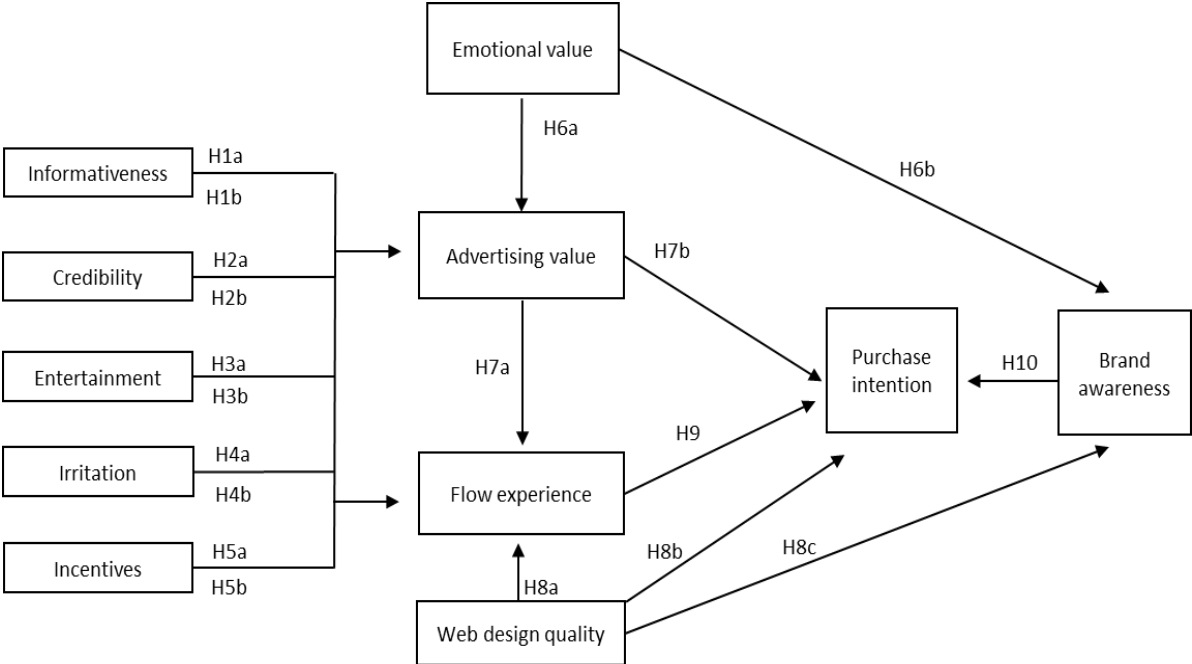
Figure 1 - Conceptual model

3.2. HYPOTHESES

"The *ability to inform users about product alternatives that enable them to make choices yielding the highest value*" (Rotzoll et al., 1996) defines informativeness. In a mobile devices context, information is considered as a valuable incentive because consumers react very positively to advertising (Aitken et al., 2008). Chowdhury et al. (2006) found that consumers do not feel annoyed if mobile advertisements provide appropriate information. Scharl et al. (2005) concluded that consumers are likely to purchase advertised products, if advertisers provide funny and entertaining SMS, which are informative and relevant. Thus, informativeness is strongly related to perceived advertising value (Ducoffe, 1996). In addition, informativeness positively influences flow experience because it will affect consumer attention. The consumer focuses on product information messages, concentrating on their details, excluding irrelevant thoughts (Hoffman and Novak, 1996; Koufaris, 2002; Li and Browne, 2006).

The first hypothesis:

H1: Perceived informativeness of smartphone advertisements is (H1a) positively associated with perceived advertising value and (H1b) positively associated with flow experience.

"*The extent to which the consumer perceives claims made about the brand in ads to be truthful and believable*", defines credibility (Mackenzie and Lutz, 1989). Various empirical studies have demonstrated that advertisement credibility has a significant effect on attitudes toward advertising and behavioral intentions (Brackett and Carr, 2001; Tsang et al., 2004; Zhang and Mao, 2008). Advertising credibility is evaluated through the content of advertisements, being further influenced by a company's credibility and the holder of the message (Goldsmith et al., 2000; Lafferty et al., 2002; Balasubraman et al., 2002). Thus, advertising credibility positively affects the perceived value of advertising. According to Yang et al. (2013) a consumer may avoid or not respond to advertising if they do not think mobile advertisements are trustworthy, not paying attention to the message. Therefore, the reliability of a mobile message is critical and consumers are able to experience flow state with a credible message (Okazaki, 2005; Choi et al., 2008).

The second hypothesis:

H2: Perceived credibility of smartphone advertisements is (H2a) positively associated with perceived advertising value and (H2b) positively associated with flow experience.

