# A GENERALIZATION OF ADVERTISING AVOIDANCE MODEL ON SOCIAL NETWORK

**FRANCISCO REJÓN GUARDIA**
Universidad de Granada
Departamento Comercialización e Investigación de Mercados
Frejon@ugr.es

**ABSTRACT**

*This paper presents a general model of advertising avoidance in social networks. A review of the literature shows that cognitive avoidance of advertising is due to undesirable perceptions that emerge during ad exposure. The behavioral advertising model (eAD-ISN model) shows that perceived ad clutter, intrusiveness and irritation lead to ad avoidance, which in turn reduces the effectiveness of advertising messages. The results demonstrate the existence of a second-order construct called advertising offensiveness that comprises the effects of the above determinants.*

***KEYWORDS:*** *Advertising effectiveness, advertising avoidance, intrusiveness, irritation, clutter.*

## Introduction

Today there is a clear trend to extend to the virtual environment an activity intrinsic to all human beings: social relations. The Internet has become a virtual platform for a great number and large diversity of social relations thanks to the proliferation of social networks, which have undergone exponential growth (Nielsen, 2009). Aware of the notable increase, simplicity and relatively low cost of marketing communications campaigns on the Internet, companies are increasing spending on advertising in these new media. The search for a brand image and a high return on investment (ROI) at a low cost has prompted the business and academic world to focus on new ways of communicating via the Internet, while attempting to control the effects and outcomes of this medium with varying degrees of success (Liu & Arnett 2000). Thanks to these new tools, numerous communication platforms have arisen on the Internet that allows users to present a "better virtual self" and determine their importance on the Internet according to number of friends or followers on the site. These platforms have led companies to adapt already existing Internet advertising formats to these new contexts. Although Internet social networks (ISN) and their relationship to marketing is a relatively recent phenomenon that has not been widely studied in the academic sphere, a review of journals specialized in marketing and sociology demonstrates that research into these issues is on the rise. The reason for this growing interest lies in the fact that ISNs represent the greatest relational revolution structured in the Web 2.0, whose main characteristic is participation and integration in customers' lives (Boyd & Ellison 2007; Nielsen 2009). Clearly, the wide spread and intensive use of these media will have a profound effect on how people interrelate, how they work and how consumers seek information (Zed Digital 2008).

The main argument of this paper is that ISN advertising is perceived as intrusive, that is, advertising makes use of a space that does not correspond to it since the chief purpose of these networks is to socialize, search for information or provide entertainment (Nielsen 2009). From a non-academic standpoint, one of the main reasons why network advertising has not been as successful as advertising in more traditional media is that users play a double role as both suppliers and consumers of content (Oski 2009). In traditional advertising models, consumers simply consume the content supplied by the editor in mass media, television, radio, etc. In network advertising, however, members of a network perceive themselves to be "owners" of the personal content they supply and are less willing to accept advertising. This is further aggravated by the fact that the content supplied by the network is of a highly personal nature. Nonetheless, it is specifically these personal data which have the potential of being one of the most valuable and attractive assets for advertisers.

**Economic interest of the advertising on social network phenomenon**

A study of ad effectiveness and negative attitudes toward advertising among users of these media is of interest from both an academic and a managerial standpoint (to improve ROI in communication) as it constitutes a new channel of interaction toward which a large proportion of operations between consumers and brands will be transferred (Zed Digital, 2008; Nielsen, 2009).

Consumers currently dedicate more than five and a half hours per week to social networking; an 82% increase over last year when users spent just over three hours on social networking sites. In addition, the overall traffic to social networking sites has grown in the last three years. Globally, ISNs and blogs are the most popular online category when ranked by average time spent at the end of 2009, followed by online games and instant messaging (Zed Digital, 2008; Nielsen, 2009).

In markets such as the UK and the US, spending on online advertising surpassed television advertising spending for the first time in 2009. In the first semester of this year, 1,940 million Euros were spent on Internet advertising; representing an interannual increase of 4.6% (2009). According to data from the Interactive Advertising Bureau (IAB, 2009), of this total amount, the advertising market invested 1,248 million Euros (64.3%) in social networking sites around the world. According to forecasts by the IAB (2009), ISNs are projected to attract 101 million users in the US and earn $4.3 billion in ad revenues by the year 2011. These data clearly demonstrate the potential for growth of this industry.

The literature review states that the attitudes toward ad explain receptiveness to online social media and how the people avoid advertising on ISNs. For this reason, studies such as this one, which are motivated by the increasing use of the Internet for commercial purposes, are of interest as they provide insight into factors associated with the success of Internet advertising (Liu & Arnett 2000). In this paper, we provide a framework for the field of online information that specifically focuses on the effectiveness of online ads through an analysis of the main determinants of effectiveness, concretely, clutter, intrusiveness, irritation and avoidance.

We have found that all previous researches haven´t examined the simultaneous impact of the three variables together. To achieve this goal and to generalize the results to the population and users of social networks.

**Internet social network users: concepts and characterization**

ISNs are defined as digital communication platforms that enable users to generate content and share information via private or public profiles. More specifically, ISNs include blogs, photoblogs, microblogs, social networks, graphic tools, professional networks, virtual worlds, dating, content adders, and in general, any medium that offers users the opportunity to generate content susceptible of being shared (Boyd & Ellison, 2007). These tools form part of an environment in which surfers can engage in the great majority of their relational acts; be they private, job related or the seeking of information, among others. For this reason, it is essential that companies use their technologies and services in an adequate manner to provide users a higher added value and prevent them from avoiding ISN ads and their applications. ISNs provide a new medium that competes for consumers' attention, while opening up new pathways to link audiences to advertising. In order to attract consumers, however, it is necessary to gain

further insight into how users behave and how they process the information supplied by ISNs.

A study conducted by ComScore (2009) revealed that 56.4% of Internet users in Europe currently visit an ISN every month. On average, users visit an ISN more than 15 times in the same month and view 523 pages in three hours. As a result, social networks and blogs have captured a large portion of the audience from other sectors. This interest means that these users are quite active in different communication media, with the Internet being the most entertaining (online communities in particular). Moreover, these particular users watch less television than other types of surfers, thus explaining why spending on targeted advertising is being transferred to the Internet and more specifically to ISNs.

ISNs are one of the most important phenomena taking place on the Internet not only due to the fast-growing number of users on these sites, but because the information these media provide is considered to be trustworthy and reliable by users. In order to understand how Internet users behave, it is important to take into account the particular characteristics of the medium with regards to the physical market. In order to do so, specific theories on consumer behavior in this new environment are needed (King & He, 2006; Shklovski, Kraut, & Rainie, 2004). It is not only necessary to examine the conditions and potential of the medium, but to take into account a series of variables that moderate how Web users perceive information and interact with the Web. Factors such as experience, involvement, banner blindness (Benway 1999) or cluttering (Ha 1996; Cho & Cheon 2004) will influence the effectiveness of Internet advertising and the perception that users have of the ISNs, while conditioning how they behave. These concepts are described in the following section.

## Factors that affect the perception of ISN advertising: a review of the literature and proposed research questions.

### Ad avoidance in traditional media and non-traditional media

One of the negative responses that can emerge toward advertising is manifested through advertising avoidance. Speck & Elliott (1997) studied ad avoidance in conventional media, defining it as "all actions by media users that differentially reduce their exposure to ad content". They showed that individuals may avoid exposure to ads in three ways: *cognition*, *affect* and *behavior* (through mechanical devices). These three elements will mediate the final response to the advertising stimuli. Depending on the degree of involvement, however, exposure to certain stimuli may trigger a "wear-out" effect (Vakratsas & Ambler 1999).

Cognitive ad avoidance is an automatic process that involves the visual screening of stimuli embedded within the ad and does not require any conscious decision or behavioral action by the consumer. It is manifested through "memory without perception", that is, the presence of implicit memory but the absence of explicit memory (Chatterjee et al. 2003; Lee & Tsai 2011). In contrast, physical avoidance (behavioral or by mechanical means) is the result of a conscious decision by the consumer to avoid ads and leads to varying degrees of psychological reactance (Brehm & Brehm 1981). According to Burke & Srull (1988), the ubiquity and enormity of advertising clutter leads to cognitive or physical avoidance of the advertising stimuli. As regards how consumers avoid advertising, (Abernethy 1991) found that users change the channel or go to another room to avoid television commercials, while Krugman & Johnson (1991) reported that television viewers ignore ads, focusing on another activity instead. Cronin & Menelly (1992) state that ad avoidance occurs as a result of attitudes toward advertising in general and that consumers who avoid advertising do not only do so

because of the specific content of the ad, but because they perceive advertising to be intrusive. In this situation, consumers do not distinguish between which ad to remove, but instead avoid all types of advertising messages. As Cronin & Menelly (1992) suggest, ad avoidance occurs when users recognize advertisements as being intrusive.

