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BANNER ADVERTISER–WEB SITE CONTEXT CONGRUITY AND COLOR EFFECTS ON ATTENTION AND ATTITUDES

Robert S. Moore, Claire Allison Stammerjohan, and Robin A. Coulter

ABSTRACT: Gaining consumers' attention and generating favorable attitudes are two key advertising objectives. Using two experiments in an on-line environment, we consider the effects of the congruity between the product foci of the advertiser and the Web site, as well as banner color and banner color–text color contrast on measures of attention (i.e., recall and recognition) and attitudes toward the ad and the Web site. Experiment 1 results indicate that incongruity has a more favorable effect on recall and recognition, whereas congruity has more favorable effects on attitudes. Experiment 2 results suggest that when ads generate sufficient attention to gain recall or recognition, moderate congruity offers the most favorable attitudes toward the ad. Managerial implications for the use of these ad execution cues are discussed and future research avenues are proposed.

The changes in the way that advertisers are integrating Internet advertising into their overall efforts is indicative of the growing maturity of the medium. We look for the continued evolution of new and effective ad formats to aid in the growth of the sector, as marketers recognize the unique opportunities that are offered in the medium.

—Price Waterhouse Coopers 2004

On-line advertising revenues reached \$7.3 billion in 2003, up more than 21% over 2002 revenues (Price Waterhouse Coopers 2004). As Internet advertising has evolved, multiple revenue streams such as banner advertising, classified advertising, keyword search, and sponsorship have emerged. During the past several years, Internet advertising options have become more diverse and spending on banner advertising, though still strong, has witnessed decreased advertising revenues, from \$3.72 billion in 2000 (46% of Internet ad revenues) to \$1.53 billion in 2003 (21% of Internet ad revenues). Despite the increased research investigating the on-line advertising and information-processing environment (Bush and Bush 1998; Dreze and Zufryden 1998; Leong, Huang, and Stanners 1998), many questions remained to be addressed. Undoubtedly, as advertisers contemplate the value of investing in banner advertising, it would be helpful to understand how banner ad characteristics and placement affect Web

browsers' attention to the ad, as well as attitudes toward the advertisement and the Web site.

Well over a decade ago, research suggested and documented the importance of ad execution cues as predictors of consumers' attitude toward an advertisement (Lutz 1985; MacKenzie and Lutz 1989). Since then, research in advertising, psychology, and consumer behavior has offered insights regarding the influence of banner ad characteristics and the context of the Web site in which the ad is placed on Web browsers' behavior and attitudes (Cho, Lee, and Tharp 2001; Dahlen 2001; Dou, Linn, and Yang 2001; Shamdasani, Stanaland, and Tan 2001; Sherman and Deighton 2001). With regard to banner ad characteristics, we focus on two execution variables: background color of the ad and background color–text color contrast. These two variables are relevant not only regarding their effect on getting the attention of individuals visiting Web sites (hereafter referred to as Web browsers), but also regarding their effect on measures of attention and attitude toward the advertisement. In addition, we consider the extent to which the advertiser and the Web site focus on similar product categories, that is, advertiser–Web site congruity. In other words, we examine situations in which the advertiser's focal product category is consistent or inconsistent with the Web site's focal product category, and the extent to which this congruency has an impact on attention directed toward the ad, advertiser recall and recognition, attitude toward the ad, and attitude toward the Web site. We draw on diverse literatures to develop hypotheses with regard to these relations.

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To assess our hypotheses about the effects of the banner ad's background color, background color–text color contrast, and advertiser–Web site congruency on the Web browsers' responses to the aforementioned dependent variables, we conducted and report on two experiments. Our research contributes to the literature concerning the processing of Web advertising, and our results offer practical insights into the construction and placement of banner ads.

BACKGROUND LITERATURE AND HYPOTHESES

The Effects of Ad–Context Congruity on Attention and Attitude

Researchers have investigated the effects of advertisement congruity on how individuals process information, their attention to the ad, recall and recognition of the advertiser, and their attitude toward the ad. Examinations have focused on spokesperson–advertised product congruity (Kamins 1990; Lynch and Schuler 1994; Solomon, Ashmore, and Longo 1992), advertisement music–advertised product congruity (Hung 2000; Kellaris, Cox, and Cox 1993), advertisement picture–advertisement text congruity (Areni and Cox 1994; Houston, Childers, and Heckler 1987), congruity between involvement types of advertisement and television program (Sharma 2000), an individual's mood–advertisement content congruency (Howard and Barry 1994; Kamins, Marks, and Skinner 1991; Lord, Burnkrant, and Unnava 2001), and program context–advertised product congruity (Bello, Pitts, and Etzel 1983; De Pelsmacker, Geuens, and Anckaert 2002; Furnham, Gunter, and Richardson 2002; Furnham, Gunter, and Walsh 1998; Horn and McEwen 1977). The research dealing with program context–advertised product congruity is particularly relevant to our interest in advertiser–Web site context congruity. We define Web site context as the primary *product information* focus; for example, the context of the Edmunds.com site is primarily automobile information, and the context of WebMd.com is primarily health-oriented information.

The theoretical underpinnings related to the processing of congruent/incongruent information suggest differential effects for two sets of important measures of ad effectiveness: (1) attention, and (2) attitude toward the ad (Houston, Childers, and Heckler 1987; Meyers-Levy and Tybout 1989). First, with regard to attention, Mandler (1982) suggests that in situations of high incongruity (i.e., when pieces of information are inconsistent), the situation is considered novel and draws attention. This perspective suggests that consumers faced with situations in which incongruent information must be processed are likely to pay increased attention to that information, and consequently exhibit higher recall and recognition of the information provided. Several studies offer empirical support for this viewpoint. Murphy, Cunningham, and Wilcox

(1979) found that humorous commercials placed in a nonhumorous program garnered greater recall. More recently, Furnham, Gunter, and Richardson (2002) report that recall for a car advertisement was greater than that of a food product advertisement when the ad was seen in the context of a food program, and conversely, an advertisement for a food product was recalled better than a car advertisement when viewed in a car program.

Some research suggests that the importance of incongruent information in generating attention may be particularly important with regard to Web advertising (Putrevu and Lord 2003; Rodgers 2003/2004; Sundar et al. 1998). In particular, Sundar et al. (1998) found that on-line users were less likely than readers of print media to process advertisements. Moreover, several studies argue that exploring a Web site is more of a gestalt experience—one in which Web browsers view Web sites more holistically, and consequently, fail to separate the ad from the Web site (Bezjian-Avery, Calder, and Iacobucci 1998; Hoffman and Novak 1996; Novak, Hoffman, and Yung 2000), particularly when the Web site and the Web advertisement are similar in content. Thus, we posit:

H1: Web browsers will pay more attention to a banner ad for a product category that is incongruent with the Web site product category than to a banner ad for a product category that is congruent with the Web site product category.

Mandler (1982) argued that highly congruent information fits with consumers' category schemas more than incongruent information, and consequently, highly congruent information is seen in a favorable light. In contrast, as information incongruity increases and consumers have more difficulty resolving the disparate information, negative evaluations are likely to occur. Several studies have demonstrated the effects of congruent/incongruent information on attitudes. Research in the context of television advertising and programming has investigated the effects of happy/sad commercials in a happy/sad program, and found that both the consistency of a happy commercial placed in a happy program or a sad commercial placed in a sad program resulted in more favorable ad attitudes and greater behavioral intentions (Coulter 1998; Kamins, Marks, and Skinner 1991; Lord, Burnkrant, and Unnava 2001). Russell (2002) found that incongruent product placements within a television show resulted in more negative brand attitudes because the products seem out of place. Finally, in the context of Internet sponsorships, relevant sponsors were liked better than irrelevant sponsors (Rodgers 2003/2004). Based on congruity theory, we argue that those who are consciously aware of a congruent advertisement (as compared with an incongruent ad) will more readily assimilate the information into existing activated schemas and will have more favorable attitudes toward the ad. Thus, we posit:

H2: Web browsers who are consciously aware of the advertiser will have more positive attitudes toward the ad in a congruent context than in an incongruent context.