Ducoffe (1995) confirmed that entertainment of advertising information is positively related to advertising value. Entertainment is the ability of an advertisement to promote enjoyment and create positive consumer attitudes by providing a form of escapism, diversion, aesthetic enjoyment or emotional release (Elliott and Speck, 1998; Shavitt et al., 1998). In the advertising context, entertainment is pleasurable, enjoyable and fun to watch (Schlinger, 1979). According to Sternthal and Craig (1973) entertaining advertisements attract consumers' attention, consequently the effectiveness of the advertisement increases. Coulter et al. (2001) found that entertainment is an important value that consumers look for, in advertising. Moreover, entertainment has recently become a factor that consumers expect when they view advertising. Entertainment positively influences consumer flow experience.

The third hypothesis:

H3: Perceived entertainment of smartphone advertisements is (H3a) positively associated with perceived advertising value and (H3b) positively associated with flow experience.

Irritation refers to the extent to which consumers perceive that mobile advertisements are irritating or annoying, involving negative feelings towards the advertisements (Yang et al., 2013). Past research examined irritation as being negatively related to advertising value, reducing advertising effectiveness and the value perceived by consumers (Aaker and Bruzzone, 1985; Korgaonkar and Wolin, 1999; Luo, 2002; Okazaki, 2004). Mobile advertising may provide information that is distracting and which overwhelms the consumer (Stewart and Pavlou, 2002) and this can be perceived as an intrusion into the mobile consumer's privacy. According to Liu et al. (2012) consumers then feel confused about the advertising and react negatively to it and irritation caused by incomprehensible or unwanted mobile advertising messages may reflect negatively on the perceived value of mobile advertising.

The fourth hypothesis:

H4: Perceived irritation of smartphone advertisements is (H4a) negatively associated with perceived advertising value and (H4b) negatively associated with flow experience.

Incentives and discounts are methods which are used to persuade consumers to accept advertising (Haghirian et al., 2005; Leppaniemi and Karjaluoto, 2005). Incentives are major predictors of consumers' responses and entail monetary benefits such as discounts, coupons, gifts, and non-monetary benefits (Varnali et al., 2012). Incentives are considered to have an impact on consumer intentions to receive mobile advertising and provide specific financial rewards to consumers who agree to receive an advertisement (Tsang et al., 2004). Kim and Han (2014) introduced the incentives in the Ducoffe (1995) model. They suggest increasing incentives for consumers receiving smartphone advertisements, affecting consumer flow experience. Their study reported that consumers are interested in tangible benefits and pay more attention to an advertising message for financial advantage. Thus, consumers perceive value in an advertisement with incentives.

The fifth hypothesis:

H5: Perceived incentives of smartphone advertisements is (H5a) positively associated with perceived advertising value and (H5b) positively associated with flow experience.

Past research studied emotion in the advertising field (Edell and Burke, 1987; Stayman and Aaker, 1988). The utility derived from the feelings or affective states (i.e. enjoyment or pleasure) that a product generates, defines emotional value. Emotional value towards a brand relates to positive feelings upon using the brand, which increases consumer loyalty towards the brand (Sweeney and Soutar, 2001). Holbrook and Batra (1987) concluded that when consumers view advertising, the information contained in it induces emotional responses, thus creating an attitude towards the brand. Hyun et al. (2011) defined emotional responses towards advertising as the set of emotional responses elicited during advertising viewing. We suggested the addition of emotional value to explain perceived adverting value and increasing brand awareness.

The sixth hypothesis:

H6: Perceived emotional value is (H6a) positively associated with advertising value and (H6b) positively associated with brand awareness.

Advertising value is a measure of advertising effectiveness, being defined as a "*subjective evaluation of the relative worth or utility of advertising to consumers*"(Ducoffe, p.1, 1995). Perceived advertising value contributes to the growth of flow experience because consumers focus totally on the messages received, eliminating irrelevant thoughts (Hoffman and Novak, 1996). Consumers evaluate the received messages as being worthy and if they match their needs or include valuable information to purchase. Past research studied the relationship between advertising attitude and purchase intention (Tsang et al., 2004; Su-Fang et al. 2006; Yang, 2007). However, there are few studies researching the relationship between advertising value and purchase intention. Consumers show a favorable attitude to products or services when purchase intention increases (Ko et al., 2005).

The seventh hypothesis:

H7: Perceived advertising value is (H7a) positively associated with flow experience and (H7b) positively associated with purchase intention.

