
Measuring the Intrusiveness of Advertisements: Scale Development and Validation

Hairong Li, Steven M. Edwards, and Joo-Hyun Lee

The current study examines consumers' perceptions of the intrusiveness of advertisements. A scale is developed to tap an underlying construct that has not previously been measured. Following traditional methods of scale development, the study uses expert-generated adjective lists, expands possible measures using a thesaurus, and finally reduces the number of items statistically to derive a new measure of advertising intrusiveness. The scale is validated using samples in different experimental conditions and is found to be valid, reliable, and parsimonious. The importance of such a scale for the field of advertising is discussed.

Hairong Li (Ph.D., Michigan State University) is Associate Professor of Advertising, Michigan State University.

Steven M. Edwards (Ph.D., University of Texas at Austin) is Assistant Professor of Advertising, Michigan State University.

Joo-Hyun Lee is a doctoral student, Mass Media Ph.D. Program, Michigan State University.

The authors acknowledge the anonymous reviewers and editor for their constructive comments. This research was supported by a grant from the American Academy of Advertising.

Intrusiveness is a common complaint of advertising practices that interrupt the goals of consumers in traditional media such as billboards on a scenic highway (Vespe 1997), television commercials during an exciting scene in a program (Krugman 1983), or an airplane dragging a sign over a beach on a sunny day. In an early study of U.S. consumers, Bauer and Greyser (1968) recognized intrusiveness as a major cause of advertising annoyance. And though advertisers prefer ads that demand consumers' scarce attention, consumers tend to form negative attitudes toward such tactics. These negative attitudes can then affect brand perceptions and attitudes (MacKenzie and Lutz 1989) and sometimes lead to ad avoidance (Abernethy 1991; Clancey 1994; Krugman and Johnson 1991).

Rust and Varki (1996) anticipated that advertisements in new media would be less intrusive as a result of interactivity. However, research has already reported that on-line ads are disturbing (Reed 1999), in that new tactics such as pop-up ads are relegating users to passive viewers of forced messages, similar to traditional television commercials. When on-line, however, consumers are often goal directed and may believe the ads are even more intrusive than when they are viewed in other media. They are likely to have negative attitudes toward ads or avoid them altogether to the degree that they feel the ads are unwanted. Although the intrusiveness of advertisements has been addressed in several studies (Bauer and Greyser 1968; Greyser 1973; Ha 1996; Pollay 1986), it has not been operationalized, and no scale currently exists for measuring this important construct.

The purpose of this paper is to develop, refine, and validate a scale that measures the degree to which ads are perceived as intrusive. The research then distinguishes the new measure from feelings of irritation that result from intrusive ads. The study follows the guidelines set forth by Churchill (1979), Gerbing and Anderson (1988), and Peter (1981). The process began by specifying the domain of the ad intrusiveness construct in relation to ad irritation and ad avoidance and then progressed through four methodological phases: generating sample items, purifying the measure, validating the scale with new data, and assessing reliability.

Major Constructs

Evidence of the perceived intrusiveness of advertisements can be found in the multitude of studies examining consumers' negative attitudes and behaviors when faced with unwanted ads. However, studies have rarely fo-

cused on intrusiveness, but rather have examined outcome measures such as ad irritation (Aaker and Bruzzone 1985; Bauer and Greyser 1968) and ad avoidance (Speck and Elliott 1997a, b). It is believed that perceptions of intrusion often serve as a cause of both irritation and avoidance of advertisements. Therefore, it is necessary to examine both irritation and avoidance behaviors in relation to ad intrusiveness to provide a context in which the meaning of intrusiveness can be best understood.

Ad Irritation

Public perceptions of advertising have been studied for decades, and findings show that consumers' attitudes toward advertising as an institution are usually more favorable than unfavorable (Bauer and Greyser 1968; Ducoffe 1996; Sandage and Leckenby 1980). Many consumers recognize not only the negative societal effects of advertising, but also the positive economic impact of the advertising industry. However, individual advertisements differ from advertising as an institution of society, and research indicates that the content and tactics of certain ads "offend" or "irritate" consumers (Aaker and Bruzzone 1985; Bauer and Greyser 1968; Wells, Leavitt, and McConville 1971).

An irritating ad is often one that is "provoking, causing displeasure and momentary impatience" (Aaker and Bruzzone 1985, p. 48). Irritation in response to ads has been defined as more negative than dislike (Aaker and Bruzzone 1985) but less negative than offensiveness, which is often caused by moral concern about the content of an ad (Bauer and Greyser 1968).

Causes of ad irritation can be broadly classified into three categories: ad content, execution, and placement. First, Bauer and Greyser (1968) found that ads are perceived as annoying (a synonym for irritating) if their content is untruthful, exaggerated, confusing, or insults the viewer's intelligence. Second, ads are deemed irritating to the degree that they are poorly executed. Poorly executed ads are judged to be irritating if they are too loud, too long, or too large (Aaker and Bruzzone 1985; Bauer and Greyser 1968). Third, consumers are likely to get irritated when there are too many ads or when the same ad appears too frequently (Bauer and Greyser 1968). When consumers are irritated by advertisements, they are likely to avoid them.