Color Effects on Recall and Recognition

Psychologists have long been interested in understanding color effects on preferences (Guilford 1934), arousal (Wilson 1966), anxiety (Jacobs and Suess 1975), and behavioral change (Garrett and Brooks 1987). It is interesting to note that ad research indicates that color meanings and preferences are not consistent across cultures (Madden, Hewett, and Roth 2000). Thus, we draw on relevant literature conducted in North America, given the geographical context of our research. Two findings from the psychology literature are particularly noteworthy with regard to our investigation. First, warm colors (e.g., red) generate more arousal and attention than cool colors (e.g., blue) (Birren 1978; Schaie and Heiss 1964), and second, cool colors elicit greater relaxation and pleasure than warm colors (Guilford and Smith 1959; Jacobs and Suess 1975). Consistent with the findings in the psychology literature, studies in retailing contexts have found that red backgrounds were more attention getting than blue backgrounds (Bellizzi, Crowley, and Hasty 1983; Bellizzi and Hite 1992). Thus, we posit:

H3: Web browsers will pay more attention to a banner ad with a warm color background than to a banner ad with a cool color background.

Additional color and advertising research suggests that background color effects are qualified by the contrast between the background color and the color of the text (Fernandez and Rosen 2000; Hall and Hanna 2004; Meyers-Levy and Peracchio 1995). Several studies indicate that increased contrast between the text and background results in increased readability (Bruce and Foster 1982; Radl 1980; Wang, Fang, and Chen 2003). Hall and Hanna (2004) reported increased readability with higher contrast between the Web-page text and the background color, but they found no difference in retention between low and high color-contrast conditions. Schindler (1986) hypothesized that a majority of firms would employ ads with high contrast to gain audience attention to the ad. In her examination of over 550 ads from popular magazines, however, she found that less than 32% of the color ads exhibited a high level of contrast between the text and the background color. Popper and Murray (1989) directly examined the effectiveness of high- versus low-contrasting background color on the efficacy of health warnings posted on smokeless tobacco packages, but found no significant differences between the contrast conditions. Finally, in the context of Internet communications, Putrevu and Lord (2003) argue

that increased intrusiveness of advertising leads to increased consumer attention and greater recall of the ad, whereas McCarthy and Mothersbaugh (2002), in their model of effects of typographical execution factors, suggest that increased legibility will positively affect reading ability. Based on these theoretical perspectives and empirical findings regarding color and contrast effects, we posit a background color contrast effect, such that:

H4: Web browsers will pay greater attention to a banner ad with a high background-color/text-color contrast than to a banner ad with a low background-color/text-color contrast.

The Effects of Advertiser–Web Site Congruity and Background Color on Ad Attitudes

We have noted the theoretical underpinnings and empirical evidence in non-Web environments related to the effects of congruency and color on attitude toward ads. Specifically, attitudes toward the advertiser are more favorable in congruent contexts than in incongruent contexts (Meyers-Levy and Tybout 1989), and cooler colors (e.g., blues) are viewed more favorably than warmer colors (e.g., reds) (Bellizzi and Hite 1992; Gorn et al. 1997; Middlestadt 1990). Applying these theoretical perspectives and findings to our Web site context, we posit an interaction effect regarding Web browsers' attitude to the ad, and specifically expect:

H5: Web browsers who are consciously aware of the advertiser will have more positive attitudes toward the ad when it appears in a congruent context with a cool-color background than when it appears in a congruent context with a warm-color background or in incongruent contexts.

Advertiser–Web Site Congruity and Attitude Toward the Web Site

Research over the past decade has examined consumers' persuasion knowledge and skepticism with regard to processing advertisements (Bousch and Friestad 1994; Campbell 1995; Friestad and Wright 1994). Specifically related to advertisements on Web pages, recent popular press writing has indicated that the mere presence of ads have negatively affected viewers' attitudes toward the Web site, resulting in Google and iVillage banning pop-up ads (see, e.g., BURST! 2002). The negative attitude toward advertising may stem from the perceived efficacy of the advertisements (Coulter, Zaltman, and Coulter 2001). Coulter and colleagues suggest that although some advertisements are perceived to have positive qualities through their enabler and counselor roles, they are viewed quite negatively when they are perceived to be attempting to seduce the viewer to move away from his or her

intended activity. In addition, Becker-Olsen (2003) reports that Web site experiences are more favorable when no advertising is present. Thus, we suggest that when consumers are not consciously aware of an advertisement, they will have a more favorable opinion of the Web site. Furthermore, and consistent with our previous discussion related to Web browsers' attitudes toward the ad, we expect more positive opinions of the Web site when the ad is congruent with the Web site context than when it is incongruent with the site. Therefore, we propose:

H6a: Web browsers who are not consciously aware of an ad on a Web site will have a more favorable attitude toward the Web site than Web browsers who are consciously aware of the ad.

H6b: For Web browsers who are consciously aware of an ad on a Web site, the greater the congruency between the advertiser and the Web site context, the more favorable the attitude toward the Web site.

The Effects of Receivers' Motivation and Ability on Information Processing

Much information-processing research over the past two decades has made reference to the importance of consumers' levels of motivation and abilities in processing advertisements (MacInnis and Jaworski 1989; MacInnis, Moorman, and Jaworski 1991; Petty and Cacioppo 1986; Petty, Cacioppo, and Schumann 1983). Drawing on the Elaboration Likelihood Model (ELM), these researchers have hypothesized and found that a consumer's level of motivation or involvement with regard to the focal topic and ability to process information (i.e., be familiar with the topic) in the ad affects his or her recall, recognition, and attitude formation or attitude change. It is important to note that Putrevu and Lord (2003) have suggested that a consumer's involvement with the Web site topic will affect his or her processing of Internet advertising. Specifically, they argue that consumers with either a high or low level of involvement with the Web site topic/content will limit attention to and elaboration of embedded banner ads, whereas moderate involvement will facilitate attention and elaboration of Internet advertising. Thus, we include consumers' levels of motivation and abilities to process information as covariates in the assessment of our hypotheses.

EXPERIMENT 1

Experiment 1 was designed to examine the effects of advertiser-Web site context congruity, background color of the banner ad, and the contrast between background banner ad color and text on attention, attitude toward the ad, and attitude toward the Web site.

Stimuli Development

Web Site Development

We constructed an apartment information Web site called "Hampton Apartments." To increase external validity, the content and layout style of our Web site was developed directly from on-line sites (e.g., AllState.com and CollegeBoard.com), and consisted of nine hyper-linked pages that provided information in the apartment search process. The pages were on a university server and accessed through the university's local area network.

Banner Ad Development

Our banner ad was of standard size (468 × 60 pixels). Eight banner ads were developed to manipulate banner advertiser-Web site context congruency (congruent/incongruent), banner ad background color (warm-red/cool-blue), and banner ad text color (black/white). Thus, the ads consisted of a color background (warm: red/cool: blue) with the name of the advertiser (congruent/incongruent) in text (black/white), followed by the words "special offer" in a slightly smaller italicized font on the next line (see the Appendix). To verify our manipulations, we conducted several pretests described next.

To manipulate banner advertiser-Web site context congruency, we needed to identify two advertisers—one that would be perceived as congruent and one that would be perceived as incongruent in relation to the Web site context of "Hampton Apartments." Twenty-two undergraduate students were given a list of 10 potential companies, and were asked to rate on a nine-point Likert scale, with 9 indicating strongly representative of apartment category, the extent to which each company name represented different product categories, including apartments. Based on our pretest results, we selected "Upper Newberry Pet Center" ($M = 1.5$) as incongruent and "CentreMark Residential Properties" ($M = 8.2$) as congruent, $t(21) = 16.9, p < .001$. Moreover, "Upper Newberry Pet Center" ($M = 5.6$) and "CentreMark Residential Properties" ($M = 5.9$) were rated as equally likeable, $t(21) = .7, p > .4$.

