



1. Measurements Item
2. Irritation, Entertainment, Attitude, Acceptance, Perceived Usefulness
3. Technical Writing how to eliminate the variable
4. Attitude consist Cognitive and Affective \*\*
5. Advergame
6. Reactance Theory



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Key factors of teenagers' mobile advertising acceptance

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# Key factors of teenagers' mobile advertising acceptance

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## Abstract

**Purpose** – The purpose of this paper is to analyse key drivers of teenagers' attitude toward mobile advertising and its effects on teenagers' mobile advertising acceptance.

**Design/methodology/approach** – A proposed model of  **affective (irritation and entertainment) and cognitive (perceived usefulness)**  antecedents of attitude toward mobile advertising and its effects on mobile advertising acceptance is analysed. The sample consisted of 355 Spanish teenagers. The model was tested using structural equation modelling.

**Findings** –  **Findings show that entertainment, irritation and usefulness are key drivers of teenagers' attitude toward mobile advertising. Moreover, perceived usefulness reduces irritation. The authors' model also suggests that improving teenagers' attitude toward mobile advertisements is a key factor for teenagers' mobile advertising acceptance.**

**Practical implications** – This research offers practical implications for marketing managers interested in targeting mobile advertising campaigns to teenagers. Marketers should take care of the number and frequency of messages being sent in order to avoid teenagers being irritated by their advertising attempts.  **Marketers can improve attitude through message personalization, content relevance and enriching the sales messages with entertainment features.**

**Originality/value** – While consumer-driven factors such as perceived control or trust have deserved a lot of attention, little research has focused on the role of emotions on attitude and behaviour towards mobile advertising. This paper combines the  **influence of cognitive and affective message-driven factors on teenagers' attitude and behaviour towards mobile advertising.**

**Keywords** Mobile services, Attitudes, Teenagers, Irritation, Entertainment, Perceived usefulness

**Paper type** Research paper

## 1. Introduction

The rapid proliferation of mobile phones along with their technological development has created a whole new channel for advertising (Liu *et al.*, 2012; Saadeghvaziri and Seyedjavadin, 2011). As such,  **mobile advertising has been conceptualised as “the set of actions that enable firms to communicate and relate to their audience in a relevant, interactive way through any mobile device or network” (Mobile Marketing Association, 2010, p. 7). This set of actions includes the sending of short message services (SMS) messages, the use of graphic or display formats, marketing using search engines through mobile internet, bluetooth technology, couponing or the use of applications and entertainment content – including mobile advergaming (MMA, 2010).**



The use of mobile phones as a communication channel has transformed the way in which consumers process advertising attempts. Being able to receive mobile advertising in the right moment and place can enhance perceived usefulness, increasing consumers' receptivity to promotions that arrive on their mobile phones. Among consumers, teenagers have been on the forefront of adopting mobile services such as SMS and instant messaging (IM) (Grinter *et al.*, 2006) in the last few years. Teens use their mobile phones in anytime and anyplace (even at the dinner table and in the bedroom) to maintain their social relationships as well as to have fun (Castells *et al.*, 2006). Furthermore, teenagers develop social skills through the mobile phone devices and teenagers' consumption learning is mostly made by using media within their leisure activities (Batat, 2009). Teenagers are expected to be the future focus of a great deal of mobile advertising campaigns due to they represent a large share of early adopters of mobile services and they develop consumption competency through the mobile (Batat, 2009; Grinter *et al.*, 2006).

The increasing role of mobile phones in consumers' everyday lives – specially for younger audiences (Soroa-Koury and Yang, 2010; Van der Waldt *et al.*, 2009; Zhang and Mao, 2008) – has led to continuous growth in mobile advertising budgets as marketers realize that being connected all the time, everywhere through mobile phones can be seen as a great opportunity to advertise, build, and develop customer relationships, and receive direct response from those customers (Liu *et al.*, 2012). As a consequence of marketers' interest it is anticipated that \$20.6 billion will be spent on mobile advertising worldwide by 2015 (Gartner, 2011). In 2011 alone, mobile advertising expenditure increased by 358 per cent in Europe and by 722 per cent in Spain (InMobi, 2012).

The relevance of mobile advertising for marketers makes it a key task to gain insight into the drivers and barriers to mobile advertising acceptance. Prior studies (Kuo and Yen, 2009; Tsang *et al.*, 2004) emphasise that attitude to mobile advertising is an important construct for mobile marketing research because of its influence on consumer's intention to accept mobile advertising.

Irritation and entertainment have been found affective antecedents of attitude toward mobile advertising (Saadeghvaziri and Seyedjavadin, 2011; Van der Waldt *et al.*, 2009). Irritation has been studied as an emotional outcome (Van der Waldt *et al.*, 2009) or a consumer reaction toward mobile advertising (Tripathi and Siddiqui, 2008; Xu *et al.*, 2009) but there is a lack of research on irritation as a direct antecedent of overall attitude toward mobile advertising. Entertainment has been detected as a contributing factor to attitude toward mobile advertising through perceived advertising value (Liu *et al.*, 2012), but little research has been undertaken to explore a direct path to attitude toward mobile advertising and its effects on irritation.