Ad Avoidance

Consumers' avoidance of television commercials has been described as zipping, zapping, flipping, flicking, and grazing (Abernethy 1991; Bellamy and Walker

1996; Cronin and Menelly 1992; Eastman, Neal-Lundsford, and Riggs 1995; Kaplan 1985; Kneale 1988; Yorke and Kitchen 1985; Zufryden, Pedrick, and Sankaralingam 1993). Regardless of the different names used to describe the reactions of consumers to irritating ads, each of the many studies has examined the impact of viewer control over ad exposure when watching television and concluded that, when consumers are given a means to avoid ads, many do just that. Abernethy (1991) found that viewers are likely to either leave the room or change the channel to avoid ads. Other television viewers simply participate in another activity or ignore the ads altogether and focus on something else (Clancey 1994; Krugman and Johnson 1991).

Speck and Elliott (1997a) found evidence of cognitive, behavioral, and mechanical ad avoidance across both electronic and print media. Cognitive avoidance consists of tuning ads out and shifting focus. Behavioral avoidance was operationalized as leaving the room. Mechanical avoidance focused on the use of a remote control to change the channel. Regardless of the means by which people choose to avoid ads, it seems clear that ad avoidance limits the ability of commercial messages to reach their intended audiences.

Some evidence suggests that avoiding ads occurs as a result of attitudes toward advertising in general. Cronin and Menelly (1992) showed that viewers were likely to avoid an ad upon recognition of its occurrence, not of specific ad content. Abernethy (1991) found that most avoidance behavior regarding television commercials occurs during the first ad in a sequence. Viewers who zip or zap ads tend to see ads as an intrusion on media use in general. They do not generally discriminate between ads they avoid and ads they watch; they simply avoid all ads.

However, Lee and Lumpkin (1992) found evidence that ad avoidance when watching taped programming is moderated by the degree to which people view ads as containing useful information. This finding is in line with much of the research on ad irritation. Ads containing information perceived as useful elicit less irritation than do ads not deemed useful and are less likely to be avoided (Aaker and Bruzzone 1985; Pasadeos 1990). Bauer and Greyser (1968) described irritation in response to changes in ad content, execution, and placement. Thus, both irritation and avoidance are outcome measures, or consumer responses, that can be affected by characteristics of specific ads.

Ad Intrusiveness

Although ads may ultimately be deemed irritating or avoided on the basis of content, execution, or place-

ment, these same ads will first be evaluated on the basis of the degree to which they interrupt the goals of viewers, or their perceived intrusiveness. Ha (1996, p. 77) defined intrusiveness as "the degree to which advertisements in a media vehicle interrupt the flow of an editorial unit." This definition, albeit useful as a point of departure, requires elaboration to meet the needs of the current study. Intrusiveness is a perception or psychological consequence that occurs when an audience's cognitive processes are interrupted. Therefore, ads within programming or editorial units are not themselves intrusive, but rather, the ads must be perceived as interrupting the goals of the viewers to be considered intrusive. Speck and Elliott (1997b) believe that ads often act as noise in the environment. Noise was defined as "all communication elements that affect the availability, cost or value of desired content" (Speck and Elliott 1997b, p. 65). Conceptualizing ads as noise allows for the possibility of three communication-related problems. First, ads can hinder the search for programming content, in that ads block access to programming. Second, ads can interrupt the use of programming or content and therefore be distractions from the mediated environment. Third, ads may completely disrupt the interaction with the desired content. In that some consumers view ads as noise to be filtered, it seems that the placement of advertisements within the programming affects the viewer's goals, and it is this placement that is likely to affect the degree to which the viewer perceives ads as intrusive.

To the degree that ads are perceived as intrusive, feelings of irritation are likely to occur. Specifically, ads that interfere with consumers' processing of programming or editorial content in a media environment will lead to more irritation than will ads that are welcomed. These negative feelings of irritation may be heightened to the degree that the ads are disturbing because of their execution (e.g., too loud or too long) or placement (e.g., too many or too frequent). Viewers that are interrupted and experiencing irritation may then also engage in ad avoidance (Kennedy 1971; Krugman 1983; Park and McClung 1986; Soldow and Principe 1981).

Although intrusiveness should be considered primarily a cognitive process in which consumers may recognize ads as disturbing, it should be thought of as distinct from the negative emotions and reactions that may result. Intrusiveness describes the mechanism by which ads evoke negative emotional reactions, such as irritation or annoyance, but not the negative emotional reactions themselves. Also, a valid measure of intrusiveness should be positively correlated with

measures of cognitive, behavioral, or mechanical ad avoidance. Conceptually, however, the perception of intrusiveness should be different from cognitive, behavioral, or mechanistic intentions to respond.

We must also expand of the concept of an "editorial unit," which should be broadly defined to include all new environments in which ads appear. Traditional ads are usually embedded in editorial content, such as newspaper or magazine stories and radio or television programming. As new forms of communication appear on the Internet and elsewhere, an ad may take place in noneditorial content, such as e-mail and chat rooms. Exposure to ads is becoming more prevalent, and technology now allows for ads to be forced on viewers at unexpected intervals or in nontraditional settings, especially on-line. The timing of ads can be programmed to occur at random intervals during normal surfing sessions on the Web or other interactive environments. The ability to target ads when viewers are not expecting them may affect viewers' perceptions of intrusiveness and, thus, ad effectiveness.