Based on the psychology (e.g., Bevan and Dukes 1953; Hevner 1935; Wiegersma and Van Loon 1989) and marketing (e.g., Bellizzi and Hite 1992; Gorn et. al 1997) literatures, we selected colors using the Red Blue Green color scale used for computer monitors, with red (RGB: 255, 0, 0) as our warm color and blue (RGB: 51, 152, 255) as our cool color. Based on color contrast research in human-computer interactions that suggests that color combinations affect experiences (e.g., Shieh, Chen, and Chuang 1997), we created two high-contrast ads (red background/white letters and blue background/black letters), and two low-contrast ads (red background/black letters and blue background/white letters).

Twenty-eight undergraduate students were recruited to check the color-contrast manipulations. Each student was shown the four ads and asked to indicate which of the two red conditions and which of the two blue conditions had the greater contrast between the background and letters. With regard to the red background, 27 chose the white letters as the higher contrast; with regard to the blue background, 23 chose the black letters as the higher contrast.

Experimental Procedures and Measures

A total of 195 undergraduate students from a large southern university participated in Experiment 1. Participants ranged in age from 18 to 30, with a median age of 21. There were slightly more males (56%) than females (44%).

Three or four days before the experimental session, participants completed a questionnaire that assessed their motivation and ability to process information related to several product categories, including apartments. To assess motivation to process information about apartments, we used a nine-item, nine-point Likert scale measure (Lichtenstein, Bloch, and Black 1988; Zaichowsky 1985) regarding involvement with apartments. The mean on the scale was 7.30, indicating above-average level of motivation to process apartment information; Cronbach's α for the scale was .94. To assess ability to process information about apartments, we used a three-item, nine-point Likert scale measure (Oliver and Bearden 1985) regarding familiarity with apartments. The mean on the scale was 7.12, indicating above-average ability to process apartment information; Cronbach's α for the scale was .90.

Sixteen 30-minute time periods were available for participants to participate in the study. Sessions were held over several days in the college's computer classroom. Each time period was randomly assigned as one of eight conditions: congruency (high/low), banner advertisement color (warm: red/cool: blue), and text color (white/black). As many as 30 participants were scheduled for each session, and they were instructed to bring their completed questionnaire to their scheduled experimental session. Upon arrival, participants' questionnaires were collected, and they were randomly assigned to one of 30 operating computers (same make and model) in the computer room. The following instructions were read aloud to participants:

You will be asked to evaluate a new apartment information Web site. The Web site is called Hampton Apartments and their mission is to provide information to people that are searching for apartments. . . . look through the site as you would if you came across it while using the Web.

Participants were told they could spend up to 10 minutes looking through the Web site. To simulate on-line activity

related to searching for apartment information, our instructions were designed to induce goal-directed behavior (i.e., a focus on Web site content) by participants (Danaher and Mullarkey 2003). Such goal-directed behavior, however, has the potential to reduce attention to peripheral stimuli, such as advertising (Janiszewski 1998).

For a given experimental condition, the same banner ad was placed at the top of six of the nine pages of the Web site; the ad did not appear on pages that linked to the privacy policy, the "about us" page, or a "contact us" page. If the banner advertisement was selected, a new page opened, thanking users for selecting the site and asking for an e-mail address to provide further information. A link back to the "Hampton Apartments" homepage was provided. All participants completed looking through the site within five minutes.

Following the Web site exploration, participants moved to an adjacent room and completed a questionnaire. To assess attention, we collected two measures: free recall and recognition (Norris and Colman 1992). Specifically, participants were first asked to write down all that they could remember about any advertisements they saw on the Web site. The free recall responses were coded as "1" for recalling the advertised name, ".5" for recalling the advertised category, and "0" if neither were noted. The next page listed 10 company names, including the name of their advertiser. Recognition was coded as a dichotomous variable—"1" for correctly recognizing the advertiser's name, and "0" if not. We summed the recall and recognition measures such that the attention measure ranged from "0" to "2." We measured attitude toward the advertisement using a six-item, nine-point Likert scale (Henthorne, Latour, and Nataraajan 1993); Cronbach's α for the scale was .91. Finally, we assessed attitude toward the Web site using a six-item, nine-point Likert scale (Chen and Wells 1999); Cronbach's α was .86. After completion of the questionnaire, participants were debriefed and dismissed. The experimental session lasted approximately 25 minutes.

Results

Our initial analyses to test our hypotheses included involvement and familiarity as covariates. In all cases, the covariates were nonsignificant ($p > .05$); thus, they were dropped from further analyses. In discussing our results, we refer to advertiser-Web site context congruity as "congruity." ANOVA (analysis of variance) results for H1 through H5 and H6b are reported in Table 1.

To test H1 and H3, we ran a three-factor (congruity, background color, and text color) ANOVA with our recall/recognition attention measure as the dependent variable. Consistent with our expectations (H1), we found a main effect of congruity, $F(1, 187) = 8.44$, $p < .01$, $\eta^2 = .04$. Specifically, participants paid greater attention in the incongruent ("Upper

TABLE I
Experiment I: ANOVA Results

Hypotheses (dependent variable)	F value	df	Partial η^2
<i>H1 and H3 (recall/recognition)</i>			
Congruency (H1)	8.44**	1/187	.04
Background color (H3)	.97	1/187	<.01
Letter color	2.90	1/187	.02
Background color \times letter color	.01	1/187	<.01
Background color \times congruency	.57	1/187	<.01
Letter color \times congruency	.15	1/187	<.01
Background color \times letter color \times congruency	1.27	1/187	<.01
<i>H4 (recall/recognition)</i>			
Congruency	9.21**	1/191	.05
Color contrast (H4)	.01	1/191	<.01
Congruency \times color contrast	1.36	1/191	<.01
<i>H2 and H5 (attitude toward the ad)</i>			
Congruency (H2)	4.50*	1/75	.06
Background color	1.23	1/75	.02
Letter color	3.87	1/75	.05
Background color \times congruency (H5)	6.00**	1/75	.07
Background color \times letter color	3.11	1/75	.04
Letter color \times congruency	2.05	1/75	.03
Background color \times letter color \times congruency	1.64	1/75	.02
<i>H6b (attitude toward the Web site)</i>			
Congruency (H6b)	.70	1/76	<.01
Background color	1.18	1/76	.02
Letter color	1.62	1/76	.02
Background color \times congruency	2.99	1/76	.04
Background color \times letter color	.77	1/76	.01
Letter color \times congruency	.04	1/76	<.01
Background color \times letter color \times congruency	.01	1/76	<.01

Note: ANOVA = analysis of variance.

* $p < .05$.

** $p < .01$.

Newberry Pet Center," $M = .70$) than the congruent ("CentreMark Residential Properties," $M = .40$) condition. H3 posited that a warm-colored (red) background banner ad would result in greater attention from Web browsers than a cool-colored (blue) background banner, but we did not find a main effect of color on attention, $F(1, 187) = .97, p = .33$. The attention means for the warm (red) background ($M = .60$) and the cool (blue) background ($M = .50$) were not different. There were no other significant main or interaction effects.

H4 posited that ads with high contrast between the background of the ad and the text in the ad would generate greater attention (i.e., recall/recognition) than ads with low contrast. As noted previously, we created the contrast variable by combining the background color and text colors, such that the high-contrast ads were red background/white letters and blue background/black letters, and the low-contrast ads were red background/black letters and blue background/white letters.

We used a two-factor (congruency and contrast) ANOVA to examine H4. Consistent with the three-way ANOVA results, the two-way ANOVA yields a significant congruity main effect, $F(1, 191) = 9.21, p < .01, \eta^2 = .05$; however, we did not find a background color–text color contrast main effect, $F(1, 191) = .01, p = .95$. The means for the high- ($M = .54$) and low-contrast ($M = .55$) conditions did not differ; thus, we did not find support for H4. We did not hypothesize, nor did we find, a significant interaction effect.