Web design are elements that a consumer experiences on a web site (information search, product selection) (Ha and Stoel, 2009). Design factors (size of the advertisement, use of color, music effects, presence of animation, and the length of the commercial) are related to how effectively the advertisement is designed (Park et al., 2008). Web site design affects online purchase intention (Bai et al., 2008). A poorly designed interface can disrupt a flow experience by demanding an excessive amount of attention, or contrarily, distracting the users (Pace, 2004). Kim and Niehm (2009) reported that web design quality positively influences consumer perception regarding the quality of information shown on the web site, and consequently affects brand perception as reliable. We include web design quality due to the lack of study on the subject of designing mobile advertisements.

The eighth hypothesis:

H8: Perceived web design quality is (H8a) positively associated with flow experience, (H8b) positively associated with purchase intention and (H8c) positively associated with brand awareness.

The concept of flow refers to optimal and enjoyable experiences when an individual engages in an activity with total involvement, concentration and enjoyment. When consumers become absorbed in their activities, irrelevant thoughts and perceptions are filtered (Csikszentmihalyi, 1982). Researchers concluded that surfing the web is an activity that can facilitate the occurrence of flow (Hoffman and Novak, 1996; Chen et al., 1998). The decision to interact with smartphone advertisements and whether to purchase advertised products or services or not is crucial for flow experience (Kim and Han, 2014). Thus, consumers' flow experience positively influences purchase intention.

The ninth hypothesis:

H9: Flow experience is positively associated with purchase intention.

"*The ability for a buyer to recognize or recall that a brand is a member of a certain product category*" (Aaker, 1991) defines brand awareness. Brand awareness is related to the strength of the brand node or trace in memory as reflected by consumers' ability to recall or recognize the brand under different conditions (Rossiter and Percy, 1987). Hence, only brands which consumers recognize can be identified, categorized and ultimately purchased. The importance of brand awareness lies in the fact that consumers include it in their decision to purchase and evaluate the product. Regarding purchase intention, consumers' choice of a more familiar brand is usually higher than that of a less familiar brand (Hoyer and Brown, 1990). We added brand awareness because past research proved that raising it increases the chance of the brand being considered for purchase (Jacoby and Olson, 1977; Zeithaml, 1988; Dodds et al., 1991; Yoo and Donthu, 1997; Washburn and Plank, 2002).

The tenth hypothesis:

H10: Brand awareness is positively associated with purchase intention.

4. METHODS

4.1. MEASUREMENT

All constructs were adapted, with slight modifications, from the literature, please see Appendix A. All the constructs were measured by using seven-point range scales in each item, ranging from "strongly disagree" (1) to "strongly agree" (7). The language of the constructs was modified to be suitable in the smartphone ad context. We also included four demographic questions relating to age, gender, education, and job. The questionnaire was uploaded to the web, to be divulged online, through surveymonkey.com.

4.2. DATA

In July 2016, a pilot survey was conducted with 44 answers in order to refine the questions, obtain additional comments on the content and structure to decide which would be the final items to analyze. Respondents of the pilot test were asked to provide feedback and suggestions for improvement when instructions or questions were not clear. Respondents also answered all questions by following the instructions. The most important change was in the items of emotion value (EV), web design quality (WDQ), incentives (INC), and purchase intention (PI) because they generated misunderstandings and users did not clearly understand the questions. For this reason and regarding the smartphone context, the items were modified by a number of suggestions about the phrasing and the overall structure of the questionnaire. The data from the pilot survey was not included in the main survey.

In August 2016, the survey was shared through email. A survey was conducted to examine the hypotheses in this study. We used survey monkey and email to collect survey data. Respondents were those who have a smartphone and have had an experience viewing smartphone advertisements. The data was collected from smartphone consumers who had experienced SMS, MMS, keyword search, display, and rich media advertising. We carefully scrutinized the responses for each question. Improper responses such as having the same answers to all questions and incomplete responses were excluded from our sample. In total, 303 respondents participated in the study and successfully completed the questionnaire. These valid responses were analyzed to assess reliability, validity, and for hypotheses testing.

We administered the questionnaires from people residing in a European country and the sample was constituted of 303 individuals (please, see Table 2), where 49% (151) are male and 51% (152) are female. The average age is 33, the youngest respondent being 15 and the oldest 63. In terms of age, despite the wide range, the strongest concentration is from 20 to 39 year olds, representing 71% of the respondents. Regarding education level, we verified that 45% of the observations have a graduate degree and 23% hold a master's degree. The majority of respondents (75%) are employed. Regarding the data related to smartphone use, 55% had accessed the Internet on a smartphone for over three years. 34% of respondents use Internet on a smartphone for over three hours per day, and 24% for one or two hours. 34% seldom read or view advertisements on a smartphone, in contrast to 26% who view advertisements on a smartphone one to three times per day, while 26% view advertisements more than three times per day. 63% have been smartphone users for more than three years. 30% of the respondents bought their last smartphone one or two years ago.