Ad avoidance on the Internet occurs in a different manner to traditional media for a variety of reasons. Internet is characterized by the fact that users can perform tasks quickly due to the speed at which data can be downloaded (Cho & Cheon 2004). Unlike the audiences of traditional media, Internet users are able to interact with and control the content they are viewing. Negative attitudes toward Internet advertising stem chiefly from the perception that users have about advertising in this medium. In general, they believe that when ads are displayed, access to data is slower, thus interrupting or impeding the completion of certain tasks. When web users are interrupted, they may have a negative perception of the advertising. Indeed, on certain Web and ISN platforms users are technically unable to close banners or pop-ups and if they can, they do so in an automatic and unconscious manner. Given that ad avoidance cannot be controlled in a conscious manner by the viewer, the study of behavioral or mechanical avoidance may be inappropriate in this particular context (Chatterjee et al. 2003). For this reason, we coincide with (Li & Meeds 2007) definition of ad avoidance in new Internet media as an exclusively cognitive construct.

Users' devote their attention to their search goal and often ignore banners either because they fall within their peripheral field of vision or due to cognitive avoidance (Janiszewski 1998). (Benway 1999) suggests that users tailor their vision to avoid banner ads in a subconscious manner (banner blindness). Define ad avoidance as the "degree to which Web users internally process the advertising message".

**Perceived ad clutter in traditional media and non-traditional media**

Ha (1996) defines ad clutter according to three dimensions: the number or proportion of advertisements in the media vehicle, intrusiveness as the degree to which advertisements interrupt an editorial content, and competitiveness as the degree of similarity of the advertised products or messages displayed in the same medium. (Speck & Elliott 1997) define ad clutter as a consumer's conviction that the amount of advertising in a medium is excessive. According to the study by (Cho & Cheon 2004) the level of ad proliferation influenced by ad clutter can lead to negative attitudes and subsequent cognitive, affective or behavioral avoidance. Moreover, perceived clutter leads to both low ad recall and diminished editorial congruency (Moe 2006). Some studies suggest that advertising is a vehicle closely associated with perceived clutter or advertising confusion (James & Kover, 1992; Ha, 1996; Speck & Elliott, 1997) that the ubiquity and enormity of such ad clutter leads to cognitive ad avoidance (Burke & Srull 1988). Following Ha (1996) clutter is thought to reduce effectiveness because it is intrusive and not the reason why audiences tune in - viewers' focus is on programming, not the advertisements. In fact, excessive advertising may result in avoidance behaviors. According to Hammer et al. (2009), audiences in high clutter do see and/or hear more commercials. If more advertising is aired, audiences watch more commercials; audiences remember a larger proportion of advertisements they are exposed to, when there is less clutter; less clutter does not improve an audience's ability to identify the brand; on average, advertising that is recalled in high clutter is slightly more likeable.

**Ad Intrusiveness in traditional media and non-traditional media**

In traditional mass media, (Bauer, 1968) recognized intrusiveness as a major cause of advertising annoyance and irritation. These negative attitudes can affect brand perception (MacKenzie & Lutz 1989) and may lead to ad avoidance (Abernethy 1991;

Krugman & Johnson 1991; Clancey 1994). The effects of advertising are a combination of how the audience perceives the advertising and the physical attributes of the ad itself (Ha, 1996).

Ad intrusiveness in traditional media has been widely studied (Bauer 1968; Greyser 1973; Pollay 1986; Ha 1996). Ha (1996) defines intrusiveness as the perception of "the presence of a large amount of non-editorial content in an editorial medium". In a similar vein, also defines these interruptions as the degree of interference that the presence of advertisements cause in the course of an activity or cognitive process, while over advertising is conceptualized as the amount of advertising that exceeds the consumer's ability to process information. These studies found that perceived intrusiveness is related to the level of cognitive intensity with which viewers pursue their goals. Although some authors anticipated that advertising in new media would be less intrusive as a result of interactivity (Rust &Varki 1996), others such as (Reed 1999) argue that online advertising can be disturbing in a similar manner to traditional advertising media such as television since the ads embedded in pop-ups transform the user into a passive viewer of forced messages.

But little attention was given to analyzing this variable in the Internet until the work by Edwards et al. (2002). From the consumer's standpoint, interruptions caused by advertising are generally associated with intrusiveness. This construct is related to feelings of irritation and could negatively affect the processing of ad content (Edwards et al. (2002). In their work, Edwards et al. developed a scale to measure ad intrusiveness on the Internet based on the perceived intrusiveness of pop-up ads.

When accessing online media, consumers may form negative attitudes toward advertisements or avoid them depending on the degree to which they perceive the ads as being unwanted. According to Ha (1996) and Edwards et al. (2002), intrusiveness is a

perception or psychological reaction that occurs when the viewer is interrupted in the course of a cognitive process.

According to Edwards et al. (2002), perceived intrusiveness can be due to frequent interruptions and users' perception that they are subjected to an overload of information. When users surf the Internet in a focused manner, they perceive the interruption to be more severe than when they are simply brow sing the Web (Blázquez et al. 2008). Interference and interruption are similar concepts because they are both influenced by factors directly related to the advertisement itself (volume, length, size) or to the medium (frequency, clutter) that can contribute to perceived intrusiveness. Depending on the degree to which the advertisement interferes with the user's cognitive process,

Perceived intrusiveness will be detectable to a lesser or greater degree. Nonetheless, there is widespread agreement among academicians that evidence of such perceptions can be found when negative attitudes and behaviors are triggered at the time unwanted advertising is seen (Greyser, 1973; Ha, 1996; Edwards et al., 2002).

**Irritation in traditional media and non-traditional media**

Advertising content as well as certain advertising practices can offend or irritate the consumer. According to Aaker & Bruzzone (1985) an irritating ad is one that is "provoking, causing displeasure and momentary impatience". Irritation in response to advertising is often caused by moral concern about the content of advertising. Bauer and Greyser (1968) argue that irritation is caused by advertising content, ad execution and the placement of the ad in the medium. They found that advertisements are perceived as irritating if their content is untruthful, exaggerated, confusing or insults the viewer's intelligence. Likewise, advertisements are deemed irritating to the degree that they are poorly executed, that is, consumers can consider ads irritating because they are too long or too large (Aaker and Bruzzone 1985). Consumers can become irritated when there

are too many ads or when they appear too frequently. The difference between an ad and a series of ads can heighten irritability, which is moderated by the features of the advertising. Edwards et al. (2002) validated the hypothesis that entertaining ads are less irritating. Feelings of irritation toward advertising were measured in studies by Bauer and Greyser (1968) and Aaker and Bruzzone (1985), demonstrating that when users get irritated with an ad, they will tend to avoid it.

**Relationship between factors that affect the perception of ISN advertisements, cognitive avoidance and ad effectiveness.**

Having described the main variables examined in this study, certain similarities were found when measuring constructs deemed undesirable for advertising messages placed on the Internet. Perceived clutter, intrusiveness and irritation are negative aspects of any advertising unit in ISNs. Hence, one of the main objectives of this paper is to seek a causal relationship between the above constructs and formulate a model of the antecedents explaining ad effectiveness through the caused avoidance in ISNs.

Some studies suggest that advertisements are a vehicle that is closely related to perceived ad clutter ( James y Kover 1992; Ha 1996;; Speck y Elliott 1997; Hammer et al. 2009). According with Krugman (1983), advertising that interrupts the tasks or goals of the consumer can lead to negative outcomes such as dislike, unfavorable attitudes and avoidance. In line with Edwards et al (2002), perceived pop-up ad intrusiveness is an antecedent of cognitive and behavioral avoidance. Following Speck and Elliot's (1997) clutter level triggers negative attitudes. In the study by Cho & Cheon (2004), irritation was found to be one of the components that forms the perceived clutter construct. These authors also found that the most significant antecedents explaining advertising avoidance on the Internet were perceived clutter and perceived goal impediment; the

latter of which is included in the intrusiveness dimension. Nevertheless for Hammer et al (2009), advertising avoidance is similar in both low and high clutter.

Edwards et al. (2002) formulated two models to measure how irritation and perceived intrusiveness affect pop-up ad avoidance behavior. Edwards's study revealed that irritation explained ad avoidance better than perceived intrusiveness. These same authors attempted to explain perceived intrusiveness by exploring how viewers were affected by the informative nature and entertainment value of advertising. In their study, the authors rejected the relationship between irritation and ad avoidance, concluding that the model fit the data better when intrusiveness was considered an antecedent of irritation and when intrusiveness was considered a direct antecedent of ad avoidance. It would seem logical to think that when advertisements contain information perceived to be useful, users get less irritated and the probability that ads will be avoided is lower (Bauer and Greyser, 1968; Aaker and Bruzzone, 1985).

In order to study the factors that affect ad perception in social networks in greater depth, we analyzed brand memory. Our aim was to test the structural component by measuring advertising offensiveness, the cognitive component by measuring behavioral cognitive avoidance, and finally a behavioral component regarding ad memory.