H2 posited a congruity main effect and H5 posited a background color \times congruity interaction on attitude toward the advertisement for Web browsers. We used a three-factor (congruency, background color, text color) ANOVA, including only participants who recalled or recognized the advertiser's name. As expected (H2), we found a significant main effect of congruity on attitude toward the ad, $F(1, 75) = 4.50, p < .05, \eta^2 = .06$; participants viewing the congruent ("CentreMark

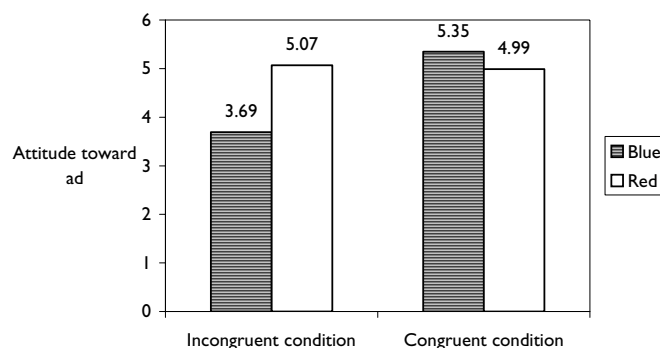
Residential Properties”) banner ad ($M = 5.14$) reported a more favorable attitude toward the ad than participants viewing the incongruent (“Upper Newberry Pet Center”) banner ad ($M = 4.42$). Also consistent with H5, we found a background color \times congruency interaction, $F(1, 75) = 5.99, p < .05, \chi^2 = .07$. We expected that the cool (blue) background, congruent condition would result in a more favorable attitude than the other three conditions. Our precise expectation was not supported. However, Bonferroni post hoc test results indicate more favorable attitudes toward the ad in the two congruent background banner color conditions (blue [$M = 5.35$] and red [$M = 4.99$]) and the incongruent red banner condition ($M = 5.07$) than in the incongruent cool (blue) condition ($M = 3.69$) (see Figure 1). There were no other significant main or interaction effects.

Finally, we found support for H6a, which posited that Web browsers who recalled or recognized the advertiser would have a less favorable impression of the Web site than those who were not consciously aware of the advertiser. As expected, attitude toward the Web site was significantly more favorable among those who did not recall or recognize the advertiser ($M = 5.62$) than among those who did ($M = 5.15$), $t(192) = 1.99, p < .05$. We tested H6b, which posited a main effect of advertiser–Web site congruency on attitude toward the Web site, using a three-factor ANOVA. We did not find a main effect of congruency, $F(1, 191) = .70, p = .41$. The attitudes toward the Web site for study participants who were consciously aware of the advertiser and saw the congruent ad ($M = 5.30$) did not differ from those who saw the incongruent ad ($M = 5.04$). There were no other significant main or interaction effects.

Summary

Results from Experiment 1 offer insights about the effects of banner ad background color, banner ad background color–text color contrast, and advertiser–Web site context congruency. First, our findings point to the importance of congruency with regard to Web browsers’ reactions. As expected, we found that advertiser–Web site *incongruency* between the advertiser and the Web site contexts generates greater attention to the advertiser. Moreover, we found that advertiser–Web site *congruency* produced more favorable attitudes toward the advertisement. It is interesting to note that we did not find a background color–text color contrast effect. Furthermore, with regard to attitude toward the advertisement, we found a significant background color \times congruency interaction. The congruent blue- and red-background ads, as well as the incongruent red-background ad, generated more favorable attitudes than the blue incongruent ad. Finally, we found that attitude toward the Web site was more positive for those who did not recall or recognize the ad, regardless of advertiser–Web site congruency/incongruency.

FIGURE 1
Experiment 1 Results: Background Color
 \times Congruency Interaction



EXPERIMENT 2

Our Experiment 1 results indicate that context congruency has an impact on Web browsers’ information processing. Consistent with our expectations, we found that low advertiser–Web site context congruency results in greater attention by Web browsers, whereas high advertiser–Web site context congruency results in more favorable attitudes toward the ad. Thus, it seems that the advertiser is faced with a trade-off—low attention and more favorable attitudes, or high attention and less favorable attitudes. In Experiment 2, we consider not only the effects of high and low congruency between advertiser and Web site context, but also moderate congruency.

Some research on congruency effects suggests that it is important to consider not only congruent and incongruent effects, but also situations of moderate congruency, especially when examining attitudes (e.g., Mandler 1982; Meyers-Levy and Tybout 1989). Specifically, research suggests that consumers react more favorably to moderate congruency than either extreme congruency or extreme incongruency—that moderate congruency provides some novelty, unexpectedness, or distinctiveness that consumers value (Berlyne 1963; Venkatesan 1973). Consistent with this perspective, numerous researchers have hypothesized an inverted-U relation between congruency and attitudes, with more positive attitudes associated with moderate levels of congruency (e.g., Heckler and Childers 1992; Jagre, Watson, and Watson 2001; Lane 2000). Therefore, we posit:

H7a: Web browsers who are consciously aware of the advertiser in a moderately incongruent context will have more positive attitudes toward the ad than those who are consciously aware of the advertiser in an incongruent or congruent context.

H7b: Web browsers who are consciously aware of the advertiser in a moderately incongruent context will have more positive attitudes toward the Web site than those who are consciously aware of the advertiser in an incongruent or congruent context.

In Experiment 2, we extend our investigation of advertiser–Web site context congruity to examine the effects of three levels (i.e., incongruent, moderate, and congruent) using the high-contrast (red background/white letters) banner ad used in Experiment 1. We examine the same dependent variables used in Experiment 1, and include a direct measure of attention to the ad in reference to H1. In addition, we consider a different Web site context (i.e., cameras) and different advertisements to assess the generalizability of the advertiser–Web site congruity findings in Experiment 1. To summarize, in Experiment 2, we test H7a and H7b, as well as H1.

Stimuli Development

Web Site Development

We constructed a camera information Web site called “The Buyer Guide: Choosing a Camera.” The site structure closely mirrored that of “Hampton Apartments” in Experiment 1. The pages were on a university server and accessed through the university’s local area network.

Banner Ad Development

Again, we developed a standard-size banner ad (468 × 60 pixels). To manipulate banner advertiser–Web site context congruity, three banner ads (congruent/moderate/incongruent) were developed. As noted, we used a high-contrast (red background/white letters) banner ad format from Experiment 1. Thus, the ads consisted of a high-contrast (red/white) banner ad with the name of the advertiser (congruent/moderate/incongruent), followed by the words “special offer” in a slightly smaller italicized font on the next line (see the Appendix).

To assess advertiser–Web site context congruity, 11 marketing academics who were not familiar with the objectives of the study used a nine-point Likert scale to rate 18 different names on several dimensions, including how well the name represented the category of 35 mm cameras and likeability. Based on the congruity results, we selected “CameraMart” as the congruent advertiser ($M = 7.7$), “Advanced Business Equipment” as the moderately incongruent advertiser ($M = 4.3$), and “Body’n Action Fitness Club” as the incongruent advertiser ($M = 2.6$), $F(2, 9) = 13.48$, $p < .001$. Although the mean congruity for each of the three comparisons of names differed significantly ($p < .05$), the three names were rated as equally likeable, $M = 5.0$, $F(2, 9) = 1.00$, $p > .40$, and all paired comparisons of likeability means were nonsignificant ($p > .10$).

Experimental Procedures and Measures

A total of 90 undergraduate students participated in Study 2. Experimental conditions of advertiser–Web site congruity

were randomly assigned to time periods. Participants followed the same procedures and completed similar measures as in Experiment 1. The measures and their reliability analysis (Cronbach’s α) results are as follows: product category (35 mm cameras) involvement (.93), product familiarity (.97), attitude toward the ad (.89), and attitude toward the Web site (.89). To assess attention in Experiment 2, we included measures of free recall and recognition as per Experiment 1 (Norris and Colman 1992), and also had participants respond to an attention to the ad scale (Andrews 1988; Andrews and Durvasula 1991; Laczniak, Muehling, and Grossbart 1989) comprised of five, nine-point scale items (Cronbach’s $\alpha = .96$). After completion of the dependent measures, participants were thanked and debriefed. The average experimental session lasted 25 minutes.