Mobile advertising allows consumers to access advertising messages at their convenience. When receiving mobile advertising messages, consumers can read them, eliminate them or keep them in their inbox until they decide what to do with them. So, factors leading to mobile advertising acceptance can be considered to play a key role in mobile advertising success. While previous research on attitude towards mobile advertising focused on innovation-based drivers (Bauer *et al.*, 2005) or utilitarian consumer-driven factors such as perceived control, trust or sacrifice (Merisavo *et al.*, 2007), little attention has been paid to the combined influence of affective and cognitive antecedents of attitude and behaviour towards mobile advertising (Bauer *et al.*, 2005; Liu *et al.*, 2012). For example, little research has been done to know how entertainment and

irritation interact in a mobile marketing context or to analyse the role of perceived usefulness on affective mobile gratifications.

The aim of this research is two-fold:

- (1) to analyse the role of cognitive (perceived usefulness) and affective (entertainment and irritation) antecedents of teenagers' attitude toward mobile advertising; and
- (2) to evaluate the effects of teenagers' attitude on mobile advertising acceptance (willingness to receive mobile advertising communications).

The work is divided into four parts. The first part includes a literature review of the antecedents and consequences of mobile advertising attitudes and the proposed working hypotheses. Then, the methodology and the empirical analyses using a sample of 355 Spanish teenagers are explained, followed by our findings. In the final section, conclusions and implications are provided outlining some limitations and opportunities for further research.

## 2. Literature review

In order to predict adoption of mobile advertising communications, we developed a model encompassing the theory of reasoned action (TRA) (Fishbein and Ajzen, 1975), technology acceptance model (TAM) (Davis *et al.*, 1989) and uses and gratifications theory (Katz *et al.*, 1974).

### 2.1 TRA and TAM

According to the TRA (Fishbein and Ajzen, 1975), beliefs (an individual's subjective probability of the consequence of a particular behaviour) influence attitude (an individual's positive and negative feeling about a particular behaviour), which in turn shapes behaviour. Fishbein and Ajzen (1975) point out that people are likely to perform a behaviour in accordance to their attitudes. So, prediction of an intention will require the measurement of attitudes linked to that intention.

The TAM postulated by Davis (1989) was adapted from TRA and it is by far the most widely used model to predict the adoption and use of a technology in information systems (IS) research. It is worth bearing in mind that TAM initially was specifically tailored in the field of IS management but later research has demonstrated it may be used to predict consumer acceptance of content sent by mobile technology such as mobile surveillance services (Bouwman *et al.*, 2007), mobile advanced services (Bouwman *et al.*, 2012) and even mobile advertising (Soroa-Koury and Yang, 2010; Yang and Zao, 2011; Zhang and Mao, 2008). Therefore, we have better justified the choice of extended TAM as part of our theoretical framework to explain some relationships in our model.

The TAM model establishes that intention to use a technology is determined by the individual's attitude towards using that technology. That attitude is, in turn, determined by the technology's perceived usefulness and perceived ease of use. Perceived ease of use refers to the degree to which a consumer believes that no effort will be required to use the system (Davis *et al.*, 1989). For example, mobile advertising messages will be perceived as easy to use by teenagers if no effort is required to use it and if it is easy to learn how to use it. Davis *et al.* (1989) define perceived usefulness as the degree to which a consumer believes that the use of a system will increase his or her performance. For example, teenagers will perceive high usefulness if mobile advertisements allow

them to save time or money due to the ubiquity feature of mobile phones. We have ignored perceived ease of use because the simplicity of mobile phone use and teenagers' experience mean that this variable is not significant in consumer behaviour usage. Davis *et al.* (1989) used the TRA as a theoretical basis for specifying the linkages between attitudinal beliefs (consumer perceived usefulness and perceived ease of use), attitude and users' acceptance of a particular technology.

## 2.2 Uses and gratifications theory

Uses and gratifications theory (Katz *et al.*, 1974) posit that individuals expose themselves to the medium to satisfy a set of needs that motivate them to actively seek gratification of their specific needs in that medium. Uses and gratifications research has recently been applied to the adoption and uses of mobile services (Castells *et al.*, 2006; Wei *et al.*, 2010) and has identified a mix of utilitarian and non-utilitarian motivations for using mobile services in everyday life settings. Therefore, there are intrinsic motivations for adopting mobile services that go far beyond the instrumentality of usefulness, flexibility and availability suggested by rational ICT-adoption theory.

Intrinsic motivations refer to internal gratifications, that is, emotions, fun and socialisation with other consumers (Babin *et al.*, 1994) while they use the media. Davis *et al.* (1992) defined entertainment as the degree in which an activity is perceived as enjoyable apart from the intrinsic rewards. By adding perceived entertainment to TAM, Davis and its colleagues suggested that usefulness and entertainment together played important roles in explaining behavioural intentions to use the technology. Enjoyment provided by mobile phone services seems to be most consistently gratification identified in recent research applied to teenagers (Castells *et al.*, 2006).