Because of the potential importance of intrusiveness as the impetus in creating negative emotional reactions to ads and driving consumers to avoid ads, a measure of this construct clearly is needed. On the basis of the proceeding discussion, we define intrusiveness as a psychological reaction to ads that interfere with a consumer's ongoing cognitive processes. Interference is broader than interruption because it includes aspects of an ad itself (volume, length, or size) and the media schedule (frequency and clutter) that could add to feelings of intrusiveness. The definition is context free, in that it applies regardless of when or where the interference takes place. For example, intrusiveness may be perceived when consumers see a pop-up ad when they read e-mail, see a commercial during television programming, or view an ad among editorial content in a magazine. As long as the ads interfere with cognitive processing, the perception of the ads as intrusive is possible.

Scale Development Process

Generation of Sample Items

Using the preceding explication of intrusiveness, the current study employed three methods to generate a pool of potential scale items: literature reviews (Churchill 1979), thesaurus searches (Wells, Leavitt, and McConville 1971), and experience surveys (Chen and Wells 1999; Churchill 1979). First, previous studies on negative reactions to advertising in general and the perception of ads as intrusive were reviewed

to identify relevant conceptualizations of the construct. Research indicated that consumers' criticisms are generally directed at the tactics advertisers employ that make the experience of processing ads negative, rather than the institution of advertising itself (Bauer and Greyser 1968; Ducoffe 1996; Sandage and Leckenby 1980). Thus, our review focuses on consumer reactions to ads as instruments instead of on attitude toward advertising in general.

In a study of consumer reactions to television commercials, Wells, Leavitt, and McConville (1971, p. 13) identified irritation as a reaction that can be measured as "the degree to which the rater dislikes what he has seen." Words used to measure this construct included terrible, stupid, ridiculous, irritating, and phony. Duncan and Nelson (1985) developed a three-item scale measuring the degree to which a person indicates that a commercial is irritating, annoying, and not enjoyable to hear. Edell and Burke (1987) developed a feelings scale of three dimensions: upbeat, negative, and warm. The negative dimension included 20 items, such as annoyed, irritated, offended, bored, and fed-up. These three scales were compared, and Wells, Leavitt, and McConville's irritation scale (1971) was adopted for this study because of its construct relevance.

Second, no scales specifically measuring advertising intrusiveness were found in the review, so thesauruses were consulted for possible items. According to the *Longman Dictionary of Contemporary English* (p. 588), intrusiveness is "of or concerning intrusion," which refers to "an occasion when someone or something forms an interruption of work, someone else's affair, etc." This definition of intrusiveness in general is consistent with our definition of ad intrusiveness. Because of the relatively specific nature of the construct, only a limited number of synonyms was found. Synonyms for intrusiveness included bothersome, distracting, disturbing, invasive, interfering, and obtrusive.

Third, a panel of advertising researchers was consulted regarding the words selected from the thesaurus searches, and a list of 11 adjectives was generated for testing. They are bothersome, distracting, disturbing, forced, interfering, intrusive, invasive, obligated, obtrusive, requested, and voluntary.

Measurement Purification

One rule for measurement purification is to identify items that reliably measure a single, underlying, unidimensional construct. The unidimensionality of a scale is essential because a composite score is normally calculated on the basis of the respondents' scores

on all items of a scale as an unweighted sum (Hattie 1985). Exploratory factor analysis is normally used early in this process to discover the items that disagree with the common core of items and to produce additional dimensions (Churchill 1979). Confirmatory factory analysis is ideal for the final verification of the unidimensionality of a scale (Gerbing and Anderson 1988). In addition, the items of a scale should measure the construct evenly. That is, all items should have a similarly strong association with the latent construct, as reflected in the factor loadings. Finally, the rule of parsimony should be followed. If two scales have the same reliability, a scale with fewer items is preferred because it is easier to use (Hunter and Gerbing 1982).

Study 1

Following these practices, participants were recruited from an introductory advertising course for a laboratory experiment. Because the course was a campus-wide elective, the sample of participants represented a variety of majors. Participants viewed a Web site with an interstitial—an ad in a pop-up window—during the viewing session. After the viewing session, each participant was asked to fill out a questionnaire containing ad intrusiveness and ad irritation measures. A total of 87 participants completed the experiment.

Experimental Design. Two Web sites were created for the experiment: one was a movie review site and the other was a financial aid site. The content of the two sites was selected on the basis of a pretest, which revealed that both movies and financial aid were moderately interesting to participants of both genders. To maximize the external validity of the study, each site had a large collection of articles and links to other relevant sites. Participants were randomly assigned to one of the two sites and asked to read an article, during which they were exposed to one of the pop-up ads, which varied in length, position on the page, and congruence regarding the page content. Participants were able to close a pop-up ad anytime during or after its display. When the ten-minute viewing session was complete, participants were asked to fill out a questionnaire.