To do this we propose the following relational model based on the following research questions:

**RQ1: There is a direct and positive relationship between ad clutter and cognitive avoidance.**

**RQ2: There is a direct and positive relationship between intrusiveness y cognitive avoidance.**

**RQ3: There is a direct and positive relationship between irritation y cognitive avoidance.**

**RQ4: There is a direct and negative relationship between cognitive avoidance and brand recall (ad effectiveness).**

---

Place Figure 1 about here

---

**Sphere of the study and data collection**

In terms of penetration and growth, the main ISNs at the international level are Facebook, Myspace and Twitter (Boyd & Ellison 2007; Nielsen 2009b). These data coincide with those provided by ZED (2008), which reports that the most important ISNs worldwide are Facebook and MySpace. In this paper we will center on Myspace, Facebook and Tuenti.

MySpace is a social network whose features make it particularly effective for promoting musical events. The network was created with a clear advertising aim and it is common to find banners on the home page and in the margins of browser windows which provide information about upcoming performers or events related to the browser profiles of users.

Tuenti is the principal social network in Spain and the second favorite ISN among users. Interstitial ads are the most frequently used advertising format on this network. Ads using this format can appear in a separate window when a web page requested by the user is being downloaded (IABspain 2009). Interstitial advertisements are large ads that combine moving images with sound. They bear a certain resemblance to advertising spots on television. Indeed, some authors describe this type of ad as a real representation on the Internet of a television spot (Calvo & Reinares2001) since users

play a passive role in exposure to the advertisement and because the ad message appears on the screen without alerting the user, who is unable to interrupt the ad view. Following the IAB Spain (2009) standards, this format can be considered forced exposure. Although Facebook is the second social network in Spain in terms of level of participation and number of users, it is the preferred network among users. Facebook dedicates space to advertising through the use of sponsored events in the periphery of its main page (Appendix A). Once users click on the sponsored link, they are redirected to a page with more information about the topic or content. The subjects interviewed for this study were all users of ISNs. The subjects were required to have previous experience on the Internet; a variable that was taken into account to determine the validity of the data. In order to simulate a Web surfing context, we developed a closed online environment that was housed in the server of the Department of Marketing and Market Research at the university to which the authors of this study belong. This surfing environment permitted the subjects to surf and view the three social networks mentioned above. This simulated environment included the most widely-used Web advertising formats in which variety of ad messages were placed using real information and products (Appendix A).

Data were collected by means of viral propagation (Non-probabilistic convenience sampling) through events on the ISNs sponsoring the survey. Through web on-line questionnaire, the technical specifications of the study are provided in Table 1.

---

Place Table 1 about here

---

A total of 307 surveys were initially obtained, who had seen advertising on social networks visited. However, after revising the surveys, 45 were rejected, as they contained high number of missing data, and the final number of valid questionnaires

was 262. The sample error was 5.6%, with a 95% confidence level (see more details in table 2).

Place Table 2 about here

**Evaluation of the quality of the measurement scales used**

Once the measurement scales had been established, we proceeded to evaluate their reliability and validity (Churchill 1979). To measure intrusiveness and irritation, we used the scale proposed by Edwards et al. (2002) with 7 and 5 questions, respectively (Appendix C). The first scale asked subjects about their perceptions on the advertisements to which they were exposed. The irritation scale included a series of adjectives related to irritation caused by advertising. The ad clutter and cognitive avoidance scales were adapted to our particular study from the works by Cho & Cheon (2004) and Li & Meeds (2007) and included 3 and 8 items, respectively. The ad clutter scale included items to measure over advertising, ad irritation and the perception that the Internet is exclusively an advertising vehicle. This construct encompasses intrusiveness (reactance), competitiveness (interference) and load (overload). Finally, the cognitive ad avoidance scale included questions regarding the different attributes and reactions of users toward ISN advertising. All of the scales were 7-point Likert scales. The final scales are presented in Appendix C. Ad effectiveness was measured through memory of the advertising message appearing on the ISNs by means of a dichotomous scale. The psychometric properties of the proposed scales were evaluated by means of the Confirmatory Factor Analysis (CFA) technique with structural equations using LISREL 8.71 for Windows. The estimation method used was the Robust Maximum Likelihood model (West et al. 1995), procedure that permits the

proposed models to be fit to the statistics, which were corrected to assume the non-normality of the data. The analysis was performed in a series of stages. In the first stage, the validity of the proposed scales was determined, giving rise to a theoretically robust model that included the variables to be evaluated (eAD-ISN model: eAdvertising-Internet Social Networking model). The validity of the model was then tested against the data fit to determine how well the model fit the data. This last step was essential to verify the initial research questions.

**Evaluation of the goodness-of-fit of the theoretical model**

Structural equation models consider different minimum *ratios* of precise observations for each independent variable introduced in the analysis. (Afifi 2004) established that the minimum ratio should be from 5 to 10 times more cases than the predictive variables. Depending on the type of estimation used to analyze the model, the minimum number of samples needed to obtain a reasonable level of significance will vary. The method used here to estimate the parameters was the Robust Maximum Likelihood estimator of Satorra as it provides consistent, efficient and unbiased estimations with relatively small sample sizes and allows the convergence of the estimations with the parameters in the absence of multinormality (Bollen 1989).

**Discussion**

**Evaluation of the measurement scales**

Using the entire sample (n=262), we analyzed the reliability and validity of the measurement scales. To do so, we first analyzed the exploratory reliability (Cronbach's alpha) of the concepts used in the proposed model (irritation, ad clutter, intrusiveness and cognitive avoidance). All the variables obtained fairly good values bearing in mind that the Cronbach $\alpha$ statistic increased when the third item of the clutter scale was

omitted as well as the first two items of the intrusiveness scale and the first item of the irritation scale. A previous Exploratory Factor Analysis (EFA) indicated that these items had a very low communality with the only factor detected in each of the scales measured. Moreover, the $R^2$ value of the item was below 0.5 in all cases, thus substantially improving Cronbach's α when eliminating said items. Table 3 shows the unidimensionalities of the constructs that were evaluated by means of each scale. The values show a high percent of variance explained (KMO values above 0.8 and high communality for each item). In all cases, the $R^2$ values obtained by each item when adjusting the model were above 0.5 and Cronbach's α was above 0.85; thus demonstrating the internal consistency of the proposed scales and indicating that no additional items should be eliminated when evaluating the goodness-of-fit of the final model. The convergent and divergent validity of the scales was determined based on the results of the CFA. The values of the Satorra-Bentler Chi-square are within the recommend limits given the absence of data normality (Satorra 2002).

The standardized regression weights permit comparisons to be made between coefficients. In order for the latent variables to explain the observed variables, all the coefficients must be above 0.7 (Luque & del Barrio 2000). All the coefficients are significantly different from zero with high factor loadings between the latent variable and the observed variables in all cases (Table 3). Hence, there is a strong relationship between the latent constructs and the observed constructs. The reliability analysis can also be approximated through the indicators of compound reliability and variance extracted that are obtained from the CFA (Luque & del Barrio, 2000). All the compound reliability values were observed to be above 0.8 (accepted theoretical value = 0.7). The variance extracted values were also above 0.7 in all cases (accepted theoretical value = 0.5). These results indicate that the measurement scales are adequate.

Place Table 3 about here

Tests the model fit and got a poor fit. In figure 2, can be seen as none of the fit indices had values appropriate to consider the proposed model as valid, under which and from a theoretical viewpoint, authors such as Edwards et al. (2002), Cho et al. (2004), and (Li y Meeds 2007) establish a series of causal relations between constructs to evaluate emotions and perceptions such as those examined in this work. In our paper, another non-observable construct emerged from the factor analysis of the observed constructs (intrusiveness, clutter and irritation) as explained below. However, based on a preliminary study and the results of (Rejón-Guardia et al. 2010), a significant correlation can be observed between the first-order latent factors analyzed here. Although there is a correlation between these factors, they are isolated constructs (Satorra 2002 pp. 652), that is, they are sub-dimensions of a wider construct formed by the clutter, intrusiveness and irritation dimensions. A high correlation (Appendix B) was observed between the latent variables of clutter, perceived intrusiveness and irritation in advertising. This prompted us to analyze if these three constructs were actually measuring a latent variable that was formed by the dimensions of these initial constructs and had not been analyzed previously in the literature. An in-depth examination of this new relationship and a previous EFA suggested that the latent variables we obtained were due to a new factor that we call advertising offensiveness. We coined this term to refer to negative elements that are considered undesirable while surfing the Internet – particularly when viewing advertising on ISNs – and therefore must be minimized in ISN advertising campaigns.