## 3. Conceptual model and hypotheses

### 3.1 Attitude toward and acceptance of mobile advertising

TRA and TAM recognizes behavioural intention as a measure of the strength of an individual's willingness to perform a behaviour. Therefore, in this research, behavioural intentions (message acceptance) refer to a teenager's willingness to receive mobile advertising. Message acceptance requires opt-in and refers to individual perceptions before receiving mobile communications, thus should not be confused with post-use behaviour (opening/reading/sending forward the messages).

Attitude typically draws mainly upon constructs from TRA and TAM (Davis *et al.*, 1989) and is an individual's positive or negative evaluation of a given object or behaviour (Ajzen, 1991). Social psychology literature suggests that attitude has two components (Bagozzi and Burnkrant, 1985; Chaiken and Stangor, 1987): affective (how much the person likes the object of his thoughts) and cognitive (individual's specific beliefs about the object). Therefore, in this research positive attitude toward mobile advertising refers to favourable cognitive and affective orientations toward mobile advertising communications.

TAM and TRA posit that attitude predicts the individual's behaviour intention. In applying TRA (Fishbein and Ajzen, 1975) and TAM (Davis *et al.*, 1989) to teenagers' acceptance of mobile advertising, it can be postulated that the adoption of mobile advertising among teenagers can be predicted and explained in terms of their pre-established beliefs and attitudes toward mobile advertising. According to Davis *et al.* (1989), perceived usefulness is the cognitive determinant of intention, whereas attitude

represents the affective component. Attitude thus becomes a positive mediator between perceived usefulness belief and acceptance. The relationship between attitude and acceptance has already been tested in previous research focused on mobile advertising and a strong positive correlation was found between both variables (Bauer *et al.*, 2005; Kuo and Yen, 2009; Soroa-Koury and Yang, 2010; Tsang *et al.*, 2004; Xu *et al.*, 2009). Empirical support for this relationship was also found in a number of studies focused on young consumers. Muk and Babin (2006) found college students' attitudes influenced their acceptance of SMS advertising and Radder *et al.* (2010) found a relationship between attitude toward SMS advertising and the behavioral intention to adopt SMS marketing in high school students. We, therefore, posit that:

- H1. The better the teenagers' attitude toward mobile advertising the better the teenagers' acceptance of mobile advertising.

### *3.2 Affective antecedents of attitude towards mobile advertising: irritation and entertainment*

The study of emotions is a traditional field in marketing research (Aaker and Bruzzone, 1985; Wells *et al.*, 1971). Among emotions, irritation was found to be one of the six basic dimensions when analysing personal reactions to advertising (Wells *et al.*, 1971). Irritating advertisements have been described as those causing displeasure and momentary impatience (Aaker and Bruzzone, 1985).

Why do consumers find mobile advertising irritating? Grant and O'Donohoe (2007) found that young consumers were concerned about commercial intrusion through their mobile phones and previous research found that perceived intrusiveness can lead to irritation (Edwards *et al.*, 2002). Spanish teenagers also seem concerned about receiving unsolicited advertising or spam through their mobile phones because this was their second main concern (22.3 per cent) – just behind spending too much money (23.8 per cent) – when asked about smartphone use (Orange and INTECO, 2011). This is consistent with the literature on irritation that considers irritation evoked by an ad as a consequence of perceived intrusiveness evoked by the ad. For example, when television viewers' goals of watching a television program are interrupted by commercial breaks (Edwards *et al.*, 2002).

Irritation has also been found to be an antecedent to the formation of attitudes (Aaker and Bruzzone, 1985; Aaker and Stayman, 1990) and an essential and relevant consumer reaction toward advertising (De Pelsmacker and Van Den Bergh, 1998). The literature review shows "irritation always leads to a more negative attitude towards the ad" (De Pelsmacker and Van Den Bergh, 1998, p. 6). Aaker and Stayman (1990) found a significant effect of irritation on negative attitude towards the ad. In a mobile advertising context, recent research (Tsang *et al.*, 2004; Van der Walldt *et al.*, 2009) also found irritation to be a factor that influences attitude toward mobile advertising. Grant and O'Donohoe (2007) found young people associated commercial appropriation of mobile phones with irritation, intrusion and mistrust, so we expect teenagers' irritation with mobile advertising negatively influences their attitude towards mobile advertising. Therefore, the following hypothesis is posited:

- H2. Irritation produced by mobile advertising negatively influences teenagers' attitudes toward mobile advertising.

Entertainment has been identified as an emotional factor contributing to the formation of consumers' attitudes towards advertising (Wang *et al.*, 2002). Pleasurable contexts –

like those supported by entertainment – and mood states delivered by these contexts have a positive influence on attitudes toward the ad (Moorman *et al.*, 2002). It has also been detected that consumers' feelings of enjoyment associated with advertisements play the greatest role in accounting for their overall attitudes toward the ads (Shavitt *et al.*, 1998).