Measure	Item	N	Percentage (%)	Measure	Item	N	Percentage (%)
Gender	Male	151	49.8	Daily Internet usage time (using a smartphone)	Seldom	13	4.3
	Female	152	50.2		Under 1 hour	51	16.8
Age	Under 20	10	3.3		1 hour – 2 hours	73	24.1
	20-29	133	43.9		2 hours – 3 hours	61	20.1
	30-39	82	27.1		Over 3 hours	105	34.7
	40-49	52	17.2	Frequency of reading or viewing of an advertisement on a smartphone	Seldom	103	34.0
	50-59	24	7.9		1 – 3 per day	80	26.4
	60-69	2	0.7		More than 3 per day	80	26.4
Education	Junior high school	6	2.0		1 per 2 – 3 days	21	6.9
	High school	28	9.2		1 per 4 – 5 days	7	2.3
	Graduate	135	44.6		1 per week	12	4.0
	Postgraduate	59	19.5	Last purchase of a smartphone	Under 6 months	71	23.4
	Master	70	23.1		6 months – 1 year	76	25.1
	Doctorate	5	1.7		1 year – 2 years	92	30.4
Job	Unemployed	6	2.0		2 years – 3 years	38	12.5
	Student	39	12.9		Over 3 years	26	8.6
	Freelancer	5	1.7	How long respondent has used a smartphone	Under 6 months	7	2.3
	Self-employed	25	8.3		6 months – 1 year	17	5.6
	Employed	228	75.2		1 year – 2 years	29	9.6
Internet usage period (using a smartphone)	Not use	2	0.7		2 years – 3 years	59	19.5
	Under 6 months	8	2.6		Over 3 years	191	63.0
	6 months – 1 year	15	5.0				
	1 year – 2 years	50	16.5				
	2 years – 3 years	61	20.1				
	Over 3 years	167	55.1				

Table 2 - Survey respondent profile (n=303)

5. RESULTS

To examine the causal relationships and estimate the conceptual model, we used structured equation modelling (SEM). SEM has changed the nature of research in international marketing and management and it is a statistical technique for testing and estimating causal relations using a combination of statistical data and qualitative causal assumptions (Henseler et al., 2009). The use of Partial Least Squares (PLS) is suitable and was considered the most appropriate method due to: (a) the early stage of theoretical development; (b) this conceptual model has not been tested in the literature and; (c) the conceptual model being considered as complex.

In the next two subsections we firstly examine the measurement model in order to assess indicator reliability, construct reliability, convergent validity, and discriminant validity. Secondly, we test the structural model. The software used for applying the method was PLS Smart 3.0 Software (Ringle et al., 2005).

5.1. MEASUREMENT MODEL

Firstly, in order to analyze the indicator reliability, the loadings should be higher than 0.7 (Chin, 1998; Henseler et al., 2009; Hair and Anderson, 2010). It is possible to conclude that all the items have loadings greater than 0.7 (Table 3), confirming that the indicator reliability is achieved. Secondly, two criterions were used to examine the construct's reliability – Cronbach's alpha (CA) and composite reliability (CR). As seen in Table 3, it is possible to conclude that all constructs have CR and CA greater than 0.7, approving construct reliability (Henseler et al., 2009). Thirdly, in order to assess convergent validity the average variance extracted (AVE) should be at least 0.5 to be considered sufficient and explain more than half of the variance of its indicators on average (Henseler et al., 2009; Hair and Anderson, 2010). As seen in Table 3, AVE for all the constructs are above 0.5, guaranteeing convergent validity.

Constructs	Loadings	CR	CA	AVE	Constructs	Loadings	CR	CA	AVE
Informativeness		0.957	0.941	0.849	Flow experience		0.941	0.915	0.799
INF1	**0.888**				FE1	**0.837**			
INF2	**0.930**				FE2	**0.904**			
INF3	**0.932**				FE3	**0.932**			
INF4	**0.935**				FE4	**0.899**			
Credibility		0.967	0.955	0.882	Emotional value		0.904	0.865	0.654
CRED1	**0.919**				EV1	**0.852**			
CRED2	**0.952**				EV2	**0.719**			
CRED3	**0.951**				EV3	**0.702**			
CRED4	**0.934**				EV4	**0.901**			
Entertainment		0.978	0.971	0.919	EV5	**0.851**			
ENT1	**0.945**				Web Design Quality		0.954	0.936	0.839
ENT2	**0.971**				WDQ1	**0.906**			
ENT3	**0.962**				WDQ2	**0.917**			
ENT4	**0.956**				WDQ3	**0.935**			
Irritation		0.961	0.939	0.892	WDQ4	**0.905**			
IRR1	**0.947**				Brand Awareness		0.916	0.878	0.734
IRR2	**0.949**				BA1	**0.770**			
IRR3	**0.938**				BA2	**0.861**			
Incentives		0.929	0.885	0.814	BA3	**0.917**			
INC1	**0.850**				BA4	**0.871**			
INC2	**0.929**				Purchase Intention		0.957	0.932	0.881
INC3	**0.925**				PI1	**0.913**			
Advertising value		0.981	0.971	0.945	PI2	**0.958**			
AV1	**0.967**				PI3	**0.945**			
AV2	**0.976**								
AV3	**0.973**								