In order to test this assumption, we performed a second-order CFA that included the latent factors in a new generic dimension (ad offensiveness). Once we confirmed the reliability and validity of the scales, we estimated and evaluated the causal model

proposed in Figure 3 to test the theoretical hypotheses. The model shows the causal relations between the dimensions of clutter, intrusiveness and irritation with respect to the proposed second-order factor (advertising offensiveness) and how this factor is an antecedent of cognitive avoidance in the medium. Advertising offensiveness is comprised of a dimension related to ad clutter, the degree of perceived intrusiveness and finally to irritation triggered by viewing ads in ISNs. Based on the above, we propose the following research questions:

**RQ5: There is a second-order latent construct called advertising offensiveness formed by the direct and positive relationship of the ad clutter dimension.**

**RQ6: There is a second-order latent construct called advertising offensiveness formed by the direct and positive relationship of the perceived intrusiveness dimension.**

**RQ7: There is a second-order latent construct called advertising offensiveness formed by the direct and positive relationship of the perceived irritation dimension.**

Each construct will account for unique and significant variance in the prediction of advertising avoidance when modeled simultaneously. Therefore, we also propose the following research question:

**RQ8: There is a direct and positive relationship between advertising offensiveness and cognitive avoidance.**

---

Place Figure 3 about here

---

**Development of the proposed model**

Using the classic system of notation, Table 4 shows information on the estimated parameters, all of which are significant. As stated above, the model's approach is of interest in so far as previous marketing studies have demonstrated a relationship between the factors we analyze here, but have not evaluated these factors in combination (see Figure 4).

Place Figure 4 about here

**Research questions test**

The path coefficients estimated for each pair of social networks and each relationship contained in the final model were compared by means of 1) the Chi-square difference test to differentiate data by groups and bootstrapping simulation in the absence of multivariate normality and 2) a statistical test to compare the path coefficients between each pair of structural models by means of a modified Student's t-test (footnote 1) (Goodman & Blum 1996; Chin 2004; J. Lee 2008).

Firstly, the Chi-square difference test for data differentiated by groups was used to confirm the consistency of the validity of the scales and the entire model for the three ISNs. To do so, we posited that the perceived advertising offensiveness model, which is related to cognitive avoidance and advertising effectiveness from the standpoint of ad memory, is the same for all the social networks and can therefore be generalized.

With this aim, we set the restrictions that appear in Figure 5.

Place Figure 5 about here

After applying the restrictions, we proceeded to calculate the $\chi^2$ difference test statistic between the baseline model and the restricted model (Table 4).

Place Table 4 about here

We concluded that overall, and when applying restrictions, the model performs in the same manner for all three social networks. The same conclusion was reached when the restrictions were set in a sequential manner, that is, when they were included in pairs and the parameters were estimated using the statistical software. This allowed us to test how the constructs behave in all the social networks studied. Significant differences were not detected in terms of how the different networks were processed (Table 5). Hence, the conclusions reached in this study have a greater validity (Steenkamp & Van Trijp 1991).

Place Table 5 about here

Research questions, RQ5, RQ6, and RQ7 were not rejected following the data analysis, thereby demonstrating an adequate fit of the data and the direction of the loads of each latent variable in relation to the others in the proposed model. This suggests that the variables of perceived ad clutter, intrusiveness and ad irritation comprise a second-order construct called advertising offensiveness. This construct shows the degree to which negative factors are manifested when ISN users view advertising. Finally, a direct and positive relationship was found to exist between advertising offensiveness and cognitive avoidance (RQ8). Hence, when ISN users perceive factors they consider undesirable which in turn lead to the sensation of perceived clutter, ad intrusiveness or irritation with ads, there will be a high degree of ad avoidance in the medium. In contrast, we can only accept the partially significant relationships provided by hypothesis RQ4 given that advertising effectiveness in terms of ad memory was only found to be significant for the Tuenti and quasi-significant differences were found when comparing Tuenti to MySpace (Tables 5, 6 and 7). Likewise, a slightly less direct and positive relationship was found for the Tuenti between the three dimensions and the second-order construct.

This could be due to the fact that the messages appearing on Tuenti are simpler and clearer in form and therefore causeless negative attitudes than the advertising messages in the other ISNs. Moreover, the multi-group analysis does not show statistically significant differences between the different ISNs in terms of how the relationships behave.

Place Table 5 about here

Place Table 6 about here

Place Table 7 about here

**Main conclusions**

Advertising offensiveness and cognitive avoidance were related according to the results of the data analysis that show an adequate fit and the direction of the loads of each latent variable in relation to the advertising offensiveness constructs (Research question RQ5, RQ6 and RQ7). Hence, perceived clutter, intrusiveness and irritation can be considered variables comprising a second-order construct called advertising offensiveness. This construct summarizes the degree to which negative factors are manifested when ISN users view advertisements. Our study is the first in the literature to demonstrate the relationships between these variables in a combined manner. These findings can aid in identifying which elements should not appear in advertising messages in social networks or on Web pages. Moreover, these constructs are of enormous importance in situations of low ad involvement where, according to the ELM theory (Cacioppo et al. 1986; Ha 1996a), users will take the peripheral route when

processing the ad message; a phenomenon that has a strong impact on ad memory and attitudes toward the advertising.

A relationship was found between advertising offensiveness and ad effectiveness mediated by cognitive avoidance. Indeed, it is important to highlight the existence of a direct and positive relationship between the second-order construct (advertising offensiveness) and cognitive avoidance (RQ8). However, the relationship between cognitive avoidance and ad effectiveness was found to be significant only in the case of the Tuenti. This suggests that factors perceived as advertising offensiveness by users (advertising clutter in the medium, ad intrusiveness and irritation with ads) will lead to greater cognitive avoidance of ads in the medium.

The final structural model proposed here has a high external validity and can be successfully extrapolated to the entire population of Internet social network users, particularly with regard to cognitive avoidance. Although the relationship between cognitive avoidance and ad effectiveness always takes a negative sign, this relationship may not be significant in certain ISNs. This may be due to the format and the ad message used, thus fulfilling the principles of the Elaboration Likelihood Model (ELM) of Petty et al. (1983).

The relationship between cognitive avoidance and ad effectiveness was found to be significant in terms of ad memory in the case of the Tuenti. The lowest and most significant ad memory in this social network is due to a higher degree of ad avoidance, which can be explained by the type of format and ad message employed. As can be seen in Appendix A, Tuenti users were shown a pre-loaded interstitial ad which was difficult to avoid. Users viewed the ad for a few seconds, time enough for them to become aware of the existence of the ad and evaluate the brand and model (of a product requiring higher involvement). However, irritation as a rejection factor of advertising is usually

less significant in Tuenti as this social network presents the ad message in a clearer and simpler form.

**Implications for advertising management**

With a view to guaranteeing their survival, numerous companies use the Internet to gain a strategic advantage and a privileged market position. While everyone has heard about the most important ISNs and famous Web projects, no one remembers the millions of dollars lost in failed initiatives, which unfortunately are more commonplace than success stories. For this reason, companies that transfer their advertising spending from traditional media to ISNs must choose their advertising strategies carefully. To ensure that advertising is not perceived as intrusive by users and improve ad effectiveness, companies must increase involvement by Internet users who make a low cognitive effort, improve the importance of advertising and provide added value to viewers (Blázquez et al. 2008).

A site that is attractive for advertisers is not so appealing for members of the site who consider targeted, hyper-segmented advertising to be an invasion of their private lives. For this reason, it is important to gain deeper insight into perceived intrusiveness and ad clutter as well as the degree of irritation these advertising messages cause among ISN users. By determining how users perceive these variables, measures can be taken to reduce ad avoidance and increase ad effectiveness in terms of brand or product memory.

**Limitations and future lines of research**

Like the majority of research papers, ours has a series of limitations that merit discussion. Some of these limitations could be explored in future research. One of the main limitations is due to the fact that perceptions are closely related to emotions and can be influenced by other variables that have not been analyzed here. Aspects such as

motivation to surf on ISNs or emotional attributes are of great importance to studies of this kind. The cross-cutting nature of the study gives rise to another limitation in so far as it centers on a specific moment in time. It would be interesting to explore the evolution of advertising offensiveness or cognitive avoidance when users are surfing the Internet.

It would also be interesting to focus not solely on a specific medium, but to analyze which advertising formats lead to advertising offensiveness (ad clutter, irritation, intrusiveness) and which formats cause the least cognitive avoidance with a view to improving the effectiveness of commercial communications. The evaluation of other aspects of ad avoidance such as behavioral avoidance require the use of devices that permit users' interaction with advertising to be recorded, that is, devices to record users' behavioral response. It could be of interest to study this new dimension by running an experimental test on intent to close and degree of closure of the ads viewed by users.

Given the close relationship between advertising offensiveness and ad avoidance, and with a view to improving the applicability of the proposed model, it would be interesting to include other variables that could increase the significance of advertising offensiveness and hence the predictability of the model.

Finally, it is essential to determine which advertising formats users avoid least and which lead to the lowest perceived intrusiveness in informational media such as social networks.

## References

Aaker, D. & Bruzzone, D. (1985) 'Causes of Irritation in Advertising'. Journal of Marketing, 49(2), pp. 47–57.