Grant and O'Donohoe (2007) found that young consumers' dominant motivation for mobile phones was convenient entertainment – in the form of texting, verbal conversation and sometimes internet services – “at the touch of a button”. Wilska (2003) also found the impulsive nature among Finnish teenagers of phone-based entertainment. Entertainment applications through smartphones rank number one in mobile applications used by Spanish teenagers aged 10-14 and number two in Spanish teenagers aged 15-16 (Orange and INTECO, 2011). Consumers who perceive more fun and enjoyment with using mobile phones may tend to exhibit more positive attitudes toward mobile advertising (Tsang *et al.*, 2004; Pedersen and Nysveen, 2002; Saadeghvaziri and Seyedjavadin, 2011). Pedersen and Nysveen (2002) found the entertainment/enjoyment dimension of using mobile messaging services was directly correlated to attitude towards use of mobile text messaging among teenagers 16-19. Castells *et al.* (2006) noted that entertainment is an important motivator of American teens' mobile phone usage.



Hence the following hypothesis is posited:

H3. Entertainment provided by mobile advertising positively influences teenagers' attitudes toward mobile advertising.

Literature has found evidence of a negative relation between entertainment and irritation. Hausman and Siekpe (2009) found that irritation and entertainment were negatively and significantly correlated in an electronic commerce context. In an advergame context, lack of entertainment obtained partial support as a precursor of irritation (Hernández *et al.*, 2004). Tsang *et al.* (2004) also found the perceived entertainment value of mobile advertising seems to reduce the irritation experienced by consumers when they are exposed to mobile advertising – especially when this encounter occurs in a non permission-based context. Grant and O'Donohoe (2007) found young consumers were using their mobile phones primarily for social and entertainment purposes. This finding suggests that the entertainment value of mobile advertising (i.e. through branded mobile videogames) could influence the negative effects of mobile advertising perceived by teenagers. Therefore, the following hypothesis is posited:



H4. Perceived entertainment of mobile advertising negatively influences teenagers' irritation toward mobile advertising.

### 3.3 Cognitive antecedents of attitude towards mobile advertising: perceived usefulness

The relationship between perceived usefulness and attitude is justified by “expectation-value” models (Fishbein and Ajzen, 1975) so that attitude toward behaviour depends on the expected result. Perceived usefulness has been found to explain a considerable amount of variance of attitude towards mobile advertising among young consumers (Karjaluoto *et al.*, 2008; Kleijnen *et al.*, 2004). Although Grant and O'Donohoe (2007) found commercial communication was acceptable for young consumers if it involved content that they might not have been able to access otherwise, e.g. concert tickets for sale in an hour. Because they carry their mobiles with them at all

times this access to mobile marketing promotions gives young consumers “a sense of privilege, accessing valuable information” (Grant and O’Donohoe, 2007, p. 239) that can be related to the perceived usefulness of mobile phones as an advertising channel. The influence of perceived usefulness on attitude is influenced by age. Kleijnen *et al.* (2004) found the effect of perceived usefulness, through attitude, had a stronger positive effect on usage intentions for WAP services for younger consumers than for older consumers, implying young consumers are more extrinsically motivated than older consumers. Eldridge and Ginter (2001) studied the adoption of text messaging among teenagers and found that text messaging were favorable compare to other media because there were considered quicker, cheaper, easier and more convenient to use.

Therefore, the following hypothesis is posited:

- H5. Perceived usefulness of mobile advertising positively influences teenagers’ attitudes toward mobile advertising.

The rationale for the influence of perceived usefulness on irritation can be provided by reactance theory (Brehm and Brehm, 1981). When a person’s freedom is threatened, the person will attempt to restore their freedom by exhibiting opposition or resisting pressures to conform (Brehm and Brehm, 1981). Irritation is similar to reactance, as consumers tend to refuse advertising if they perceive that advertising is intrusive. Persuasion attempts are not always perceived as intrusive. The perception of intrusiveness can be reduced if the message is relevant for the target group and if it provides value to the recipient (Edwards *et al.*, 2002; Tripathi and Siddiqui, 2008). So, advertising can provide relevant information and this configures a psychological force, which opposes reactance. Given the existence of reactance, the degree to which consumers perceive benefits from advertising should counter the perception of intrusiveness and, thus, irritation. This relationship has been supported in previous research. Edwards *et al.* (2002) posit perceived intrusiveness may be lessened for ads that are deemed of high value. Tripathi and Siddiqui (2008) also found that consumers reacted with irritation and indifference towards mobile advertising unless the information delivered to their mobile phones carried utility value for them. Consumers can get irritated by mobile advertising interrupting their communication and information goals unless it has some perceived value, by offering discounts or special offers through mobile coupons, for example. Teenagers are also sensitive to the perceived usefulness of mobile advertising, i.e. accessing content that they might not have been able to access otherwise like concert tickets for sale in an hour (Grant and O’Donohoe, 2007). Therefore, the following hypothesis is posited:

- H6. Perceived usefulness negatively influences teenagers’ irritation toward mobile advertising.