Results

Our initial analyses to test our hypotheses included involvement and familiarity as covariates. In all cases, the covariates were nonsignificant ($p > .05$), and hence were dropped from subsequent analyses.

H7a and H7b focused on Web browsers who were consciously aware of the ad, and thus considered only participants who recalled or recognized the advertiser in our quadratic contrast ANOVAs. We found a significant quadratic term with regard to congruity and attitude toward the ad, $F(1, 29) = 5.64$, $p < .05$; Bonferroni post hoc comparisons indicated that the moderately congruent ($M = 6.06$) and the congruent ($M = 5.07$) ads generated more favorable attitude toward the ad than the incongruent ad ($M = 3.68$, $p = .02$ and $p = .09$), respectively. Our findings with regard to attitude toward the Web site follow a similar pattern: moderately congruent ($M = 5.33$), congruent ($M = 4.17$), and incongruent ($M = 3.43$) advertiser–Web site context, but the quadratic term was not significant, $F(1, 30) = 3.87$, $p = .06$.

To test H1, we ran a MANOVA (multivariate analysis of variance) with advertiser–Web site context congruity as the independent variable and the attention to the ad scale and the recall/recognition measure as the dependent variables. We did not find an overall significant main effect of congruity, Wilks’s $\lambda = .91$; $F(4, 172) = 2.18$, $p = .07$. Our follow-up univariate analysis with regard to attention to the ad indicated that as the advertiser–Web site congruity changed from congruent ($M = 2.95$), to moderate ($M = 3.27$), to incongruent ($M = 3.63$), attention to the ad increased, but the means were not statistically different, $F(2, 87) = .87$, $p = .42$. However, the univariate analysis for the recall/recognition measure indicated a significant main effect of congruity, $F(2, 87) = 3.59$, $p < .05$, $\eta^2 = .08$. In contrast to our expectations, Bonferroni post hoc comparisons ($p < .10$) reveal that means

on the recall/recognition measure for the incongruent ($M = .63$) and congruent ($M = .60$) advertisement–Web site contexts generated more attention than the moderately congruent advertiser–Web site context ($M = .22$).

Summary

In Experiment 2, we use a high-contrast (red background/white letters) banner ad, and our findings suggest that moderately congruent and congruent advertiser–Web site contexts generate more favorable attitudes toward the advertiser and to the Web site than the incongruent context. It is interesting to note that we found different results regarding congruity's effect on the direct measure of attention and the recall/recognition measure of attention. Specifically, congruity did not significantly affect the direct measure of attention, but did affect the recall/recognition measure, such that the extremely congruent and incongruent advertiser–Web site contexts resulted in greater recall than the moderate congruity context.

GENERAL DISCUSSION, IMPLICATIONS, AND FUTURE RESEARCH

As advertisers contemplate various Internet advertising alternatives, it is essential to understand more about Web browsers' information processing, as well as the efficacies of banner advertising characteristics. Results from our two experiments provide information regarding the information processing and use of background color, background color–text color contrast, and advertiser–Web site congruency, specifically regarding attracting Web browsers' attention and generating favorable attitudes. Our investigations involved undergraduate students, an appropriate audience to consider, given that this cohort is particularly engaged in the Web and Internet activities (see Danaher and Mullarkey 2003).

Banner advertisers face real struggles getting Web browsers to pay attention to their advertisements. We considered the effects of advertiser–Web site congruity, background banner color, and background banner color–text color contrast on an advertiser recall/recognition measure (Experiments 1 and 2) and on a self-reported measure of attention (Experiment 2 only). With regard to the recall/recognition measure, in Experiment 1, which focused on apartments, we found that the incongruent advertiser–Web site combination generated greater attention, and in Experiment 2, which focused on cameras, we found that both the congruent and incongruent advertiser–Web site contexts generated greater recall/recognition than the moderately congruent ad context. One possible explanation for the disparate recall/recognition findings between Study 1 and Study 2 may be that advertiser–Web site congruity, like spokesperson and product congruity (Lynch and

Schuler 1994), are specific to product category and situation. In contrast to our expectation, we did not find a main effect of congruity on the self-reported measure of attention in Experiment 2. We speculate that this may be due to the difference between the nature of the assessments of attention—the more objective (recall/recognition) measure of attention versus the more subjective (self-report) measure of attention. Given these somewhat equivocal findings, advertisers are advised to closely test the congruency effects between the advertiser and the host Web site to ensure that their ad does indeed attract the requisite attention from Web browsers to have them click on the banner.

A second key concern of advertisers is Web browsers' attitudes toward the ad. As expected in Experiment 1, and consistent with Sherman and Deighton (2001), we found that banner ads more closely related to the Web site context generated more favorable ad evaluations. In Experiment 2, Web browsers reported more favorable attitudes toward the ad under conditions of moderately congruent and congruent advertiser–Web site contexts. As we have noted, although incongruity between the advertiser and the Web site context is needed to gain Web browsers' attention, our findings with regard to attitude toward the advertiser suggest that advertisers need to think carefully about placing their ads in an extremely incongruent Web site context. Collectively, our results seem to suggest that advertisers hoping to obtain the optimal combination of high attention and a favorable attitude toward the ad would be best served by a moderately congruent advertiser–Web site combination that would have enough incongruity to attract Web browsers' attention, yet be congruent enough to maintain a favorable attitude toward the ad, and hence toward the advertiser.

We also considered the impact of banner advertiser–Web site congruency on Web browsers' attitude toward the host site, and found somewhat equivocal results. Experiment 1 findings suggest that advertiser–Web site congruity does impact Web browsers' attitudes toward the Web site, whereas Experiment 2 findings lend some support to the postulation that moderately congruent and congruent advertiser–Web sites may result in more favorable attitudes toward the Web site. Given that Web sites often see advertising as a revenue source, and that Web browsers have come to expect ads on Web sites, we speculate that their attitudes toward the Web site may be more affected by the information contained in the site, its structure, and ease of use (McMillan 2002) than by the presence of advertising.

Based on significant color theory and research (Birren 1978; Guilford and Smith 1959; Jacobs and Seuss 1975; Schaie and Heiss 1964), we anticipated that the background color of banner ads would impact Web browsers' attention to the ad and their attitudes toward the advertisement. In contrast to our expectations, but consistent with Gorn et al. (1997), color

(red versus blue) has a limited role as an executional cue in our study. We found a background color and banner advertiser–Web site context congruency effect of attitude toward the ad. Web browsers reacted favorably to the congruent blue ad, as well as to the congruent and incongruent red ads; the incongruent blue ad was viewed least favorably. Consistent with recent theorizing concerning the effects of typographic factors in advertising (McCarthy and Mothersbaugh 2002), we anticipated that highly contrasting background banner and text letter colors, such as a red background and white letters, would draw greater attention to the advertiser than less contrasting background color and text color combinations, such as a blue background and white letters (Putrevu and Lord 2003). We manipulated high color contrast using a red background and white letters and a blue background and black letters, and low color contrast using a red background and black letters and a blue background and white letters. These color-contrast combinations did not differentially affect Web browsers' attention levels. This lack of support may be due to the need to employ even more contrasting color combinations, and it would certainly be beneficial for future research to examine the effect of other color-contrast combinations, and to consider individuals' levels of visual acuity (Gerber and Kirchner 2001).