Abernethy, A. (1991) 'Physical and Mechanical Avoidance ot Television Commercials: An Exploratory Study of Zipping, Zapping and Leaving', Proceedings presented at the Proceedings of the American Academy of Advertising.

Afifi, A. (2004) Computer-aided multivariate analysis. Boca Raton Florida: Chapman & Hall/CRC.

Bauer, R. & Raymond A. (1968) Advertising in America; the consumer view. Boston: Harvard University, Graduate School of Business Administration, Division of Research.

Benway, J. (1999) Banner blindness: What searching users notice and do not notice on the World Wide Web. Rice University, United States -- Texas. From: http://proquest.umi.com/pqdweb?did=734000901&Fmt=7&clientId=54638&RQT=309&VName=PQD

Blázquez, J., Molina, A., Esteban, A. & Martín, N. (2008) 'Análisis de la eficacia publicitaria en Internet', Investigaciones Europeas de Dirección y Economía de la empresa, 14(1), pp. 159–176.

Bollen, A. (1989) *Structural Equation models with latent variables.* New York: John Wiley & Sons.

Boyd, D. & Ellison, N. (2007) 'Social Network Sites: Definition, History, and Scholarship', Journal of Computer-Mediated Communication, 13(1).

Brehm, S. & Brehm, J. (1981) Psychological reactance: a theory of freedom and control. New York: Academic Press.

Burke, R. & Srull, T. (1988) 'Competitive Interference and Consumer Memory for Advertising'. Journal of Consumer Research, 15(1), pp. 55–68.

Calvo S. & Reinares P. (2001) Comunicación en Internet. Madrid: Paraninfo.

Chatterjee, P., Hoffman, D. & Novak, T. (2003) 'Modeling the Clickstream: Implications for Web-Based Advertising Efforts', Marketing Science, 22(4), pp. 520 –541.

Chin, W. (2004) 'Frequently Asked Questions - Partial Least Squares & PLS - Graph. Frequently Asked Questions', Retrieved 2/10/2011, from: http://disc-nt.cba.uh.edu/chin/plsfaq.htm.

Cho, C. & Cheon, H. (2004) 'Why do People Avoid Advertising on the Internet? ', Journal of Advertising, 33(4), pp. 89.

Churchill, G. (1979) 'A Paradigm for Developing Better Measures of Marketing Constructs', Journal of Marketing Research, 16(1), pp. 64–73.

Clancey, M. (1994) 'The Television Audience Examined', Journal of Advertising Research, 34(4), pp. 76.

ComScore (2009) 'Tuenti Most Popular Social Networking Site in Spain - comScore Inc ', retrieved 2/10/2011 from: http://www.comscore.com/fre/Press_Events/Press_Releases/2009/2/Social_Networking_Spain

Cronin, J. & Menelly, N. (1992) 'Discrimination vs. Avoidance: «Zipping» of Television Commercials', Journal of Advertising, 21(2), pp. 1–7.

Edwards, S., Li, H. & Joo-Hyun, L. (2002) 'Forced exposure and psychological reactance: Antecedents and consequences of the perceived intrusiveness of pop-up ads', Journal of Advertising, 31(3), pp. 83–95.

Goodman, J. & Blum, T. (1996) 'Assessing the Non-Random Sampling Effects of Subject Attrition in Longitudinal Research', Journal of Management, 22, pp. 627–652.

Greyser, S. (1973) 'Irritation in Advertising', Journal of Advertising Research, 13(1), pp. 3–7.

Ha, L. (1996) 'Observations: Advertising clutter in consumer magazines: Dimensions and effects', Journal of Advertising Research, 36(4), pp. 76.

Hammer, P., Riebe, E. & Kennedy, R. (2009) 'How Clutter Affects Advertising Effectiveness', Journal of Advertising Research, 49(2), pp. 159.

IAB (2009) IAB-Ad-Revenue-Full-Year-2009, retrieved 1/08/2010, from: http://www.iab.net

IABSpain (2009), Informe publicidad, retrieved 2/02/2009 from:http://www.iabspain.net

James, W. & Kover, A. (1992) 'Observations: Do overall attitudes toward advertising affect involvement with specific advertisements?', Journal of Advertising Research, 32(5), pp. 78–83.

Janiszewski, C. (1998) 'The Influence of Display Characteristics on Visual Exploratory Search Behavior', Journal of Consumer Research, 25(3), pp. 290–301.

King, W. & He, J. (2006) 'A meta-analysis of the technology acceptance model'. Information & Management, 43(6), pp. 740–755.

Krugman, D. & Johnson, K. (1991) 'Differences in the Consumption of Traditional Broadcast and VCR Movie Rentals', Journal of Broadcasting & Electronic Media, 35(2), pp. 213.

Krugman, H. (1983) 'Television Program Interest and Commercial Interruption', Journal of Advertising Research, 23(1), pp. 21-23.

Lee, J. (2008) Predicting the use of online video advertising: Using the theory of planned behavior. Michigan State University. From: http://search.proquest.com/docview/304583857?accountid=14542

Lee, S. W. & Tsai, C. (2011) 'Students' perceptions of collaboration, self-regulated learning, and information seeking in the context of Internet-based learning and traditional learning', Computers in Human Behavior, 27(2), pp. 905–914.

Li, C. & Meeds, R. (2007) 'Factors Affecting Information Processing of Internet Advertisements: a Test on Exposure Condition, Psychological Reactance, and Advertising Frequency', American Academy of Advertising, Conference. Proceedings (Online), pp. 93.

Liu, C. & Arnett, K. (2000) 'Exploring the factors associated with Web site success in the context of electronic commerce', Information & Management, 38(1), pp. 23–33.

Del Barrio, S. & Luque , T. (2000) 'El análisis de ecuaciones estructurales' in Técnicas de análisis de datos en investigación de mercados, (Ed.) Luque,T., pp. 489–555. Madrid: Pirámide.

MacKenzie, S. & Lutz, R. (1989) 'An Empirical Examination Of The Structural Antecedents Of A', Journal of Marketing, 53(2), pp. 48.

Moe, W. (2006) 'A field experiment to assess the interruption effect of pop-up promotions', Journal of Interactive Marketing (John Wiley & Sons), 20(1), pp. 34–44.

Nielsen (2009) 'Global Faces and Network Places', Nielsen Report, retrieved 01/07/2009, from: http://es.nielsen.com/site/index.shtml

Oski, G. (2009) '«Goodwill», punteros en innovación', MK: Marketing + ventas, (246), pp. 64–68.

Petty, R., Cacioppo, J. & Schumann, D. (1983) 'Central and Peripheral Routes to Advertising Effectiveness: The Moderating Role of Involvement', Journal of Consumer Research, 10(2), pp. 135–146.

Reed, M. (1999) Going beyond the Banner Ad. London: Marketing.

Rejón-Guardia, F., Muñoz-Leiva, F. & Sánchez-Fernández, J. (2010) 'Los factores indeseables explicativos de la evasión cognitiva de la publicidad en redes sociales de Internet', XXII Congreso Nacional de Marketing Aemark 2010 Oviedo, pp. 145, Oviedo: ESIC Editorial.

Rust, R. & Varki, S. (1996) 'Rising from the ashes of advertising', Journal of Business Research, 37(3), pp. 173.

Satorra, A. (2002). 'Asymptotic robustness in multiple group linear-latent variable models', Econometric Theory, 18(2), pp. 197 – 251.

Shklovski, I., Kraut, R. & Rainie, L. (2004) 'The Internet and Social Participation: Contrasting Cross-Sectional and Longitudinal Analyses', Journal of Computer-Mediated Communication, 10(1), pp. 00.

Speck, P. & Elliott, M. (1997) 'Predictors of advertising avoidance in print and broadcast media', Journal of Advertising, 26(3), pp. 61.

Steenkamp, J. & Van Trijp, H. (1991) 'The use of lisrel in validating marketing constructs', International Journal of Research in Marketing, 8(4), pp. 283-299.

Vakratsas, D. & Ambler, T. (1999) 'How advertising works: What do we really know? ', Journal of Marketing, 63(1),pp. 26.

West, J., Blumberg, E., Kelley, N., Hill, L., Sipan, C., Schmitz, K. & Ryan, S. (2010) 'Does Proximity to Retailers Influence Alcohol and Tobacco Use Among Latino Adolescents? ', Journal of Immigrant and Minority Health, 12(5), pp. 626–33.

Zed Digital (2008) El fenómeno de las redes sociales , percepción, usos y publicidad, Zed Digital Zenith optimedia Group, retrieved from: http://www.zeddigital.es/

## FOOTNOTES

1. This evaluation was performed using the procedure suggested by Chin (2000) to develop a multi-group analysis based on the *t*-Student test according to the following formulation:

$$H_o: B_1 = B_2$$

$$t = \frac{B_1 - B_2}{\sqrt{SE_1^2 + SE_2^2}}$$

Where $B_i$ ,notes path weights and $SE_i$ is the standard error of the path in the structural model.