In Figure 1 we present a graphic representation of the conceptual model and the proposed hypotheses.

## 4. Method

### 4.1 Sample

Spanish market represents a mature mobile market with nearly 52 million mobile-cellular subscriptions. 81.7 per cent of the population over the age of 10 own a mobile phone in Spain (ONTSI, 2011) and children are first introduced in the use



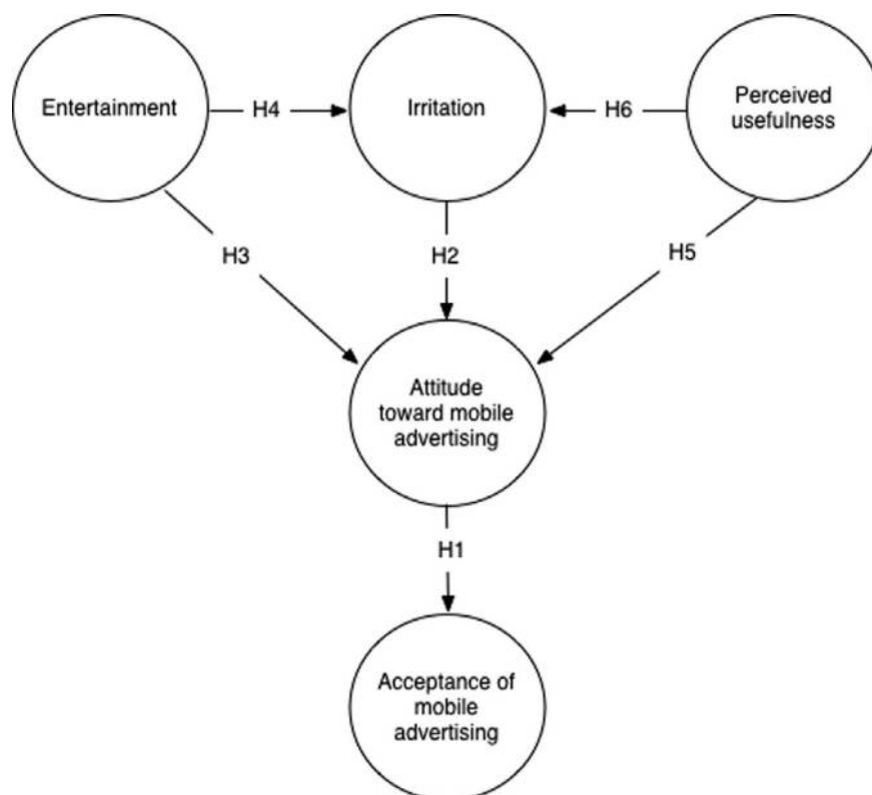


Figure 1.  
Research model

of mobile phones between the ages of 10 and 12 (Orange and INTECO, 2011). Smartphone use – a growing segment that increased 111 per cent in Spain during 2010 (eEspaña, 2011) reaching 13 million subscribers (ComScore, 2011) – starts in children at the age of 13, with an estimated penetration rate of 37 per cent in Spanish teenagers between the ages of 10 and 15 (Orange and INTECO, 2011). Compared with older users, teenagers may have less financial capacity to pay for the phone, but are generally more able to handle the technology. Enhanced mobile services offered by smartphones are extensively used by teenagers with access to social networking sites increasing to 54.3 per cent in 2011 from 7.1 per cent in 2010, gaming to 65 per cent in 2011 from 51.6 per cent in 2010 – and IM like Whatsapp to 48.3 per cent in 2011 from 12.4 per cent in 2010 (Orange and INTECO, 2011).

Survey respondents for this study were recruited in several Spanish secondary schools during May and June 2011. The survey instrument was pre-tested with a convenience sample of high school students ( $n = 25$ ) in order to refine the survey instrument. Pre-testing allowed us to verify all the information was properly captured. Furthermore, it allowed us to refine the measurement instrument in order to adjust it to the young target audience. This refinement assured better understanding of some of the items. A final sample of 355 secondary school students – all users of mobile phone services – with ages ranging from 14 to 16 years was used.

4.2 Data collection

A two-step sampling process was followed. Four schools were randomly selected from all the schools in the city where the research took place (Valencia) and in a second step, all the students of the age range were interviewed without sampling. Sampling error was ± 5 per cent. This age range was selected because teenagers are more technophile, active users, and among the first to adopt mobile services (Batat, 2009; Grinter *et al.*, 2006). Questionnaire was self-administered but a researcher supervised the process in order to help students with doubts about the questions. Of the respondents, 61.5 per cent were male and 38.5 per cent were female.