Measurement. A seven-point scale was used for the eleven intrusiveness items with response categories from "strongly agree" to "strongly disagree." In addition, participants were asked about the irritation of the interstitial. In Wells, Leavitt, and McConville's (1971) irritation study, respondents evaluated how well the terms terrible, stupid, ridiculous, irritating, and phony fit the ad they had just seen on a scale from "extremely well" to "not well at all." We adapted

Table 1
Exploratory Factor Analysis: Initial Factor Loadings

Items	Factor I	Factor II	Factor III
Interfering	.83	.01	.21
Bothersome	.82	.04	.16
Invasive	.81	.04	.20
Distracting	.80	.17	-.16
Intrusive	.80	-.14	.15
Obtrusive	.79	.03	.12
Forced	.77	.02	.25
Disturbing	.74	.17	-.36
Obligated	.24	-.83	.05
Requested	.29	.75	.18
Voluntary	.20	.12	.92

Notes: Bold items indicate items loading on each factor.

Table 2
Factor Loadings of the Eight-Items of Ad Intrusiveness

Items	Factor Loading
Interfering	.85
Bothersome	.83
Invasive	.83
Intrusive	.81
Forced	.80
Obtrusive	.80
Distracting	.78
Disturbing	.70

the response categories from Wells, Leavitt, and McConville (1971) to be consistent in format with the intrusiveness items and used a seven-point scale anchored from "strongly agree" to "strongly disagree."

To explore the surfing behavior and ad avoidance, viewing sessions were recorded using a screen capturing software, of which the participants were unaware to avoid sensitizing them. Participants were debriefed about the recording method, and all agreed to the use of their data in the study. Ad avoidance was used for testing the validity of the measure of ad intrusiveness.

Data Analysis. Exploratory factor analysis was conducted on the eleven items of intrusiveness, and the initial result revealed three factors. The first factor included eight items (interfering, bothersome, invasive, intrusive, distracting, obtrusive, forced, and disturbing) with an eigenvalue of 5.37 and 48.8% of variance, the second factor included two items (obligated and requested) with an eigenvalue of 1.36 and 12.3% of variance, and the third factor had one item

(voluntary) with an eigenvalue of 1.09 and 9.9% of variance. The loadings of these factors, as generated with principal component extraction and varimax rotation, are provided in Table 1.

A decision was made to reduce the three factors to one for several reasons. First, the eigenvalue of each factor was examined. The first factor carried an eigenvalue of 5.37, and the remaining two factors had eigenvalues slightly higher than 1, the borderline. A scree plot was conducted, and the slope between the second and third factors was flat. The pattern indicates that the inclusion of the second and third factors does little to increase the explanatory power of the scale (Hair et al. 1998). Second, we were concerned that the small number of items loading on the second and third factors did not accurately and completely measure distinct aspects of intrusiveness. For example, the word "requested" could mean either the viewer is requested to view the interstitial or the viewer requests the interstitial. It may have caused confusion, as indicated by the direction of factor loadings of the

Table 3
Standardized Coefficients of the Seven Items of Ad Intrusiveness

Items	Pop-Up Ads	Television Commercials	Magazine Ads
Distracting	.71	.84	.63
Disturbing	.63	.45	.47
Forced	.74	.42	.62
Interfering	.84	.88	.81
Intrusive	.79	.53	.59
Invasive	.81	.74	.85
Obtrusive	.80	.83	.85

two items (obligated and requested) on Factor 2 (a negative factor loading for obligated). In addition, a single item for Factor 3 is not a robust solution. Third, without the three items (obligated, requested, and voluntary), the remaining eight items converged on one factor, with factor loadings from .70 to .85. The extracted variance was .64, higher than the value of .50 suggested by Hair and colleagues (1998). These analyses convinced us that a one-factor solution is appropriate for the intrusiveness items. The eight items that remained were bothersome, distracting, disturbing, forced, invasive, interfering, intrusive, and obtrusive. The factor loadings of the eight items are provided in Table 2.

Study 2

In accordance with the suggestions of Churchill (1979) and Gerbing and Anderson (1988), new data were collected to verify the unidimensionality and internal consistency of the eight items measuring ad intrusiveness. To add to the generalizability of the scale, the eight intrusiveness items were tested with television commercials and magazine ads. Participants viewed a television program and read a magazine in two separate sessions, one day apart. The order of presentation was counterbalanced. The television program contained three commercials, and the magazine article was interrupted by five sets of ads. Following the television viewing or magazine reading, participants were asked to fill out a questionnaire measuring the intrusiveness and irritation of the ads overall using the items from Study 1. A total of 57 participants completed both sessions, and their data were used in this validation analysis.

Confirmatory factor analysis was conducted to examine the unidimensionality and internal consistency of the eight intrusiveness items (bothersome, distracting, disturbing, forced, interfering, intrusive, invasive, and obtrusive). The data were found to fit well

for television commercials ($\chi^2_{(20)}=31.22, p>.05$) but not for magazine ads ($\chi^2_{(20)}=38.47, p<.01$). An examination of the modification indices suggested that the item "bothersome" had excessive covariance with other items in magazine ad data. Thus, it was dropped in the second round of analysis. The seven-item solution resulted in an adequate fit for both television commercials ($\chi^2_{(14)}=19.90, p>.10$, goodness-of-fit index [GFI]=.91, adjusted goodness-of-fit index [AGFI]=.83, root mean squared error of approximation [RMSEA]=.09) and magazine ads ($\chi^2_{(14)}=22.35, p>.05$, GFI=.90, AGFI=.80, RMSEA=.10), as the GFI reached the rule of .90 for both media types (Bentler 1990). For the interstitial ad data, these seven items remained fit ($\chi^2_{(14)}=18.56, p>.10$, GFI=.94, AGFI=.89, RMSEA=.06). The seven items were used in all subsequent analyses. Standardized coefficients for the seven items are presented for the pop-up ads, television commercials, and magazine ads in Table 3.