2. Given that the hypotheses have been put forward without previous knowledge of the moderation pathway, the two-tailed *T* test is applied in this case.

## TABLES AND FIGURES

TABLE 1

**Technical specifications of the study**

| | |
|---|---|
| **Date of fieldwork** | 4 October-30 November 2009 |
| **Characteristics of study population** | Spanish-speaking individuals aged 14 or older who are ISN users |
| **Population size According to ComScore World Metrix (2008)** | 13,185,000 (ISN audience in Spain) |
| **Sampling method** | Non-probabilistic convenience sampling: Self-selection by the respondent through sponsored events by means of viral propagation |
| **Effective sample size** | 262 valid questionnaires |
| **Sample Error*** | ± 5.6% (assuming p=q=0.5 and a confidence level of 95%) |
| **Data collection method** | Website survey with incentive |
| **Average response time** | 18 minutes, 50 seconds |

** According to simple random sampling*

TABLE 2

**Socio-demographical characteristics**

| Characteristic | % | n | Characteristic | % | n |
|---|---|---|---|---|---|
| **GENRE** | | | **TIME SESSIONS** | | |
| *Male* | 44 | 115 | *less 1/2 hour* | 41 | 106 |
| *Female* | 56 | 147 | *1/2 and 1 hour* | 32 | 84 |
| **AGE** | | | *1 and 2 hour* | 16 | 43 |
| *14-19* | 7 | 19 | *2 and 4 hour* | 8 | 21 |
| *20-24* | 51 | 134 | *more* | 3 | 8 |
| *25-34* | 39 | 102 | **DAILY USAGE TIME** | | |
| *35-44* | 2 | 5 | *less 1 hour* | 10 | 27 |
| *45 >* | 0 | 1 | *1 or 2 hour* | 29 | 76 |
| **EDUCATION** | | | *2 or 3 hour* | 23 | 59 |
| *Primary* | 1 | 2 | *3 >* | 38 | 100 |
| *Secondary* | 6 | 17 | **WEEKLY TIME USE** | | |
| *University* | 93 | 244 | once | 8 | 20 |
| **SALARY LEVEL** | | | 2 or 3 time | 12 | 31 |
| *0-1200* | 36 | 94 | 4 or 6 time | 16 | 42 |
| *1200-1800* | 26 | 69 | once a day | 20 | 52 |
| *1800-3000* | 25 | 65 | several times a week | 45 | 117 |
| *3000 >* | 13 | 34 | **SOCIAL NETWORK** | | |
| | | | *Facebook* | 63 | 165 |
| | | | *Tuenti* | 83 | 216 |
| **N= 262** | | | *Myspace* | 6 | 15 |
| | | | *Youtube* | 57 | 150 |
| | | | *Flickr* | 5 | 13 |
| | | | *others* | 11 | 29 |

TABLE 3
**Evaluation of the proposed scales**

| | | Facebook | | | | MySpace | | | | Tuenti | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Clutter** | **Intrusiveness** | **Irritation** | **Avoidance** | **Clutter** | **Intrusiveness** | **Irritation** | **Avoidance** | **Clutter** | **Intrusiveness** | **Irritation** | **Avoidance** |
| **Cronbach's $\alpha$** | | *0.95* | *0.93* | *0.946* | *0.94* | *0.95* | *0.93* | *0.95* | *0.94* | *0.80* | *0.90* | *0.91* | *0.94* |
| **Compound Reliability** | | *0.94* | *0.97* | *0.97* | *0.96* | *0.94* | *0.96* | *0.96* | *0.96* | *0.83* | *0.94* | *0.95* | *0.95* |
| **Variance Extracted** | | *0.89* | *0.87* | *0.88* | *0.76* | *0.89* | *0.84* | *0.87* | *0.76* | *0.71* | *0.75* | *0.82* | *0.75* |
| **$R^2$ per item** | ***1*** | *0.95* | *0.79* | *0.77* | *0.60* | *0.81* | *0.80* | *0.83* | *0.60* | *0.56* | *0.49* | *0.92* | *0.59* |
| | ***2*** | *0.76* | *0.89* | *0.87* | *0.74* | *0.97* | *0.89* | *0.90* | *0.74* | *0.85* | *0.80* | *0.67* | *0.74* |
| | ***3*** | -- | *0.88* | *0.90* | *0.69* | -- | *0.82* | *0.88* | *0.69* | -- | *0.84* | *0.91* | *0.69* |
| | ***4*** | -- | *0.87* | *0.82* | *0.77* | -- | *0.87* | *0.87* | *0.77* | -- | *0.86* | *0.76* | *0.77* |
| | ***5*** | -- | *0.71* | -- | *0.84* | -- | *0.82* | -- | *0.84* | -- | *0.74* | -- | *0.84* |
| | ***6*** | -- | -- | -- | *0.77* | -- | -- | -- | *0.77* | -- | -- | -- | *0.77* |
| | ***7*** | -- | -- | -- | *0.70* | -- | -- | -- | *0.70* | -- | -- | -- | *0.70* |
| | ***8*** | -- | -- | -- | *0.51* | -- | -- | -- | *0.51* | -- | -- | -- | *0.51* |
| **Standardized Coefficients** | ***1*** | *0.97* | *0.89* | *0.88* | *0.77* | *0.90* | *0.89* | *0.91* | *0.77* | *0.75* | *0.70* | *0.96* | *0.77* |
| | ***2*** | *0.87* | *0.94* | *0.93* | *0.86* | *0.98* | *0.94* | *0.95* | *0.86* | *0.92* | *0.89* | *0.82* | *0.86* |
| | ***3*** | -- | *0.94* | *0.95* | *0.83* | -- | *0.91* | *0.94* | *0.83* | -- | *0.92* | *0.95* | *0.83* |
| | ***4*** | -- | *0.93* | *0.91* | *0.88* | -- | *0.93* | *0.93* | *0.88* | -- | *0.93* | *0.87* | *0.88* |
| | ***5*** | -- | *0.84* | -- | *0.92* | -- | *0.91* | -- | *0.92* | -- | *0.86* | -- | *0.92* |
| | ***6*** | -- | -- | -- | *0.88* | -- | -- | -- | *0.88* | -- | -- | -- | *0.88* |
| | ***7*** | -- | -- | -- | *0.84* | -- | -- | -- | *0.84* | -- | -- | -- | *0.84* |
| | ***8*** | -- | -- | -- | *0.71* | -- | -- | -- | *0.71* | -- | -- | -- | *0.71* |

TABLE 4

**$\chi^2$ difference test**

| | *CMIN* | d. f. | p value | Goodness of fit indices | | |
|---|---|---|---|---|---|---|
| | | | | GFI | CFI | RMSEA |
| $\chi^2_{restricted}$ | *1497.99* | *506* | | *0.811* | *0.900* | *0.054* |
| $\chi^2_{baseline\ model}$ | *1488.85* | *498* | | *0.812* | *0.901* | *0.054* |
| $\chi^2_{dif}$ | *9.14* | *8* | ***0.331*** | | | |

TABLE 5

**Comparison of causal relations between Facebook and MySpace**

| Causal relation | Facebook | | MySpace | | Dif. | *t* | Sign.[2] |
|---|---|---|---|---|---|---|---|
| | B1 | SE1 | B2 | SE2 | | | |
| Clutter → Advertising offensiveness | 0.94 | 0.034 | 0.91 | 0.038 | 0.03 | 0.59 | 0.5554 |
| Intrusiveness→ Advertising offensiveness | 0.95 | 0.065 | 0.96 | 0.038 | -0.01 | -0.13 | 0.8966 |
| Irritation→ Advertising offensiveness | 0.82 | 0.043 | 0.7 | 0.055 | 0.12 | 1.72 | 0.0860** |
| Advertising offensiveness → Cognitive avoidance | 0.2 | 0.061 | 0.16 | 0.062 | 0.04 | 0.46 | 0.6457 |
| Cognitive avoidance → Ad effectiveness | -0.11* | 0.09 | -0.027* | 0.1 | -0.08 | -0.62 | 0.5355 |

**Non-significant relation.*

*** Significant comparison for a 10% significance level.*

TABLE 6

**Comparison of causal relations between MySpace and Tuenti**

| Causal relation | MySpace | | Tuenti | | Dif. | *t* | Sign. |
|---|---|---|---|---|---|---|---|
| | B1 | SE1 | B2 | SE2 | | | |
| Clutter → Advertising offensiveness | 0.91 | 0.038 | 0.89 | 0.074 | 0.02 | 0.24 | 0.8104 |
| Intrusiveness→ Advertising offensiveness | 0.96 | 0.038 | 0.87 | 0.074 | 0.09 | 1.08 | 0.2806 |
| Irritation→ Advertising offensiveness | 0.7 | 0.055 | 0.58 | 0.069 | 0.12 | 1.36 | 0.1744 |
| Advertising offensiveness → Cognitive avoidance | 0.16 | 0.062 | 0.23 | 0.058 | -0.07 | -0.82 | 0.4126 |
| Cognitive avoidance → Ad effectiveness | -0.027* | 0.1 | -0.26 | 0.081 | 0.23 | 1.81 | 0.0709** |