4.3 Instrument

We used a five-point Likert scale questionnaire to measure the variables. Most of the items are based on previous research. A reduced scale from Hernández *et al.* (2004) was used to measure entertainment. Irritation was measured using four items from a scale developed by Ducoffe (1996). Usefulness was measured adapting the scale developed by Karjaluoto *et al.* (2008) and Bauer *et al.* (2005). Attitude toward mobile advertising was measured using a scale adapted from Taylor and Todd (1995). Acceptance of mobile advertising was measured using a scale developed by Merisavo *et al.* (2007). Scale measurements are detailed in Table I.

5. Results and discussion

Before testing the hypotheses all scales were tested to assure the psychometric properties of the measurement instrument. Confirmatory factor analysis was executed in EQS 6.1 using robust maximum likelihood estimation.

Attitude	I like mobile advertising I think mobile advertising is an interesting thing I think mobile advertising is a good idea Mobile advertising seems something positive to me	Taylor and Todd (1995)
Acceptance	I feel positive about mobile advertising I am willing to receive mobile advertising messages in the future I would read all the mobile advertising messages I receive in the future	Merisavo <i>et al.</i> (2007)
Entertainment	Mobile advertising is entertaining Mobile advertising is fun Mobile advertising is pleasant	Based on Tsang <i>et al.</i> (2004), Ducoffe (1996)
Irritation	Mobile advertising is irritating Mobile advertising is deceptive Mobile advertising is confusing Mobile advertising is annoying	Based on Ducoffe (1996)
Perceived usefulness	Through mobile advertising I receive timely information Through mobile advertising I receive exclusive information Mobile advertising saves me money Mobile advertising saves me time I can benefit from mobile advertising	Based on Karjaluoto <i>et al.</i> (2008), Bauer <i>et al.</i> (2005)

**Table I.**  
Measurement items and sources

During the validity test two items were removed (ENT3 and USEF3) because they presented standardized loadings below 0.60 (Bagozzi and Yi, 1988). Item USEF1 was deleted to assure convergent validity as its correlation with the remaining items was low, having a loading higher than 0.70. After removing these two items from the measurement instrument the measurement model provided a good fit ( $S-BX2 (df = 94) = 160.4 p < 0.01$ ; CFI = 0.968; TLI = 0.959; NFI = 0.926; IFI = 0.968; MFI = 0.905; RMSEA = 0.039). The results showed no problems of convergent validity (Table II). In terms of reliability, all Cronbach's  $\alpha$  (Cronbach, 1951) had to be above the recommended value of 0.70 (Nunnally and Bernstein, 1994). The composite reliability index was also calculated and for all values it was over the recommended value of 0.70 (Fornell and Larcker, 1981). Average variance extracted (AVE) values were over 0.50 (Fornell and Larcker, 1981) (Table II).

Discriminant validity was evaluated following the AVE criterion (Table III). It was found that the variance shared between each pair of constructs was below the corresponding square root of the variance extracted indexes (Fornell and Larcker, 1981).

Having assured the reliability and validity of the measurement instrument we tested the proposed conceptual model (Figure 1) using structural equation modelling.

Factor	Indicator	Loading	t-value	Composed reliability	AVE	Cronbach's $\alpha$
Attitude (F1)	ATT1	0.81	13.39	0.92	0.73	0.91
	ATT2	0.87	17.79			
	ATT3	0.85	21.59			
	ATT4	0.88	21.24			
Acceptance (F2)	ACC1	0.63	11.72	0.76	0.52	0.75
	ACC2	0.71	12.02			
	ACC3	0.81	13.58			
Irritation (F3)	IRR1	0.71	14.64	0.84	0.57	0.84
	IRR2	0.71	15.94			
	IRR3	0.80	15.73			
	IRR4	0.79	14.01			
Entertainment (F4)	ENT1	0.86	10.94	0.87	0.76	0.87
	ENT2	0.89	11.42			
Usefulness (F5)	USEF2	0.84	13.49	0.82	0.61	0.81
	USEF4	0.86	11.93			
	USEF5	0.64	14.64			

Notes:  $S-BX2 (df = 94) = 160.4 p < 0.01$ ; CFI = 0.968; TLI = 0.959; NFI = 0.926; IFI = 0.968; MFI = 0.90 RMSEA = 0.039