Assessment of Reliability and Validity

Unidimensionality is not sufficient to ensure the usefulness of a scale, because even a perfectly unidimensional measure can be affected by measurement error. Therefore, Gerbing and Anderson (1988) believe that the reliability of a measure should be examined after its unidimensionality has been established. Coefficient alpha is one of the most widely used coefficients of equivalence. Following Churchill (1979) and Gerbing and Anderson (1988), the seven-item scale of ad intrusiveness was found to be reliable ($\alpha=.90$). Construct reliability was further calculated manually using the standardized loading of pop-up ads from Amos (4.0), following Hair and colleagues (1998, p. 612), and the coefficient was .91, well above the rule of .50.

A scale that is proven to be unidimensional and reliable must be further examined in terms of the construct validity, or whether the construct is mea-

suring what it is supposed to measure. Churchill (1979) maintains that, to establish the construct validity of a measure, the analyst must determine (1) the extent to which the measure correlates with other measures designed to measure the same thing and (2) whether the measure behaves as expected. Literature shows that ad intrusiveness and ad irritation are two different but highly related constructs. If a measure of ad intrusiveness is valid, it should bear a relatively high correlation with ad irritation. In addition, ad intrusiveness should be associated with ad avoidance. Because ad avoidance is a behavioral measure, it offers evidence of convergent validity (Hair et al. 1998). The relationships of ad intrusiveness with irritation and avoidance were tested in a structural model in the study.

To examine the relationship between ad intrusiveness and ad irritation, a previously validated scale of irritation was used (Wells, Leavitt, and McConville 1971). The five-item scale was found to be reliable ($\alpha=.88$). To examine the relationship between ad intrusiveness items and ad avoidance behavior, participants' captured computer screens were coded. Viewing each participant's interaction with a pop-up ad generated two variables. The first variable, cognitive ad avoidance, details time spent viewing the ad in four levels: "viewed almost nothing," "viewed less than half of the interstitial," "viewed more than half of the interstitial," and "viewed from the beginning to the end of the interstitial." The lower amount of viewing indicates a higher level of cognitive ad avoidance. The second variable measures behavioral ad avoidance by observing the participants' behaviors in response to the interstitial. Viewers' actions were coded as "closed the interstitial before it was over," "made the interstitial into background before it was over," "moved the interstitial around but left it on," and "did not touch the interstitial before it was over." These four categories of interaction indicated different levels of behavioral ad avoidance, with "closed the interstitial before it was over" as the greatest act of avoidance. Two coders coded 30% of the sessions independently, and the intercoder agreement was .96. One coder finished the rest of the sessions, with a total of 59 complete sessions available for analysis.

Ad avoidance variables were then merged with the ad intrusiveness and ad irritation of the same participants for validity assessment. Ad intrusiveness was specified as an exogenous variable and ad irritation, cognitive ad avoidance, and behavioral ad avoidance as endogenous variables in a structural model. Two models were tested with Amos (4.0), and the results are presented in Figure 1. Two models were tested

separately to examine the relative importance of intrusiveness versus irritation on the avoidance measures. The two models could not have been run simultaneously, because the single model would have been underidentified.

Models A ($\chi^2 = 5.12, p > .05$, GFI= .96, AGFI=.80, RMSEA=.16) and B ($\chi^2 = 2.27, p > .10$, GFI= .98, AGFI=.91, RMSEA=.05) were both found to fit the data well. However, Model B is a better fit of the data. These findings show that, though intrusiveness affects avoidance to a certain degree, irritation is a stronger predictor. Tests of the strength of the individual path coefficients suggested a significant relationship between ad intrusiveness and ad irritation ($r=.77, p < .01$) and between ad intrusiveness and behavioral ad avoidance ($r=.27, p < .05$). The relationship between ad intrusiveness and cognitive ad avoidance was not significant ($r=.23, p > .05$). The relationships were significant between ad irritation and behavioral ad avoidance ($r=.30, p < .05$) and between ad irritation and cognitive ad avoidance ($r=.34, p < .01$). However, the size of the effects was relatively small, possibly due to the small size of a sample ($n=59$) and the discrete nature of the ad avoidance measures. The relationship between cognitive ad avoidance and behavioral ad avoidance was significant in both Model A ($r=.81, p < .01$) and Model B ($r=.80, p < .01$).