* *Non-significant relation.*

** *Significant comparison for a 10% significance level.*

TABLE 7
**Comparison of causal relations between Facebook and Tuenti**

| Causal relation | Facebook | | Tuenti | | Dif. | *t* | Sign. |
|---|---|---|---|---|---|---|---|
| | **B1*** | **SE1** | **B2*** | **SE2** | | | |
| Clutter → Advertising offensiveness | 0.94 | 0.034 | 0.89 | 0.074 | 0.05 | 0.61 | 0.5421 |
| Intrusiveness→ Advertising offensiveness | 0.95 | 0.065 | 0.87 | 0.074 | 0.08 | 0.81 | 0.4183 |
| Irritation→ Advertising offensiveness | 0.82 | 0.043 | 0.58 | 0.069 | 0.24 | 2.95 | 0.0033** |
| Advertising offensiveness →Cognitive avoidance | 0.2 | 0.061 | 0.23 | 0.058 | -0.03 | -0.36 | 0.7190 |
| Cognitive avoidance → Ad effectiveness | -0.11* | 0.09 | -0.26 | 0.081 | 0.15 | 1.24 | 0.2155 |

** Non-significant relation.*

*** Significant comparison for a 1% significance level.*

FIGURE 1
**eAD-ISN model initially proposed**

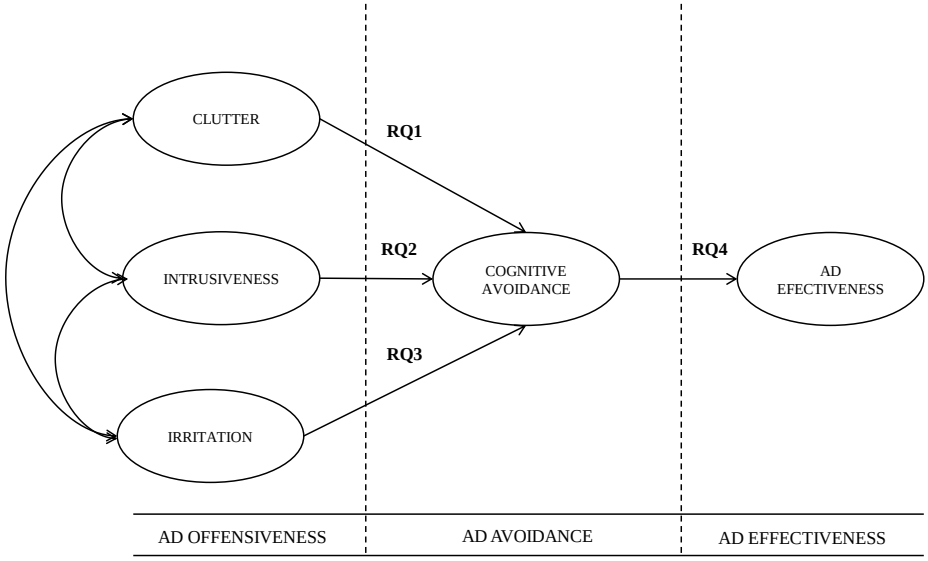
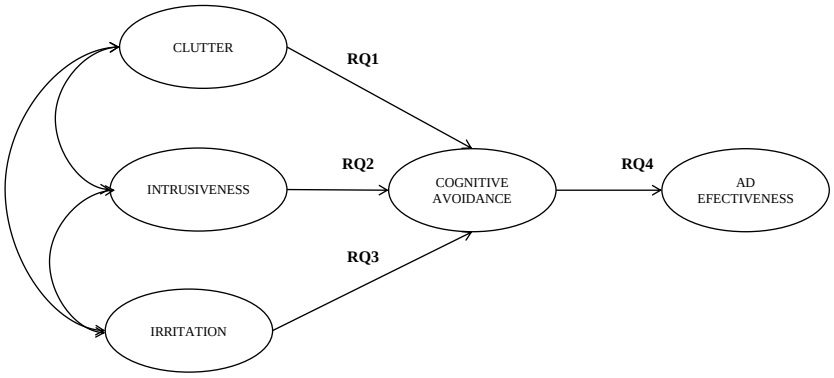



FIGURE 2
**First order model for the three networks (Facebook / MySpace / Tuenti)**

**(This figure show worse goodness of fit).**




| | *Goodness of fit statistic* | | |
|---|---|---|---|
| | **FACEBOOK** | **MYSPACE** | **TUENTI** |
| ***S - B χ2*** | **682,432** | **665,447** | **687,945** |
| ***Sig.*** | **0,000** | **0,000** | **0,000** |
| ***NFI*** | **0,883** | **0,884** | **0,847** |
| ***NNFI*** | **0,754** | **0,755** | **0,723** |
| ***GFI*** | **0,826** | **0,824** | **0,820** |
| ***RMSEA*** | **0,110 (0,101; 0,118)** | **0,108 (0,100; 0,116)** | **0,11 (0,102; 0,118)** |

FIGURE 3
**FINAL eAD-ISN model proposed**

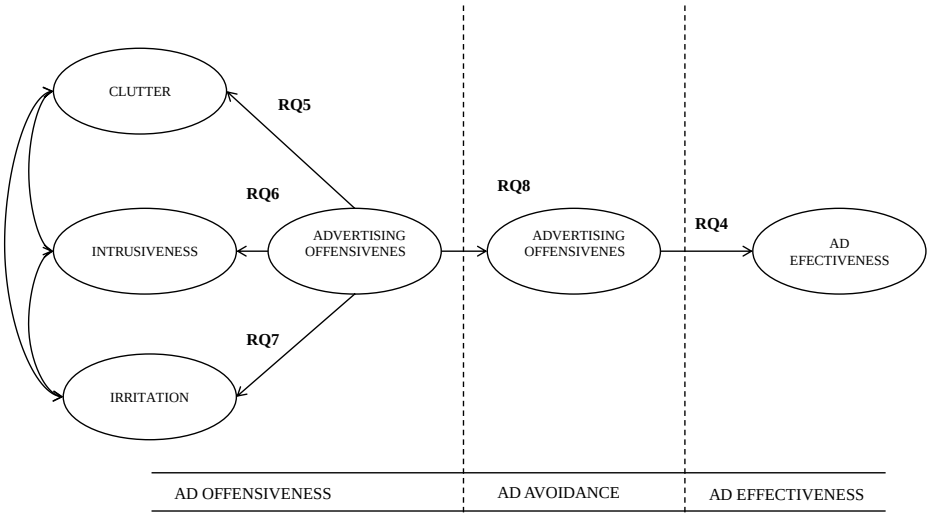
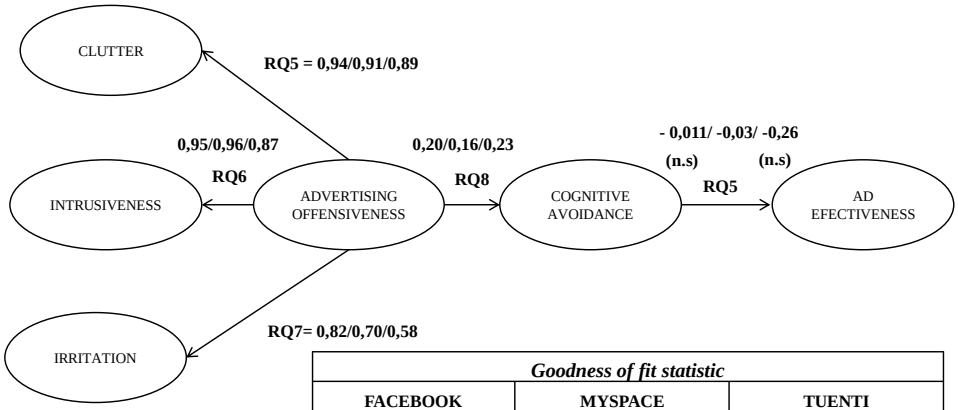