Table 3 - Factor loading, composite reliabilities, Cronbach alpha and average variance extracted (n=303)

Finally, the discriminant validity has two criteria. The first criteria is the Fornell-Larcker criterion that infers the root square of AVE (Table 4 in bold) for each latent variable should be greater than the correlation with any other latent variable (Fornell and Larcker, 1981). In Table 4, we can see that this criteria is achieved. The second criteria, the loading of each indicator is expected to be greater than all of its cross-loadings (Chin, 1998). This was also analyzed and we verified that each construct has loadings with higher values than their cross loadings (Hair and Anderson, 2010), this result is provided by author request. Consequently, discriminant validity is acceptable.

	Mean	SD	INF	CRED	ENT	IRR	INC	AV	FE	EV	WDQ	BA	PI
INF	0.848	0.016	**0.921**										
CRED	0.881	0.016	0.790	**0.939**									
ENT	0.919	0.011	0.725	0.814	**0.959**								
IRR	0.891	0.012	-0.402	-0.477	-0.550	**0.944**							
INC	0.814	0.018	0.415	0.539	0.581	-0.382	**0.902**						
AV	0.944	0.007	0.687	0.784	0.767	-0.497	0.646	**0.972**					
FE	0.798	0.021	0.518	0.682	0.699	-0.491	0.698	0.741	**0.894**				
EV	0.653	0.023	0.458	0.372	0.351	-0.084	0.387	0.375	0.358	**0.809**			
WDQ	0.838	0.017	0.737	0.711	0.713	-0.418	0.463	0.633	0.551	0.448	**0.916**		
BA	0.734	0.027	0.495	0.519	0.457	-0.165	0.381	0.552	0.412	0.394	0.466	**0.856**	
PI	0.881	0.012	0.578	0.668	0.658	-0.452	0.642	0.733	0.785	0.360	0.579	0.493	**0.939**

Table 4 - Means, standard deviations, AVE and correlations

5.2. STRUCTURAL MODEL

Previously, we confirmed that the measurement model is satisfactory. Now, it is possible to test the structural model. This article used a bootstrapping of 5,000 resamples to estimate the statistical significance of path coefficients (Davison and Hinkley, 2003; Tenenhaus et al., 2005). According to Chin (1998), the crucial criterion for assessing the structural model is the coefficient of determination (R^2) of the endogenous latent variables. R^2 should be above 0.2 to be considered moderate. The results of the hypotheses of structural model are illustrated in Figure 2.
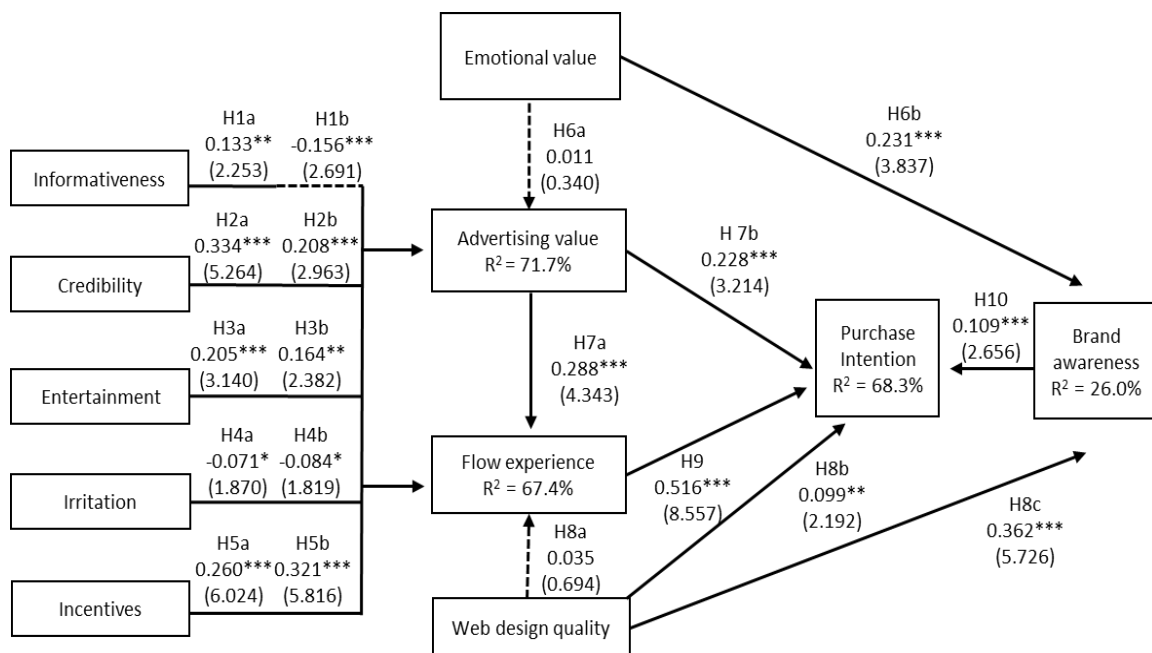
Figure 2 - Structural model results