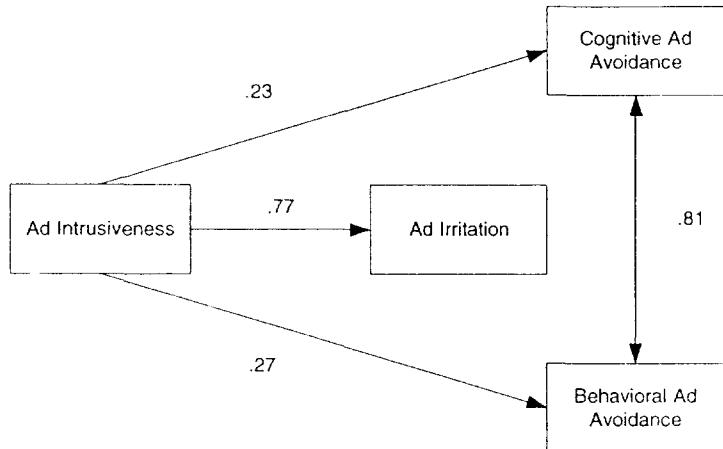
Scale Validation with New Data

Finally, the construct validity of a measure should be validated with new data (Churchill 1979). Kerlinger (1986) believes that construct validity requires preoccupation with theoretical constructs and scientific empirical inquiry involving the testing of hypothesized relations. Thus, it is necessary to test the construct validity of the measure with additional data. Therefore, the seven-item intrusiveness scale was used to measure participants' reactions to both television and magazine advertisements.

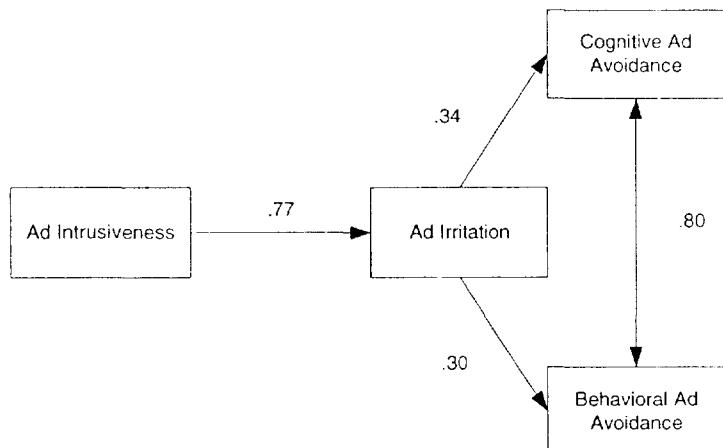
Literature indicates that television commercials are generally perceived to be more intrusive than are magazine ads (Bauer and Greyser 1968; Pasadeos 1990). Thus, if a scale of intrusiveness is valid, it should be able to register such a difference. The reliability of the seven items was first calculated for both television commercials ($\alpha=.85$) and magazine ads ($\alpha=.88$), as measured in Study 2. A t-test was then conducted to compare the means of the composite intrusiveness score between television commercials ($\bar{x}=3.42$) and magazine ads ($\bar{x}=2.99$). The results showed that television commercials were perceived as significantly more intrusive than were magazine ads ($t=$

Figure 1
Two Models of Ad Intrusiveness

Model A



Model B



2.73, $p < .01$), though both means were below the mid-point of four on a seven-point scale.

The construct validity of the scale was further tested by examining its relationship with irritation of television commercials and magazine ads. As discussed, previous research found a relatively high association between ad intrusiveness and ad irritation. This finding was confirmed with measures of Study 2. The correlation coefficient between ad intrusiveness and ad irritation was .70 for television commercials and .77 for magazine ads, both statistically significant ($p < .01$).

Discussion

Initially, this study sought to explain consumers' cognitive and behavioral reactions to advertisements on-line in forced exposure situations. The occurrence of pop-up ads is believed to interrupt consumers' cognitive processes and, therefore, should be perceived as an intrusion in individuals' goals. The intrusiveness of an advertisement was found to be related to feelings of irritation and thus could affect the processing of the ad. If perceived as intrusive and feel-

ings of irritation develop, ads are unlikely to elicit positive attitudes in consumers. Rather, consumers are more apt to engage in ad avoidance behaviors. Therefore, understanding how to minimize the causes of irritation in ads will enable the design of more effective communications.

Although academics have studied aspects of ads that cause irritation, few have examined the psychological mechanisms by which ads elicits these feelings. It is believed that the interruption of cognitive processing may be useful as a means of describing how negative feelings are elicited from advertisements. Before this proposition could be investigated, a measure of the degree to which interruptions are perceived as intrusive was needed.

This study initially developed eight items for measuring the perceived intrusiveness of interactive ads. These items showed an acceptable reliability and convergent validity with irritation and cognitive and behavioral ad avoidance. The scale was then validated with new data collected from exposure to television commercials and magazine ads. Through further refinement, a more parsimonious seven-item scale was created that can be used to measure the perceived intrusiveness of advertisements across media (see the Appendix).