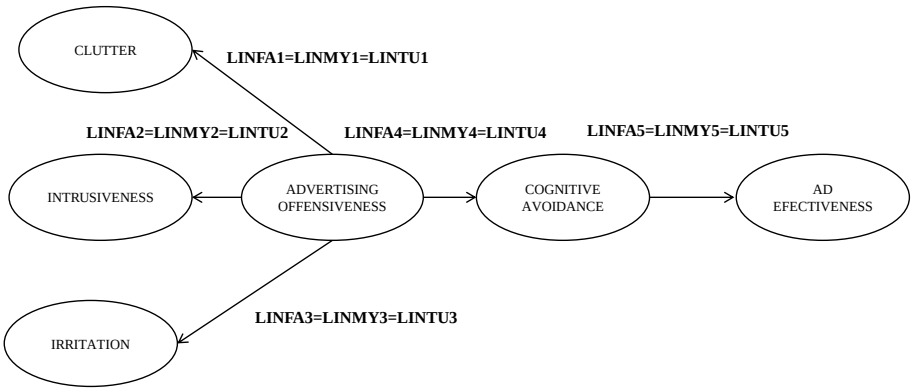

FIGURE 4
**Results of eAD-ISN model for the three networks (Facebook / MySpace / Tuenti)**




| | *Goodness of fit statistic* | | |
|---|---|---|---|
| | **FACEBOOK** | **MYSPACE** | **TUENTI** |
| ***S - B χ2*** | **386,12** | **299,43** | **350,67** |
| ***Sig.*** | **0,000** | **0,000** | **0,000** |
| ***NFI*** | **0,97** | **0,97** | **0,96** |
| ***NNFI*** | **0,99** | **0,99** | **0,98** |
| ***GFI*** | **0,78** | **0,79** | **0,79** |
| ***RMSEA*** | **0,058 (0,049; 0,067)** | **0,055 (0,045; 0,065)** | **0,065 (0,056; 0,075)** |

FIGURE 5

**Final estimated model proposed for $\chi^2$test (Facebook / MySpace / Tuenti)**

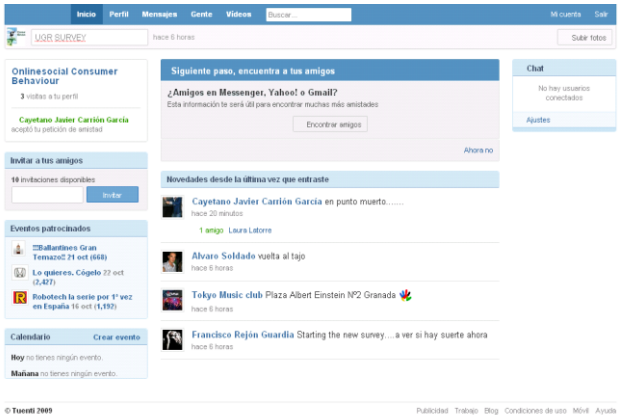


# APPENDIX A

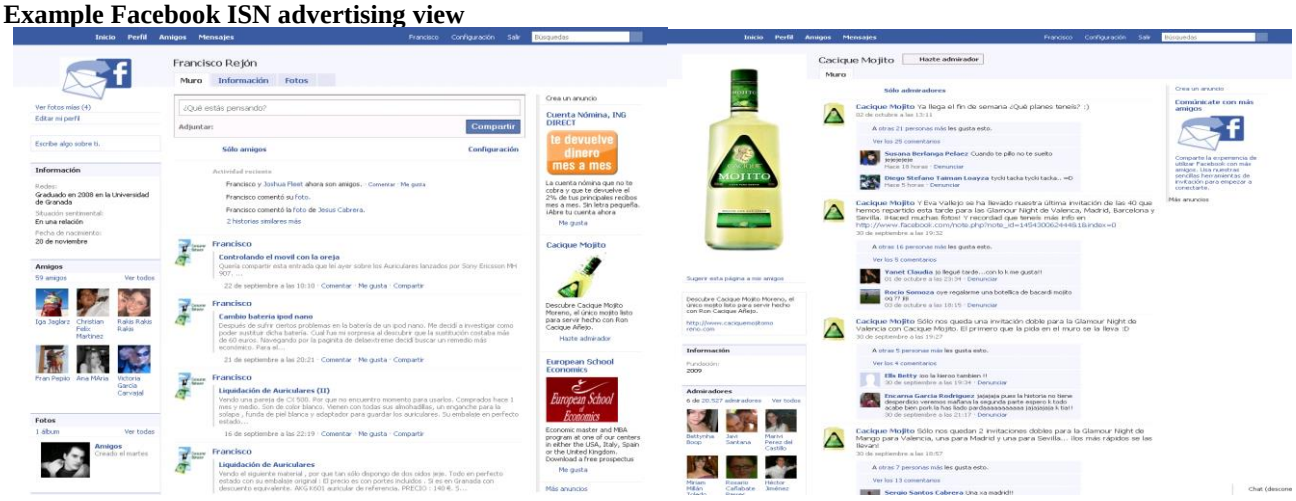
## EXAMPLE OF ISN ADVERTISING VIEWS

### Example Tuenti ISN advertising view

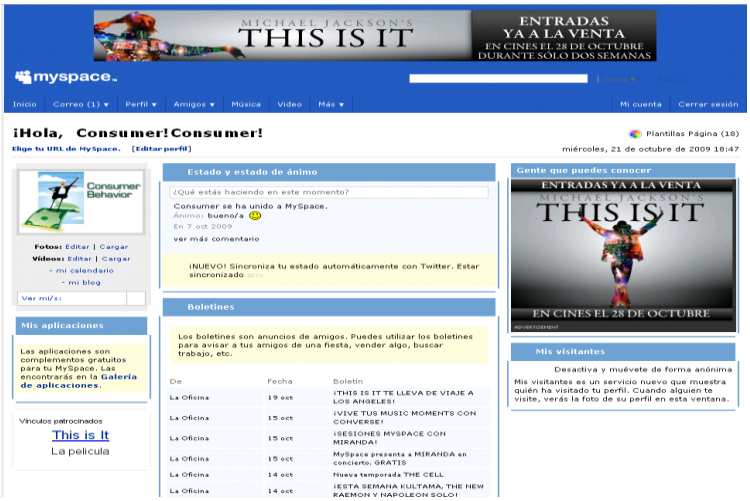





### Example Facebook ISN advertising view




### Example Myspace ISN advertising view



**APPENDIX B**

**MATRIX OF CORRELATIONS BETWEEN CONSTRUCTS**

| | **Clutter** | **Advertising Offensiveness** | **Intrusiveness** | **Irritation** |
|---|---|---|---|---|
| **Clutter** | *1.00* | -- | -- | -- |
| **Advertising Offensiveness** | *0.88* | *1.00* | -- | -- |
| **Intrusiveness** | *0.81* | *0.96* | *1.00* | -- |
| **Irritation** | *0.75* | *0.93* | *0.83* | *1.00* |

**APPENDIX C**

**STRUCTURED QUESTIONNAIRE USED IN THE STUDY**

| **PERCEIVED AD CLUTTER**<br>*When I am surfing the (XXX) ISN*: | **Strongly Disagree** **Totally agree** |
|---|---|
| 1. I think the amount of advertising on the ISN is *excessive*. | ①②③④⑤⑥⑦ |
| 2.I think the amount of advertising on the ISN is *irritating*. | ①②③④⑤⑥⑦ |
| 3.I think the Internet is exclusively an advertising medium.(Omitted) | ①②③④⑤⑥⑦ |
| **PERCEIVED INTRUSIVENESS**<br>*When the ad popped-up on (XXX) ISN, I thought it was…* | **Strongly Disagree** **Totally agree** |
| 1. Distracting | ①②③④⑤⑥⑦ |
| 2.Disturbing | ①②③④⑤⑥⑦ |
| 3.Forced | ①②③④⑤⑥⑦ |
| 4.Interfering | ①②③④⑤⑥⑦ |
| 5.Intrusive | ①②③④⑤⑥⑦ |
| 6.Invasive | ①②③④⑤⑥⑦ |
| 7.Obtrusive | ①②③④⑤⑥⑦ |
| **PERCEIVED IRRITATION**<br>*When the ad popped-up, I thought it was…* | **Strongly Disagree** **Totally agree** |
| 1. Irritating | ①②③④⑤⑥⑦ |
| 2.Phony | ①②③④⑤⑥⑦ |
| 3.Ridiculous | ①②③④⑤⑥⑦ |
| 4.Stupid | ①②③④⑤⑥⑦ |
| 5.Terrible | ①②③④⑤⑥⑦ |
| ***COGNITIVE AD AVOIDANCE. (Cho and Cheon 2004)***<br>*When I visit ISN sites:* | **Strongly Disagree** **Totally agree** |
| 1. I intentionally ignore any ads on the ISN (Web). | ①②③④⑤⑥⑦ |
| 2. I intentionally do not look at banner Ads. | ①②③④⑤⑥⑦ |
| 3. I intentionally do not look at interstitial or pop-up ads. | ①②③④⑤⑥⑦ |
| 4. I intentionally do not look at any ads on ISN such as sponsored links. | ①②③④⑤⑥⑦ |
| 5. I intentionally do not pay attention to banner ads. | ①②③④⑤⑥⑦ |
| 6. I intentionally do not pay attention to interstitial or pop-up ads. | ①②③④⑤⑥⑦ |
| 7. I intentionally do not pay attention to any ads like sponsored links on the ISN. | ①②③④⑤⑥⑦ |
| 8. I intentionally do not click on any ads on the ISN, even if the ads draw my attention. | ①②③④⑤⑥⑦ |