First, the research explains 71.7% of variation in advertising value, in the conceptual model. The hypotheses of informativeness ($\hat{\beta}$ = 0.133; p < 0.05), credibility ($\hat{\beta}$ = 0.334; p < 0.01), entertainment ($\hat{\beta}$ = 0.205; p < 0.01), irritation ($\hat{\beta}$ = -0.071; p < 0.10), and incentives ($\hat{\beta}$ = 0.260; p < 0.01) are statistically significant. Nevertheless, emotional value ($\hat{\beta}$ = 0.011; p > 0.10) is not statistically significant. Therefore, hypotheses H1a, H2a, H3a, H4a, and H5a are supported, however H6a is not supported to explain advertising value.

Second, flow experience is explained by 67.4% of the variation in the conceptual model. The hypotheses that are statistically significant to explain flow experience are credibility ($\hat{\beta}$ = 0.208; p < 0.01), entertainment ($\hat{\beta}$ = 0.164; p < 0.05), irritation ($\hat{\beta}$ = -0.084; p < 0.10), incentives ($\hat{\beta}$ = 0.321; p < 0.01), and advertising value ($\hat{\beta}$ = 0.288; p < 0.01). However, informativeness ($\hat{\beta}$ = -0.156; p < 0.01) and web design quality ($\hat{\beta}$ = 0.035; p > 0.10) are not statistically significant. Therefore, hypotheses H2b, H3b, H4b, H5b, and H7a are supported. Thus hypotheses H1b, and H8a are not supported.

Third, brand awareness is not explained by 26% of the variation in the conceptual model. The hypotheses emotional value ($\hat{\beta}$ = 0.231; p < 0.01) and web design quality ($\hat{\beta}$ = 0.362; p < 0.01) are positively and statistically significant. Therefore, hypotheses H6b and H8c are supported.

Finally, the model explains 68.3% of variance in purchase intention. The hypotheses of advertising value ($\hat{\beta}$ = 0.228; p < 0.01), web design quality ($\hat{\beta}$ = 0.099; p < 0.05), flow experience ($\hat{\beta}$ = 0.516; p < 0.01) and brand awareness ($\hat{\beta}$ = 0.109; p < 0.01) are statistically significant to explain the purchase intention and also H7b, H8b, H9 and H10 and are supported.

In summary, out of a total of 19 hypotheses presented in the model, 16 hypotheses are supported and 3 are not.

6. DISCUSSION

6.1. THEORETICAL IMPLICATIONS

This research has three theoretical implications. First, advertising value was positively influenced by informativeness, credibility, entertainment, and incentives, being consistent with previous findings (Ducoffe, 1995; Liu et al., 2012; Kim and Han, 2014). Credibility was the strongest positive factor, followed by entertainment and informativeness. These results show that consumers perceive smartphone advertisements as good source of product information, being useful, enjoyable, belief and rewards may be offered. In contrast, irritation did not positively influence advertising value, meaning consumers avoid irritating or annoying smartphone advertisements. In addition, this research failed to predict the effect of emotional value. That is, consumers do not have positive feelings upon the brand advertised, and do not get any benefit with the experience of smartphone advertisements.

Second, flow experience is positively influenced by credibility, entertainment, incentives, and advertising value. Informativeness and irritation had a negative influence, which is consistent with previous research (Kim and Han, 2014). Incentives are the strongest factor, followed by credibility and entertainment. Oppositely, the addition of web design quality demonstrated does not have significant impact, the effect of web design experience is not relevant for consumers while they are interacting with smartphone advertisements.

Third, the addition of emotional value and web design quality revealed to explain brand awareness. These results show the importance of consumers developing an emotional bond with the brand they recognize in smartphone advertisements, and web design plays a crucial role in the perception of brand to consumers, a feeling that is reliable.

Finally, results indicate that advertising value, flow experience, web design quality, and brand awareness are key factors to explain purchase intention in the context of smartphone advertisements. Table 5 illustrates the results demonstrated above in this section.