Much previous ad-processing literature has documented the importance of motivation and ability to process information as having significant effects on attention and attitude formation. Consequently, we included measures of motivation (i.e., product category involvement) and ability to process (i.e., product category familiarity) as covariates in each of our analysis. Surprisingly, we found no significant effects. An investigation of our results leads us to expect that this lack of effects may be due to restricted ranges and the low variances of processing motivation and ability regarding apartments and cameras for the undergraduate students who participated in our experiments. Specifically, in Experiment 1, the means, item mean ranges (*IMR*), and item mean variances (*IMV*) for our included covariates were involvement ($M = 7.30$; $IMR = .97$; $IMV = .09$) and knowledge ($M = 7.12$; $IMR = .27$; $IMV = .02$), and in Experiment 2 these values were involvement ($M = 5.76$; $IMR = 1.77$; $IMV = .37$) and knowledge ($M = 6.24$; $IMR = .28$; $IMV = .02$). Thus, consistent with Putrevu and Lord (2003), we propose that future investigations regarding the processing of Internet advertising consider the impact of motivation and ability to process information.

CONCLUSION

Our research has made a significant contribution to our understanding of effects of advertiser–Web site congruity, background banner color and banner color–text color contrast on Web browsers' attention, as well as attitude toward the ad

and the Web site. Advertisers are faced with a trade-off between gaining attention and creating positive impressions among Web browsers. Our results suggest that advertisers may be best served by identifying moderately congruent Web sites in which to place their ads. Moreover, such placement seems to have no adverse effect on Web browsers' attitudes toward the Web site.

The World Wide Web has become a component of many firms' overall promotion strategy, and additional research on this topic is needed. Our findings draw attention to the need to understand human–computer interactions and how aspects of on-line advertisement components influence attitudes and behavior. Our research involved undergraduate students who are Internet-savvy; studies that focus on a broader population would offer additional insights. We assessed motivation, ability, and opportunity to process via measurement of these variables. Future work might systematically test the effects of multiple levels of these variables via experimental manipulation (i.e., Batra and Ray 1986) to better our understanding of how Internet advertising is processed. Finally, our banner ads were devoid of animation and pictures. Recently, Sundar and Kalyanaraman (2004) considered animation speed in the context of Web advertising, and past research has documented that consumers' reactions to pictures affects their processing of ad information (Childers and Houston 1984; Edell and Staelin 1983; Unnava and Burnkrant 1991). Future efforts might examine the effects of other advertisement structural characteristics, such as the type size, the modality of presentation, use of animation/video, and the rate of presentation (Hoy and Stankey 1993) on Web browsers' attention to the ad, as well as attitudes toward the advertiser and the Web site. Clearly, the on-line environment offers many challenges and research questions yet to be addressed.

REFERENCES

- Andrews, J. Craig (1988), "Motivation, Ability, and Opportunity to Process Information: Conceptual and Experimental Manipulation Issues," in *Advances in Consumer Research*, vol. 15, Michael J. Houston, ed., Provo, UT: Association for Consumer Research, 219–225.
- , and Srinivas Durvasula (1991), "Suggestions for Manipulating and Measuring Involvement in Advertising Message Content," in *Advances in Consumer Research*, vol. 18, Rebecca H. Holman and Michael S. Solomon, eds., Ann Arbor, MI: Association for Consumer Research, 194–201.
- Areni, Charles S., and K. Chris Cox (1994), "The Persuasive Effects of Evaluation, Expectancy and Relevancy Dimensions of Incongruent Visual and Verbal Information," in *Advances in Consumer Research*, vol. 21, Chris Allen and Deborah Roedder John, eds., Provo, UT: Association for Consumer Research, 337–342.
- Batra, Rajeev, and Michael L. Ray (1986), "Situational Effects of

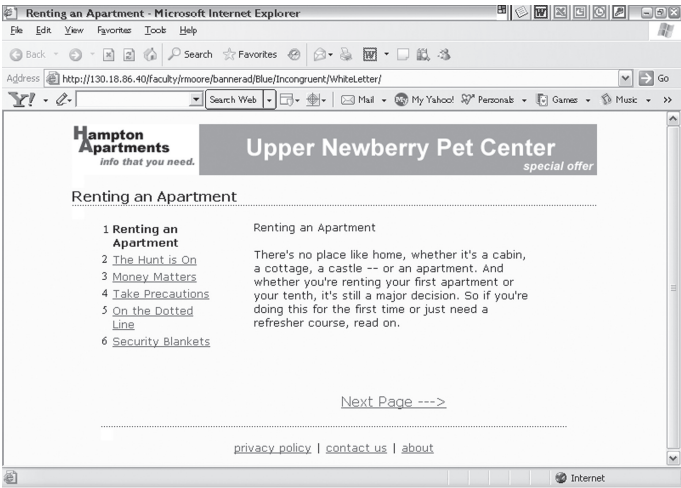
- Advertising Repetition: The Moderating Influence of Motivation, Ability, and Opportunity to Respond," *Journal of Consumer Research*, 12 (4), 432–445.
- Becker-Olsen, Karen L. (2003), "And Now, A Word From Our Sponsor," *Journal of Advertising*, 32 (Summer), 17–32.
- Bellizzi, Joseph A., Ayn E. Crowley, and Ronald W. Hasty (1983), "The Effects of Color in Store Design," *Journal of Retailing*, 59 (1), 21–43.
- , and Robert E. Hite (1992), "Environmental Color, Consumer Feelings and Purchase Likelihood," *Psychology and Marketing*, 9 (5), 347–363.
- Bello, Daniel C., Robert E. Pitts, and Michael J. Etzel (1983), "The Communication Effects of Controversial Sexual Content in Television Programs and Commercials," *Journal of Advertising*, 12 (3), 32–42.
- Berlyne, Donald E. (1963), "Motivational Problems Raised by Exploratory and Epistemic Behavior," in *Psychology: A Study of a Science*, vol. 5, Sigmund Koch, ed., New York: McGraw-Hill, 284–364.
- Bevan, William, and William F. Dukes (1953), "Color as a Variable in the Judgment of Size," *American Journal of Psychology*, 66 (2), 283–288.
- Bezjian-Avery, Alexa, Bobby Calder, and Dawn Iacobucci (1998), "New Media Interactive Advertising Vs. Traditional Advertising," *Journal of Advertising Research*, 38 (4), 23–43.
- Birren, Faber (1978), *Color and Human Response*, New York: Van Nostrand Reinhold.
- Bousch, David M., and Marian Friestad (1994), "Adolescent Skepticism Toward TV Advertising and Knowledge of Advertiser Tactics," *Journal of Consumer Research*, 21 (1), 165–175.
- Bruce, Margaret, and Jeremy J. Foster (1982), "The Visibility of Colored Characters on Colored Backgrounds in Viewdata Displays," *Visible Language*, 16 (4), 382–390.
- BURST! (2002), "On-line Insights—Ad Clutter" (July), available at www.burstmedia.com (accessed March 3, 2003).
- Bush, Alan J., and Victoria Bush (1998), "Advertiser Perceptions of the Internet as a Marketing Communications Tool," *Journal of Advertising Research*, 38 (March/April), 17–27.
- Campbell, Margaret C. (1995), "When Attention-Getting Advertising Tactics Elicit Consumer Inferences of Manipulative Intent: The Importance of Balancing Benefit and Investments," *Journal of Consumer Psychology*, 4 (3), 225–254.
- Chen, Qimei, and William D. Wells (1999), "Attitude Toward the Site," *Journal of Advertising Research*, 39 (5), 27–37.
- Childers, Terry L., and Michael J. Houston (1984), "Conditions for a Picture-Superiority Effect of Consumer Memory," *Journal of Consumer Research*, 11 (September), 643–654.
- Cho, Chang-Hoan, Jung-Gyo Lee, and Marye Tharp (2001), "Different Forced-Exposure Levels to Banner Advertisements," *Journal of Advertising Research*, 41 (4), 45–56.
- Coulter, Keith S. (1998), "The Effects of Affective Responses to Media Context on Advertising Evaluations," *Journal of Advertising*, 27 (4), 41–52.
- Coulter, Robin A., Gerald Zaltman, and Keith S. Coulter (2001), "Interpreting Consumer Perceptions of Advertising: An Application of the Zaltman Metaphor Elicitation Technique," *Journal of Advertising*, 30 (4), 1–21.
- Dahlén, Micael (2001), "Banner Advertisements Through a New Lens," *Journal of Advertising Research*, 41 (4), 23–30.
- Danaher, Peter J., and Guy W. Mullarkey (2003), "Factors Affecting Online Advertising Recall: A Study of Students," *Journal of Advertising Research*, 43 (September), 252–267.
- De Pelsmacker, Patrick, Maggie Geuens, and Pascal Anckaert (2002), "Media Context and Advertising Effectiveness: The Role of Context Appreciation and Context/Ad Similarity," *Journal of Advertising*, 31 (2), 49–61.
- Dou, Wenyu, Randy Linn, and Sixian Yang (2001), "How Smart Are 'Smart Banners'?" *Journal of Advertising Research*, 41 (4), 31–43.
- Drèze, Xavier, and Fred Zufryden (1998), "Is Internet Advertising Ready for Prime Time?" *Journal of Advertising Research*, 38 (3), 7–18.
- Edell, Julie A., and Richard Staelin (1983), "The Information Processing of Pictures in Print Advertisements," *Journal of Consumer Research*, 10 (June), 45–61.
- Fernandez, Karen V., and Dennis L. Rosen (2000), "The Effectiveness of Information and Color in Yellow Pages Advertising," *Journal of Advertising*, 29 (2), 59–72.
- Friestad, Marian, and Peter Wright (1994), "The Persuasion Knowledge Model: How People Cope with Persuasion Attempts," *Journal of Consumer Research*, 21 (1), 1–31.
- Furnham, Adrian, Barrie Gunter, and Freya Richardson (2002), "Effects of Product-Program Congruity and Viewer Involvement on Memory for Televised Advertisements," *Journal of Applied Social Psychology*, 32 (1), 124–141.
- , ———, and Deidre Walsh (1998), "Effects of Program Context on Memory of Humorous Television Commercials," *Applied Cognitive Psychology*, 12 (6), 555–567.
- Garrett, John C., and Charles I. Brooks (1987), "Effect of Ballot Color, Gender of Candidate, and Gender of Voter on Voting Behavior of College Students," *Psychological Reports*, 60 (1), 39–44.
- Gerber, Elaine, and Corinne Kirchner (2001), "Who's Surfing? Internet Access and Computer Use by Visually Impaired Youths and Adults," *Journal of Visual Impairment and Blindness*, 95 (3), 176–181.
- Gorn, Gerald J., Amitava Chattopadhyay, Tracey Yi, and Darren W. Dahl (1997), "Effects of Color as an Executional Cue in Advertising: They're in the Shade," *Management Science*, 43 (10), 1387–1400.
- Guilford, J. P. (1934), "The Affective Value of Color as a Function of Hue, Tint, and Chroma," *Journal of Experimental Psychology* (June), 342–370.
- , and Patricia C. Smith (1959), "A System of Color Preferences," *American Journal of Psychology*, 72 (4), 487–502.
- Hall, Richard H., and Patrick Hanna (2004), "The Impact of Web Page Text-Background Colour Combinations on Readability, Retention Aesthetics and Behavioral Intention," *Behaviour and Information Technology*, 23 (May/June), 183–195.
- Heckler, Susan E., and Terry L. Childers (1992), "The Role of Expectancy and Relevancy in Memory for Verbal and Visual Information: What Is Incongruity?" *Journal of Consumer Research*, 18 (March), 475–492.