Limitations and Future Research Directions

This study, though it enhances our understanding of the role of intrusiveness, is not without limitations. First, the pool of items used to construct the measure of intrusiveness was relatively small. Churchill (1979) and Wells, Leavitt, and McConville (1971) suggested that scale development begin with a large pool of items to ensure that the best indicators are included. Although we used multiple methods, including a literature review, a thesaurus, and expert surveys, only eleven items were identified from which to create the measure of intrusiveness. Second, scale development was conducted using student participants. Although care was taken in the design of tests, including selection of programs and stimulus materials to suit the student audience, the validity and reliability of the final scale is still subject to tests among adult audiences. Third, perceived intrusiveness was measured after exposure to a single pop-up ad, three television commercials, and five sets of magazine ads. That is, Study 1 examines the intrusiveness of an ad, whereas Study 2 examines the intrusiveness of a pod or a series of advertisements. Although not directly comparable, it is believed that initial feelings of intrusiveness occur in response to the first ad that

interrupts content. However, continued interruption, as is the case with a series of ads, may exacerbate the feeling. Although we anticipate that no significant discrepancies will arise from such a design, we believe a more consistent design would possibly generate more robust results. Such limitations call for further research on the perceived intrusiveness of different forms of ads and the various media in which they are presented.

The goal of developing a measure of intrusiveness was to allow for further research exploring the means by which forced exposure can be used to deliver advertising messages, while minimizing the negative impacts generally associated with irritating ads. The measure of intrusiveness developed in this study demonstrates many desirable psychometric properties and therefore has the potential to explain the complex interactions consumers have with advertisements. However, not all interruptions are perceived negatively. Instead, the perception of intrusiveness may be moderated by other factors in the advertisements themselves. Therefore, research is needed to identify means by which the perception of ads as intrusive can be limited.

Specifically, research is needed to investigate how consumers' goals interact with aspects of the advertisements themselves to increase or decrease perceptions of intrusiveness. The intensity of different tasks may affect the degree to which advertising will be perceived as an interruption and therefore intrusive. When under time constraints and faced with ads that interrupt a given task, consumers may feel greater intrusiveness than when not under time pressures. The intrusiveness of ads may also be moderated by the utility that consumers derive from their content. For example, consumers engrossed in a television show may become irritated when a television station interrupts regularly scheduled programming for a news bulletin. The interruption was unexpected and occurred as the consumers were motivated to process the television show. Thus, consumers might view an interruption as extremely intrusive when it is unexpected. Alternatively, those same consumers may not view an ad that contains "news" as intrusive if it provides some form of utility (e.g., valuable information or entertainment). The means by which people define what is intrusive and what is not is unclear, and therefore, our understanding of the role of intrusion as a possible cause of irritation needs further examination.

Overall, the development of an intrusiveness scale provides a tool that can be used to examine one of the mechanisms underlying negative responses to advertisements. The value of such a scale lies in its ability

to be applied in multiple environments. It is hoped that the development of this scale will stimulate further research on the circumstances in which consumers define advertisements as intrusive and add to our understanding of negative reactions to advertisements in general.