**Table II.** Reliability and convergent validity of the final measurement model

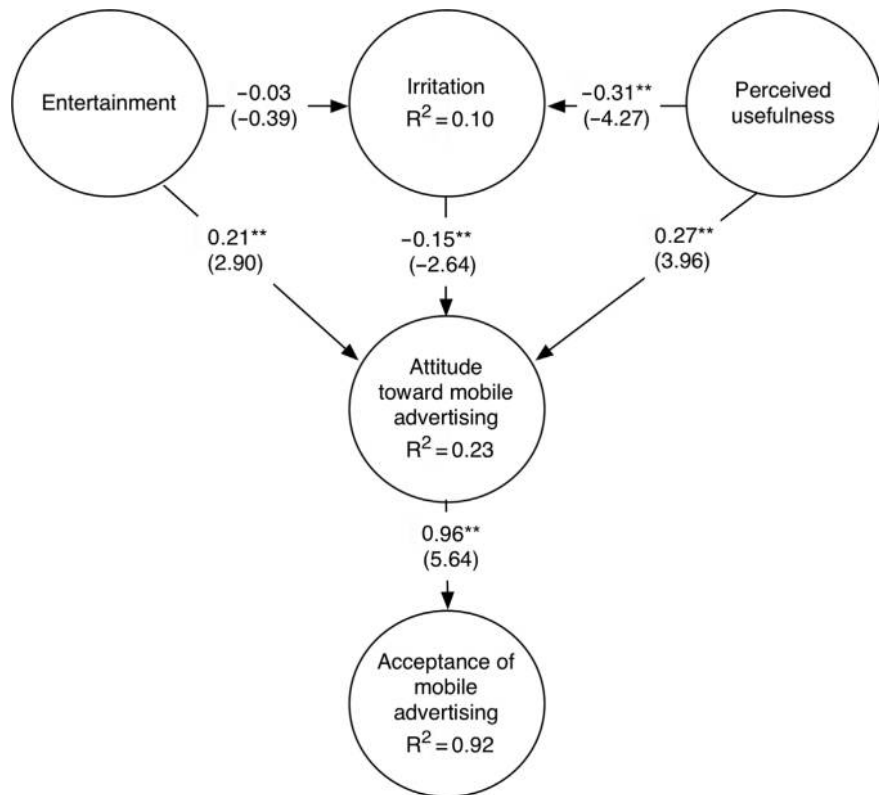
Factor	CR	AVE	F1	F2	F3	F4	F5
F1. Attitude	0.92	0.73	0.86				
F2. Acceptance	0.76	0.52	0.53	0.72			
F3. Irritation	0.84	0.57	-0.22	-0.36	0.75		
F4. Entertainment	0.87	0.76	0.43	0.35	-0.18	0.87	
F5. Usefulness	0.82	0.61	0.56	0.56	-0.31	0.74	0.78

Notes: Values on the diagonal are the square root of the average variance extracted (AVE) of each factor; values below the diagonal are correlations between the factors; CR – composite reliability

**Table III.** Discriminant validity of the final measurement model

The empirical estimates for the main-effects model are shown in Figure 2. The results indicate that the data fit our conceptual model acceptably (S-BX2 (df = 96) = 166.4  $p < 0.01$ ; CFI = 0.966; TLI = 0.957; NFI = 0.926; IFI = 0.966; MFI = 0.900 RMSEA = 0.047).

Results of the estimated model show that entertainment, irritation and usefulness significantly influence attitude toward mobile advertising ( $\beta = -0.21$ ;  $p < 0.01$ ;  $H3$  supported;  $\beta = -0.15$ ;  $p < 0.01$ ;  $H2$  supported; and  $\beta = 0.27$ ;  $p < 0.01$ ;  $H5$  supported). This result confirms previous research that stresses that not only cognitive antecedents of attitude are relevant (usefulness) but also affective antecedents (entertainment and irritation) and play a key role on improving attitude to mobile advertising. This result implies that the effect of irritation on attitude to advertising that had been confirmed in traditional media (Wells *et al.*, 1971) can also be extended to mobile advertising. The same conclusion is valid for entertainment. The results that Wang *et al.* (2002) or Moorman *et al.* (2002) obtained in traditional media about the positive influence of a pleasurable context supported by entertainment can also be extended to mobile advertising. Our paper extends the evidence that Wilska (2003) found for Finnish teenagers to the very different Spanish cultural context.



**Figure 2.**  
Hypotheses testing

**Notes:** Significant at: \* $p < 0.05$  and \*\* $p < 0.01$ ; standardized regression coefficients; values in parentheses are robust  $t$  values

Our results, as stated before, confirm that although emotional antecedents of attitude are very relevant, the traditional TAM or TRA framework is still valid to explain attitudes to advertising provided by new media like mobile phones. Perceived usefulness positive effect on attitude confirms that providing added value is a key factor that has a stronger effect on attitude than emotional antecedents. This evidence confirms that the results that Karjaluoto *et al.* (2008) had obtained for SMS can be extended to mobile advertising.

Regarding irritation suppressors, perceived usefulness reduces irritation ( $\beta = 0.31$ ;  $p < 0.01$ ; *H6* supported). Surprisingly, perceived entertainment does not reduce perceived irritation as expected ( $\beta = -0.03$ ;  $p > 0.05$ ; *H4* not supported). The first result is coherent with the reactance theory and extends the previous conclusions of Edwards *et al.* (2002) or Tripathi and Siddiqui (2008) in the traditional advertising environment to mobile advertising once more. Persuasions attempts are not perceived as intrusive in the same degree if message is relevant for the target group and if it provides value to the recipient.