- Henthorne, Tony L., Michael S. LaTour, and Rajah Natarajan (1993), "Fear Appeals in Print Advertising: An Analysis of Arousal and Ad Response," *Journal of Advertising*, 22 (2), 59–68.
- Hevner, Kate (1935), "Experimental Studies of the Affective Value of Colors and Lines," *Journal of Applied Psychology*, 19 (2), 385–398.
- Hoffman, Donna L., and Thomas P. Novak (1996), "Marketing in Hypermedia Computer-Mediated Environments: Conceptual Foundations," *Journal of Marketing*, 60 (3), 50–68.
- Horn, Martin I., and William J. McEwen (1977), "The Effect of Program Context on Commercial Performance," *Journal of Advertising*, 6 (2), 23–27.
- Houston, Michael J., Terry L. Childers, and Susan E. Heckler (1987), "Picture–Word Consistency and Elaborative Processing of Advertisements," *Journal of Marketing Research*, 24 (4), 359–369.
- Howard, Daniel J., and Thomas E. Barry (1994), "The Role of Thematic Congruence Between a Mood-Inducing Event and an Advertised Product in Determining the Effects of Mood on Brand Attitudes," *Journal of Consumer Psychology*, 3 (1), 1–27.
- Hoy, Mariea Grubbs, and Michael J. Stankey (1993), "Structural Characteristics of Televised Advertising Disclosures: A Comparison with the FTC Clear and Conspicuous Standard," *Journal of Advertising*, 22 (2), 47–58.
- Hung, Kineta (2000), "Narrative Music in Congruent and Incongruent TV Advertising," *Journal of Advertising*, 29 (1), 25–34.
- Jacobs, Keith W., and James F. Suess (1975), "Effects of Four Psychological Primary Colors on Anxiety State," *Perceptual and Motor Skills*, 41 (1), 207–210.
- Jagre, Emma, John J. Watson, and John G. Watson (2001), "Sponsorship and Congruity Theory: A Theoretical Framework for Explaining Consumer Attitude and Recall of Sponsorship Event," *Advances in Consumer Research*, 28 (1), 439–445.
- Janiszewski, Chris (1998), "The Influence of Display Characteristics on Visual Exploratory Search Behavior," *Journal of Consumer Research*, 25 (3), 290–301.
- Kamins, Michael A. (1990), "An Investigation into the 'Match-Up' Hypothesis in Celebrity Advertising: When Beauty May Be Only Skin Deep," *Journal of Advertising*, 19 (1), 4–13.
- , Lawrence J. Marks, and Deborah Skinner (1991), "Television Commercial Evaluation in the Context of Program Induced Mood: Congruency Versus Consistency Effects," *Journal of Advertising*, 20 (2), 1–14.
- Kellaris, James J., Anthony D. Cox, and Dena Cox (1993), "The Effect of Background Music on Ad Processing: A Contingency Explanation," *Journal of Marketing*, 57 (4), 114–125.
- Laczniak, Russell N., Darrel D. Muehling, and Sanford Grossbart (1989), "Manipulating Message Involvement in Advertising Research," *Journal of Advertising*, 18 (2), 28–38.
- Lane, Vicki R. (2000), "The Impact of Ad Repetition and Ad Content on Consumer Perceptions of Incongruent Extensions," *Journal of Marketing*, 64 (2), 80–91.
- Leong, Elaine K. F., Xueli Huang, and Paul-John Stanners (1998), "Comparing the Effectiveness of the Website with Traditional Media," *Journal of Advertising Research*, 38 (5), 44–51.
- Lichtenstein, Donald R., Peter H. Bloch, and William C. Black (1988), "Correlates of Price Acceptability," *Journal of Consumer Research*, 15 (2), 243–252.
- Lord, Kenneth R., Robert E. Burnkrant, and H. Rao Unnava (2001), "The Effects of Program-Induced Mood States on Memory for Commercial Information," *Journal of Current Issues and Research in Advertising*, 23 (1), 1–15.
- Lutz, Richard J. (1985), "Affective and Cognitive Antecedents of Attitude Toward the Ad: A Conceptual Framework," in *Psychological Processes and Advertising Effects: Theory, Research, and Application*, Linda F. Alwitt and Andrew A. Mitchell, eds., Hillsdale, NJ: Lawrence Erlbaum Associates, 45–63.
- Lynch, James, and Drue Schuler (1994), "The Match-Up Effect of Spokesperson and Product Congruency: A Schema Theory Interpretation," *Psychology and Marketing*, 11 (5), 417–445.
- MacInnis, Deborah J., and Bernard J. Jaworski (1989), "Information Processing from Advertisements: Toward an Integrative Framework," *Journal of Marketing*, 53 (October), 1–23.
- , Christine Moorman, and Bernard J. Jaworski (1991), "Enhancing and Measuring Consumers' Motivation, Opportunity and Ability to Process Brand Information from Ads," *Journal of Marketing*, 55 (October), 32–53.
- MacKenzie, Scott B., and Richard J. Lutz (1989), "An Empirical Examination of the Structural Antecedents of Attitude Toward the Ad in an Advertising Pre-testing Context," *Journal of Marketing*, 53 (21), 48–65.
- Madden, Thomas J., Kelly Hewett, and Martin S. Roth (2000), "Managing Images in Different Cultures: A Cross-National Study of Color Meanings and Preferences," *Journal of International Marketing*, 8 (4), 90–107.
- Mandler, George (1982), "The Structure of Value: Accounting for Taste," in *Affect and Cognition: The 17th Annual Carnegie Symposium*, Margaret S. Clark and Susan T. Fisk, eds., Hillsdale, NJ: Lawrence Erlbaum Associates, 203–230.
- McCarthy, Michael S., and David L. Mothersbaugh (2002), "Effects of Typographic Factors in Advertising-Based Persuasion: A General Model and Initial Empirical Tests," *Psychology and Marketing*, 19 (7–8), 663–691.
- McMillan, Sally J. (2002), "A Four-Part Model of Cyber-Interactivity: Some Cyber-Places Are More Interactive Than Others," *New Media and Society*, 4 (2), 271–291.
- Meyers-Levy, Joan, and Laura A. Peracchio (1995), "Understanding the Effects of Color: How the Correspondence Between Available and Required Resources Affects Attitudes," *Journal of Consumer Research*, 22 (2), 121–138.
- , and Alice M. Tybout (1989), "Schema Congruity as a Basis for Product Evaluation," *Journal of Consumer Research*, 16 (1), 39–54.
- Middlestadt, Susan E. (1990), "The Effect of Background and Ambient Color on Product Attitudes and Beliefs," in *Advances in Consumer Research*, vol. 17, Rebecca Holman and Michael Solomon, eds., Provo, UT: Association for Consumer Research, 244–249.
- Murphy, John H., Isabella C. M. Cunningham, and Gary B. Wilcox (1979), "The Impact of Program Environment on