Hypo-theses	Independent Variables	Dependent Variables	Findings	Results
H1a	Informativeness	→ Advertising value	Positive and statistically significant ($\hat{\beta}$ = 0.133; p < 0.05)	Supported
H1b		→ Flow experience	Negative and statistically significant ($\hat{\beta}$ = -0.156; p < 0.01)	Not supported
H2a	Credibility	→ Advertising value	Positive and statistically significant ($\hat{\beta}$ = 0.334; p < 0.01)	Supported
H2b		→ Flow experience	Positive and statistically significant ($\hat{\beta}$ = 0.208; p < 0.01)	Supported
H3a	Entertainment	→ Advertising value	Positive and statistically significant ($\hat{\beta}$ = 0.205; p < 0.01)	Supported
H3b		→ Flow experience	Positive and statistically significant ($\hat{\beta}$ = 0.164; p < 0.05)	Supported
H4a	Irritation	→ Advertising value	Negative and statistically significant ($\hat{\beta}$ = -0.071; p < 0.10)	Supported
H4b		→ Flow experience	Negative and statistically significant ($\hat{\beta}$ = -0.084; p < 0.10)	Supported
H5a	Incentives	→ Advertising value	Positive and statistically significant ($\hat{\beta}$ = 0.260; p < 0.01)	Supported
H5b		→ Flow experience	Positive and statistically significant ($\hat{\beta}$ = 0.321; p < 0.01)	Supported
H6a	Emotional value	→ Advertising value	Positive and statistically significant ($\hat{\beta}$ = 0.011; p > 0.10)	Not supported
H6b		→ Brand awareness	Positive and statistically significant ($\hat{\beta}$ = 0.231; p < 0.01)	Supported
H7a	Advertising value	→ Flow experience	Positive and statistically significant ($\hat{\beta}$ = 0.288; p < 0.01)	Supported
H7b		→ Purchase intention	Positive and statistically significant ($\hat{\beta}$ = 0.228; p < 0.01)	Supported
H8a		→ Flow experience	Non-significant effect ($\hat{\beta}$ = 0.035; p > 0.10)	Not supported
H8b	Wed design quality	→ Purchase intention	Positive and statistically significant ($\hat{\beta}$ = 0.099; p < 0.05)	Supported
H8c		→ Brand awareness	Positive and statistically significant ($\hat{\beta}$ = 0.362; p < 0.01)	Supported
H9	Flow experience	→ Purchase intention	Positive and statistically significant ($\hat{\beta}$ = 0.516; p < 0.01)	Supported
H10	Brand awareness	→ Purchase intention	Positive and statistically significant ($\hat{\beta}$ = 0.109; p < 0.01)	Supported

Table 5 - Hypotheses conclusions

6.2. PRACTICAL IMPLICATIONS

Several practical implications can be drawn. First, while consumers view and engage with smartphone advertisements, valuable information that fulfils consumer needs should be delivered. Consumers enjoy focusing on the details of the product or service advertised. Marketers and advertisers can provide advertisements that meet consumer needs, and ensure they are part of the target communication.

Second, irritation is recognized by consumers as being annoying and intrusive with advertisements. Marketers and advertisers should consider if consumers are receptive to advertisements on smartphones, and allow the option for consumers to choose whether they want to receive them or not. It will contribute to making consumers feel less irritated, impatient, and advertisements being less intrusive.

Third, the importance of emotional value on brand awareness. Consumers get more engaged with the brand, the more they are familiar with it. Advertisers should consider creating advertisements that arouse emotions. Emotions are representative of consumers' feelings and the way they interact with the brand relies on the basis that smartphone advertisements' connection with consumers arouse emotions, allowing for positive brand recognition, perceiving it as relevant, and valuable.

Fourth, advertisers should develop smartphone advertisements that easily engage consumers' attention. Brands should consider investing in better designed advertisements that make the experience of viewing advertisements more attractive. Web design makes a difference in consumer perception about the content and product or service information. Improving web design quality in smartphone advertisements should induce pleasure and satisfaction to consumers.

6.3. LIMITATIONS AND FUTURE RESEARCH

Our study has several limitations. First, this study was conducted with consumers of only one European country. Therefore, in order to overcome cultural and economic disparities, it would be interesting to implement it in other countries, and compare the findings. Second, brand awareness confirmed the influence on purchase intention and is one of the dimensions of brand equity. Thus, more effort is required to theoretically and empirically test the antecedents of brand equity that influences purchase intention. Third, web design quality was unsupported to explain flow experience and future studies should research their antecedents such as interactivity. Fourth, further research to understand the effect of emotional value on purchase intention would be alluring.