References

- Aaker, David S. and Donald E. Bruzzone (1985), "Causes of Irritation in Advertising," *Journal of Marketing*, 49 (2), 47-57.
- Abernethy, Avery M. (1991), "Physical and Mechanical Avoidance of Television Commercials: An Exploratory Study of Zipping, Zapping and Leaving," in *Proceedings of the American Academy of Advertising*, Rebecca Holman, ed., Reno, NV: The American Academy of Advertising, 223-231.
- Bauer, Raymond A. and Stephen A. Greyser (1968), *Advertising in America: The Consumer View*, Boston, MA: Harvard University.
- Bellamy, Robert V., Jr., and James R. Walker (1996), *Television and Remote Control: Grazing on a Vast Wasteland*, New York: Guilford Press.
- Bentler, Peter M. (1990), "Comparative Fit Index in Structural Models," *Psychological Bulletin*, 108, 238-246.
- Chen, Qimei, and William D. Wells (1999), "Attitude Toward the Site," *Journal of Advertising Research*, 39 (5), 27-37.
- Churchill, Gilbert A., Jr. (1979), "A Paradigm for Developing Better Measures of Marketing Constructs," *Journal of Marketing Research*, 16 (February), 64-73.
- Clancey, Maura (1994), "The Television Audience Examined," *Journal of Advertising Research*, 39 (5), 27-37.
- Cronin, John J. and Nancy E. Menelly (1992), "Discrimination vs. Avoidance: 'Zipping' of Television Commercials," *Journal of Advertising*, 21 (Summer), 1-7.
- Ducoffe, Robert H. (1996), "Advertising Value and Advertising on the Web," *Journal of Advertising Research*, 36 (5), 21-35.
- Duncan, Calvin P. and James E. Nelson (1985), "Effects of Humor in a Radio Advertising Experiment," *Journal of Advertising*, 14 (2), 33-40, 64.
- Eastman, Susan Tyler, Jeffrey Neal-Lundsford, and Karen E. Riggs (1995), "Coping with Grazing: Prime-Time Strategies for Accelerated Program Transitions," *Journal of Broadcasting & Electronic Media*, 39 (Winter), 92-108.
- Edell, Julie E. and Marian C. Burke (1987), "The Power of Feelings in Understanding Advertising Effects," *Journal of Consumer Research*, 14 (December), 421-33.
- Gerbing, David and James Anderson (1988), "An Updated Paradigm for Scale Development Incorporating Unidimensionality and Its Assessment," *Journal of Marketing Research*, 25 (May), 186-92.
- Greyser, Stephen (1973), "Irritation in Advertising," *Journal of Advertising Research*, 13 (1), 3-7.
- Ha, Louisa (1996), "Advertising Clutter in Consumer Magazines: Dimensions and Effects," *Journal of Advertising Research*, 36 (July/August), 76-83.
- Hair, Joseph F., Ralph E. Anderson, Ronald L. Tatham, and William C. Black (1998), *Multivariate Data Analysis*, 5th ed., Upper Saddle River, NJ: Prentice Hall.
- Hattie, John (1985), "Methodology Review: Assessing Unidimensionality of Tests and Items," *Applied Psychological Measurement*, 9 (June), 139-64.
- Hunter, John E. and David W. Gerbing (1982), "Unidimensional Measurement, Second Order Factor Analysis, and Causal Models," *Research in Organizational Behavior*, 4, 267-320.
- Kaplan, Barry M. (1985), "Zapping—The Real Issue in Communication," *Journal of Advertising Research*, 25 (April/May), 9-12.
- Kennedy, John R. (1971), "How Program Environment Affects TV Commercials," *Journal of Advertising Research*, 11 (1), 33-38.
- Kerlinger, Fred N. (1986), *Foundations of Behavioral Research*, New York: Holt, Rinehart and Winston.
- Kneale, Dennis (1988), "Zapping of TV Ads Appears Pervasive: Study Details Viewing Habits to the Second," *The Wall Street Journal*, (April 25), 20.
- Krugman, Dean M. and Keith F. Johnson (1991), "Differences in the Consumption of Traditional Broadcast and VCR Movie Rental," *Journal of Broadcasting & Electronic Media*, 35 (Spring), 213-232.
- Krugman, Herbert E. (1983), "Television Program Interest and Commercial Interruption," *Journal of Advertising Research*, 23 (1), 21-23.
- Lee, Seonsu and James R. Lumpkin (1992), "Differences in Attitudes Toward TV Advertising: VCR Usage as a Moderator," *International Journal of Advertising*, 11 (4), 333-343.
- MacKenzie, Scott B. and Richard J. Lutz (1989), "An Empirical Examination of the Structural Antecedents of Attitude Toward the Ad in an Advertising Pretesting Context," *Journal of Marketing*, 53 (April), 48-65.
- Park, C. Whan and Gordon W. McClung (1986), "The Effect of TV Program Involvement on Involvement with Commercials," in *Proceedings of Association for Consumer Research*, Richard J. Lutz, ed., Provo, UT: Association for Consumer Research, 544-547.
- Pasadeos, Yorgo (1990), "Perceived Informativeness of and Irritation with Local Advertising," *Journalism Quarterly*, 67 (1), 35-39.
- Peter, Paul J. (1981), "Construct Validity: A Review of Basic Issues and Marketing Practices," *Journal of Marketing Research*, 18 (2), 133-145.
- Pollay, Richard W. (1986), "The Distorted Mirror: Reflections on the Unintended Consequences of Advertising," *Journal of Marketing*, 50 (April), 18-36.
- Reed, Matthew (1999), "Going Beyond the Banner Ad," *Marketing*, (April 29), 25-26.
- Rust, Roland T. and Sajeev Varki (1996), "Rising from the Ashes of Advertising," *Journal of Business Research*, 37 (3), 173-191.
- Sandage, Charles H. and John Leckenby (1980), "Student Attitude Toward Advertising: Institution vs. Instrument," *Journal of Advertising*, 9 (2), 29-32.
- Soldow, Gary F. and Victor Principe (1981), "Response to Commercials as a Function of Program Context," *Journal of Advertising Research*, 21 (2), 59-65.
- Speck, Paul Surgi and Michael T. Elliott (1997a), "Predictors of Advertising Avoidance in Print and Broadcast Media," *Journal of Advertising*, 26 (3), 61-76.
- _____, and _____ (1997b), "The Antecedents and Consequences of Perceived Advertising Clutter," *Journal of Current Issues and Research in Advertising*, 19 (2), 39-54.
- Vespe, Frank (1997), "High-Tech Billboards: The Same Old Litter on a Stick," *Journal of Public Policy & Marketing*, 16 (1), 176-179.
- Wells, William D., Clark Leavitt, and Maureen McConville (1971), "A Reaction Profile for TV Commercials," *Journal of Advertising Research*, 11 (December), 11-17.
- Yorke, David A. and Philip J. Kitchen (1985), "Channel Flickers and Video Speeders," *Journal of Advertising Research*, 25 (April/May), 21-25.
- Zufryden, Fred S., James H. Pedrick, and Avu Sankaralingam (1993), "Zapping and Its Impact on Brand Purchase Behavior," *Journal of Advertising Research*, 33 (January/February), 58-66.

Appendix
The Ad Intrusiveness Scale

When the ad was shown, I thought it was....

	<i>Strongly Disagree</i>						<i>Strongly Agree</i>
Distracting	1	2	3	4	5	6	7
Disturbing	1	2	3	4	5	6	7
Forced	1	2	3	4	5	6	7
Interfering	1	2	3	4	5	6	7
Intrusive	1	2	3	4	5	6	7
Invasive	1	2	3	4	5	6	7
Obtrusive	1	2	3	4	5	6	7

Notes: $\alpha = .90$ for interstitials, $.85$ for television commercials, and $.88$ for magazine ads.