The second results do not support the expected result that the intrinsic motivation of performing an enjoyable activity is able to compensate or to consider acceptable up to a certain degree the irritation that arises from the perceived intrusiveness of mobile advertising. This result does not allow extending to mobile advertising previous evidence found in electronic commerce (Hausman and Siekpe, 2009) or advergaming (Hernández *et al.*, 2004). The fact that perceived entertainment is not able to reduce irritation caused by the intrusion of advertising can probably be explained by a poor performance of advertisers to provide enjoyment that can be enough to activate a positive attitude but not enough to break a stronger barrier of intrusion perception built in consumer's minds by years of exposition to advertising in traditional media.

Finally, attitude toward mobile advertising has a significant effect on acceptance of mobile advertising messages ( $\beta = 0.96$ ;  $p < 0.01$ ; *H1* supported). Thus, while positive attitude toward mobile advertising improves so does acceptance of mobile advertising as part of mobile communications services. This very consolidated result that arises from classical TAM and TRA theories had already been tested in mobile advertising (Kuo and Yen, 2009; Soroa-Koury and Yang, 2010).

## 6. Research and managerial implications

The results of this study indicate that our research model is generally plausible to explain consumers' acceptance of mobile advertising. As attitude is the main driver of acceptance, this research makes a number of academic and managerial contributions to improve attitude toward mobile advertising.

Findings suggest irritation, perceived usefulness, and entertainment as main drivers of attitude toward mobile advertising and that perceived usefulness can reduce consumers' perceived irritation. Marketers should think of the perceived usefulness that mobile advertising can bring to consumers through message personalization and relevance of the advertising content delivered to the consumer. As Merisavo *et al.* (2007) points out, usefulness should not only be understood as providing discounts but also refers to providing timely and exclusive information. The study also indicates that consumers' perceived entertainment is a direct contributor of attitude of mobile advertising. Managers who use mobile advertising campaigns should take advantage of the influence that entertainment may have on overall attitude toward mobile advertising trying to develop entertainment-based mobile advertising (e.g. branded mobile videogames or mobile advergaming).



Irritation emerges as an important factor against mobile advertising success, therefore marketers should also try to find the balance in the number of messages sent to consumers in order to not saturate them and provoke negative attitudes to their messages. It should be noted that consumers might have a different acceptance threshold before becoming irritated. So marketers must know their target toleration rate to advertising mobile messages through permission-based programs – asking them, for example, about the number and frequency of advertising messages they would agree to receive. Advertisers should also improve their entertainment-based strategies – through mobile advergames or branded mobile applications – in order to improve the expected benefits that entertainment-based advertising can provide to both advertisers and consumers. Marketers should try to offer consumers advertising messages with relevant information they will value, and additional benefits for opening and reading the messages. This relevant information could include offers, promotions and discounts that are highly value by consumers. Promotions should be limited in time, in order to force the user to read the message immediately. Some examples of benefits that opening the message could provide would be: opportunity to buy the new product before other consumers, free delivery or access to exclusive products.



### 7. Limitations and future research

As a main limitation of the study, it has been pointed that teenagers are not homogeneous audiences for mobile phones because social background, gender, urban/rural lifestyles, and technological literacy can widely vary their usage patterns and attitudes (Skog, 2002). Future research should address this issue along with the moderating role of gender because gender-related aspects can affect attitudes toward advertising (Karjaluoto *et al.*, 2008). Future research should also broaden the model including factors like intrusiveness and perceived control – as antecedents of irritation – and the moderating role of frequency and permission on teenagers' attitudes and acceptance of mobile marketing. This paper focuses on perceived usefulness as a cognitive antecedent of mobile advertising attitude. Previous research (Bauer *et al.*, 2005; Scharl *et al.*, 2005; Xu *et al.*, 2009) found utilitarian driven factors (informativeness, ubiquity, and personalization) also influencing consumer attitude and behaviour (opening and forwarding) towards mobile advertising. Future research should analyse the role of such factors on consumer attitudes and behaviour towards mobile advertising.



### 8. Conclusions

This research broadens existing knowledge on teenagers' acceptance of mobile advertising and highlights the need to continue research into the key drivers of mobile advertising acceptance. The contribution of this research to the mobile services research is two-fold:

- (1) to analyse the role of cognitive and affective drivers of teenagers' attitude toward mobile advertising; and
- (2) to evaluate the effects of teenagers' attitude on teenagers' mobile advertising acceptance.

Teenagers sample is suitable for this study considering that adolescents and young consumers have frequently been targeted by major mobile marketing campaigns in Europe, America and the Asia-Pacific region due to young consumers are early

adopters and heavy users of mobile contents and they are attracted by the same brands, web sites and gizmos available worldwide.

The results of this study indicate that the research model is generally plausible. Verification of most of the hypotheses confirms the importance of utilitarian message-driven factors in improving attitude and acceptance of mobile advertising messages. Findings can be used to develop more complex models – based on both consumer-driven and message-driven factors-in order to achieve a more comprehensive model of mobile advertising acceptance. Furthermore, while previous research focuses on cognitive antecedents of mobile advertising this paper introduces the affective component in the model.

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### Further reading

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