- Recall of Humorous Television Commercials," *Journal of Advertising*, 8 (2), 17–21.
- Norris, Claire E., and Andrew M. Colman (1992), "Context Effects on Recall and Recognition of Magazine Advertisements," *Journal of Advertising*, 21 (3), 37–46.
- Novak, Thomas P., Donna L. Hoffman, and Yiu-Fai Yung (2000), "Measuring the Customer Experience in On-line Environments: A Structural Modeling Approach," *Marketing Science*, 19 (1), 22–43.
- Oliver, Richard L., and William O. Bearden (1985), "Crossover Effects in the Theory of Reasoned Action: A Moderating Influence Attempt," *Journal of Consumer Research*, 12 (3), 324–340.
- Petty, Richard E., and John T. Cacioppo (1986), *Communication and Persuasion: Central and Peripheral Routes to Attitude Change*, New York: Springer-Verlag.
- , ———, and David Schumann (1983), "Central and Peripheral Routes to Advertising Effectiveness: The Moderating Role of Involvement," *Journal of Consumer Research*, 10 (September), 135–146.
- Popper, Edward T., and Keith B. Murray (1989), "Communication Effectiveness and Format Effects on In-Ad Disclosure of Health Warnings," *Journal of Public Policy and Marketing*, 8 (1), 109–123.
- Price Waterhouse Coopers (2004), "IAB Internet Advertising Revenue Report—2003 Full-Year Results" (April), available at www.iab.net (accessed June 3, 2004).
- Putrevu, Sanjay, and Kenneth R. Lord (2003), "Processing Internet Communications: A Motivation, Opportunity and Ability Framework," *Journal of Current Issues and Research in Advertising*, 25 (Spring), 45–59.
- Radl, G. W. (1980), "Experimental Investigations of Optimal Presentation Mode and Colours of Symbols on the CRT-Screen," in *Ergonomic Aspects of Visual Display Terminals*, Etienne Grandjean and Enrico C. Vigliani, eds., London: Taylor and Francis, 127–136.
- Rodgers, Shelly (2003/2004), "The Effects of Sponsor Relevance on Consumer Reactions to Internet Sponsorships," *Journal of Advertising*, 32 (Winter), 67–76.
- Russell, Cristel Antonia (2002), "Investigating the Effectiveness of Product Placements in Television Shows: The Role of Modality and Plot Connection Congruence on Brand Memory and Attitude," *Journal of Consumer Research*, 29 (December), 306–318.
- Schaie, Klaus W., and Robert Heiss (1964), *Color and Personality*, Berne, Switzerland: Hans Huber.
- Schindler, Pamela S. (1986), "Color and Contrast in Magazine Advertising," *Psychology and Marketing*, 3 (2), 69–78.
- Shamdasani, Prem N., Andrea J. S. Stanaland, and Juliana Tan (2001), "Location, Location, Location: Insights for Advertising Placement on the Web," *Journal of Advertising Research*, 41 (4), 7–21.
- Sharma, Andrew (2000), "Recall of Television Commercials as a Function of Viewing Context: The Impact of Program-Commercial Congruity on Commercial Messages," *Journal of General Psychology*, 127 (4), 383–397.
- Sherman, Lee, and John Deighton (2001), "Banner Advertising: Measuring Effectiveness and Optimizing Placement," *Journal of Interactive Marketing*, 15 (2), 60–65.
- Shieh, Kong-King, Ming-Te Chen, and Jiunn-Huei Chuang (1997), "Effects of Color Combination and Typography on Identification of Characters Briefly Presented on VDTs," *International Journal of Human-Computer Interaction*, 9 (2), 169–181.
- Solomon, Michael R., Richard D. Ashmore, and Laura C. Longo (1992), "The Beauty Match-Up Hypothesis: Congruence Between Types of Beauty and Product Images in Advertising," *Journal of Advertising*, 21 (4), 23–34.
- Sundar, Shyam S., and Sriram Kalyanaraman (2004), "Arousal, Memory, and Impression-Formation Effects of Animation Speed in Web Advertising," *Journal of Advertising*, 33 (Spring), 7–17.
- , Sunetra Narayan, Rafael Obregon, and Charu Uppal (1998), "Does Web Advertising Work? Memory for Print Vs. On-line Media," *Journalism and Mass Communication Quarterly*, 75 (4), 822–835.
- Unnava, H. Rao, and Robert E. Burnkrant (1991), "An Imagery-Processing View of the Role of Pictures in Print Advertisements," *Journal of Marketing Research*, 28 (May), 226–231.
- Venkatesan, M. (1973), "Cognitive Consistency and Novelty Seeking," in *Consumer Behavior: Theoretical Sources*, Scott Ward and Thomas S. Robertson, eds., Englewood Cliffs, NJ: Prentice-Hall, 334–384.
- Wang, An-Hsiang, Jia-Jen Fang, and Cheng-Hsun Chen (2003), "Effects of VDT Leading-Display Design on Visual Performance of Users in Handling and Dynamic Display Information Dual-Tasks," *Journal of International Ergonomics*, 32 (2), 93–104.
- Wiegersma, Sjoerd, and Anita Van Loon (1989), "Some Variables in the Blue (Red) Phenomenon," *Journal of General Psychology*, 116 (3), 259–269.
- Wilson, Glenn D. (1966), "Arousal Properties of Red Versus Green," *Perceptual and Motor Skills*, 23 (3), 947–949.
- Zaichkowsky, Judith L. (1985), "Measuring the Involvement Construct," *Journal of Consumer Research*, 12 (3), 341–352.

APPENDIX

Study 1:
Incongruent Advertiser–Web Site Context, Blue
Background, and White Letters
(Low-Contrast) Stimuli



Study 2:
Congruent Advertiser–Web Site Context, Red
Background, and White Letters
(High-Contrast) Stimuli