7. CONCLUSIONS

The contribution of this research was to identify the strongest factors that influences consumers' willingness to purchase products or services, after viewing advertisements on smartphones. For this purpose, we developed a model based on Ducoffe's web advertising model and flow experience theory. This study was the first to include emotional value, web design quality and brand awareness. Based on the sample of 303 respondents, from a European country, we empirically confirmed that for advertising value the facilitators were informativeness, credibility, entertainment, and incentives, while irritation and emotional value were inhibitors. These findings revealed that consumers consider smartphone advertising as being, credible, enjoyable, a good reference of information for purchasing products and offer the chance of obtain rewards. However, they may also perceive smartphone advertising as unwanted, intrusive, annoying, and consequently negative feelings derive towards the brand advertised. Flow experience was positively influenced by credibility, entertainment, incentives, and advertising value. Informativeness and irritation negatively influenced flow experience. These results may be driven by the fact that consumers have an optimistic perception about smartphone advertisements as they are useful, valuable, believable, entertaining, and correctly deliver the details of the products. Nevertheless, when consumers do not get proper information, they recognize smartphone advertisements as irritating. Brand awareness was successfully explained by emotional value and web design quality. Brand awareness was confirmed to be crucial for consumers to recognize the brand, and consider consumption of a brand's products or services. Finally, we concluded that purchase intention was successfully explained by advertising value, flow experience, web design quality, and brand awareness.

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9. APPENDIX A

Constructs	Items	Measurement items	References
Informativeness (INF)	INF1	Smartphone advertising provides timely information on products or services.	(Ducoffe, 1995; Wang and Sun, 2010; Liu et al., 2012)
	INF2	Smartphone advertising supplies relevant information on products or services.	
	INF3	Smartphone advertising is a good source of information.	
	INF4	Smartphone advertising is a good source of up to date products or services information.	
Credibility (CRED)	CRED1	I feel that smartphone advertising is convincing.	(Liu et al., 2012; Yang et al., 2013)
	CRED2	I feel that smartphone advertising is believable.	
	CRED3	I feel that smartphone advertising is credible.	
	CRED4	I believe that smartphone advertising is a good reference for purchasing products.	
Entertainment (ENT)	ENT1	I feel that smartphone advertising is interesting.	(Ducoffe, 1995; Liu et al., 2012; Yang et al., 2013)
	ENT2	I feel that smartphone advertising is enjoyable.	
	ENT3	I feel that smartphone advertising is entertaining.	
	ENT4	I feel that smartphone advertising is pleasing.	
Irritation (IRR)	IRR1	I feel that smartphone advertising is irritating.	(Ducoffe, 1995; Liu et al., 2012)
	IRR2	I feel that smartphone advertising is annoying.	
	IRR3	I feel that smartphone advertising is intrusive.	
Incentives (INC)	INC1	I am satisfied to get smartphone advertisements that offers rewards.	(Ünal et al., 2011; Kim and Han, 2014)
	INC2	I take action to get smartphone advertisements that offers rewards.	
	INC3	I respond to smartphone advertising to obtain incentives.	
Advertising Value (AV)	AV1	I feel that smartphone advertising is useful.	(Ducoffe, 1995; Liu et al., 2012)
	AV2	I feel that smartphone advertising is valuable.	
	AV3	I feel that smartphone advertising is important.	
Flow Experience (FE)	FE1	Smartphone advertising allows me to control my own purchase intention.	(Ho and Kuo, 2010)
	FE2	I am not distracted by other online activities, and stay focused on smartphone advertising.	
	FE3	I find myself eager to press in the smartphone advertising content or activity.	
	FE4	I like to pay attention to smartphone advertising.	
Purchase Intention (PI)	PI1	I find purchasing product/service advertised to be worthwhile.	(Kumar et al., 2009; Hong and Cho, 2011; Hsu and Lin, 2015)
	PI2	I will frequently purchase product/service advertised in the future.	
	PI3	I will strongly recommend others to purchase product/service advertised.	
Emotional Value (EV)	EV1	Using smartphones make me feel relaxed.	(Kumar et al., 2009; Hsu and Lin, 2015)
	EV2	I enjoy using smartphones.	
	EV3	The use of smartphones makes me want to use them.	
	EV4	Using smartphones makes me feel good.	
	EV5	Using smartphones gives me pleasure.	
Web Design Quality (WDQ)	WDQ1	The web site looks attractive.	(Ha and Im, 2012)
	WDQ2	The web site uses fonts properly.	
	WDQ3	The web site uses colors properly.	
	WDQ4	The web site uses multimedia features properly.	
Brand Awareness (BA)	BA1	I have heard of this brand.	(Wu and Ho, 2014)
	BA2	This brand is what I first thought of.	
	BA3	This brand is very famous.	
	BA4	Most of people know this brand.	