

Leveraging Synergy and Emotion

In a Multi-Platform World

A Neuroscience-Informed Model of Engagement

AUDREY STEELE

Fox Broadcasting
Company
audrey.steele@fox.com

DEVRA JACOBS

Innerscope Research, Inc.
djacobs@innerscope.com

CALEB SIEFERT

University of Michigan
csiefert@umd.umich.edu

RANDALL RULE

Innerscope Research, Inc.
rrule@innerscope.com

BRIAN LEVINE

Innerscope Research, Inc.
blevine@innerscope.com

CARL D. MARCI

Innerscope Research, Inc.
cmarci@innerscope.com

The proliferation of media platforms raises questions among marketers about their relative value. This study tests a neuroscience-informed model of immersive-versus-flexible audience engagement and demonstrates television's heightened ability to sustain nonconscious emotional response over online viewing. Employing biometrics and eye tracking, 251 participants experienced 24 brands on television, online, or both. Findings indicate that brand advertising proved far more emotionally engaging when experienced on television alone or combined with online viewing. This emotional connection using both platforms proved strongest when the television program and Web site content were related. The results support prior research that demonstrates television's ability to engage and sustain emotional response.

INTRODUCTION

Consumers are experiencing media across an ever-increasing number of channels, platforms, and locations at an unprecedented rate. Simultaneously, audiences have gained more control over what, when, and how they consume media. Although this creates challenges for understanding and reaching consumers, it also offers an opportunity to engage consumers as never before.

Marketers now have an extraordinary number of outlets with varying degrees of complexity and

context through which to connect with consumers. With so many choices, how can a rational and effective strategy emerge that utilizes messaging within and across multiple platforms to break through the clutter?

Fortunately, advances in technology, research techniques, and knowledge arising from the human sciences continue to evolve at a similarly rapid pace, particularly in the increased understanding of the role of nonconscious emotional responses in human behavior (Bradley, Codispoti,

Management Slant

- This integrated consumer neuroscience study offers evidence for a media model based on the type and degree of brand immersion. It shows how different, rapidly growing audiences approach, experience, and engage with content on television and online.
- Results show that emotional engagement with unfamiliar brands is higher when first seen on television than online. Increased engagement translates into a nearly threefold advantage in post-exposure brand resonance, a biometric measure of brand equity.
- The results also inform synergistic media planning to maintain brand equity with television while enhancing brand engagement within related online content. This model can help develop more effective strategies that embrace the changing media landscape and deliver greater ROI.

Cuthbert, and Lang, 2001; Critchley, 2005; Davis, 2000; Davis and Lang, 2001; Lang, Bradley, and Cuthbert, 1997).

There are, in fact, multiple findings from modern neuroscience that can and should be applied to marketing in a complex world:

- The emotional centers of the brain process information from the senses prior to the cognitive centers and exert considerable influence on the conscious processing of information;
- emotional responses direct attention, enhance learning and memory and, ultimately, influence behavior;
- many aspects of emotional influence occur without conscious awareness and are highly dependent upon the context in which they are experienced; and
- the emotional centers occupy distinct areas of the brain—areas that lack direct connectivity with the language centers—making accurate self-report of the role of emotion to complex stimuli extremely difficult (Bechara and Damasio, 2005; Eagleman, 2011; Gray, 2004; LeDoux, 2002).

How can this increased understanding of the brain and the role of nonconscious emotional responses from studies generated by mostly basic science academics help media and marketing researchers decipher the rapidly evolving media landscape? The authors designed the current study to offer evidence for a new media model based on this current understanding of the brain—a model that has the potential to explain how different audiences in varying motivational and mental states might approach, experience and, ultimately, emotionally engage with media and marketing content.

The authors believe that marketers and media planners—empowered with such a model—may further embrace this changing

media landscape more effectively and work toward delivering new efficiencies and greater levels of return on investment.

BACKGROUND ON THE PRESENT STUDY

Fox Broadcasting Company (FOX) wanted to acquire a deeper understanding of advertising effectiveness within (and across) multiple platforms of consumption and learn about the impact of combining platform exposure on brands. FOX commissioned the present study to attempt to uncover industry-level insights that could be leveraged by its clients and also have utility for the media and marketing community at large.

The report also sought to provide scientific evidence that could extend the knowledge gained from previous research, including past academic work and biometric data with FOX's insights partner, Innerscope Research, Inc. In particular, there was interest in testing and extending the Brand Immersion Model (BIM), a new Innerscope model that provides a framework for understanding how the mental states of audiences and consumers interact with different types of media platforms resulting in differing levels of engagement (See Methodology section).

FOX supported a study employing biometrics and eye-tracking methodologies for understanding the nonconscious emotional responses related to audience engagement with media in an effort to improve advertising and campaign effectiveness on television and online.

Research Innovation in a New Media Landscape

In the Spring 2010 issue, *MEDIA Magazine* posed several challenging questions about the state of the media industry and the role of neuroscience-based marketing research methods in addressing these questions:¹

- How could neuroscience help brand marketers and the advertising industry understand how and why audiences engage with various screens and platforms?
- What types of experiences are they looking for online versus on television?
- What is the impact of choice of media platform on viewers' exposure to and experience with advertising?

Such questions suggest that prior understanding of consumer engagement is no longer adequate given numerous changes in how consumers are exposed to media. Indeed, there continues to be a need for new models with utility to help frame research questions and inform corporate strategy.

The proposed model is based on previous academic work and Innerscope's prior biometric and eye-tracking research on thousands of consumers and audiences as they experienced a wide variety of media content, advertising units, and platforms, including television, online, print, and radio (Treutler, Levine, and Marci, 2010).

The BIM describes mechanisms for understanding how (and why) audiences experience media and marketing content differently across platforms. It asserts that these differences arise as an interaction between platform characteristics and the motivational states of the viewer. It characterizes these interactions in terms of how immersive or flexible the experience is.

When viewers have relatively less immediate control over the viewing experience and the platform characteristics enhance storytelling, the experience is more immersive. By contrast, when viewers have considerable control over the viewing experience (e.g., can select content; ignore content; start and stop media experiences) and utilize the platform to pursue multiple goals (e.g., buying a plane ticket; managing a calendar), the viewing experience is more flexible.

¹ Mandese, J. *MEDIA Magazine*, spring 2010, pp. 30–33.

The present study tested the BIM as a way to describe the different opportunities for brands on television and online. In general, viewing television is likely to be a more immersive experience as compared to surfing the Web.

The present study compared a more immersive experience with a more flexible experience by examining consumers while viewing television and surfing online. The study also used biometric research tools as a way to validate and quantify prior research demonstrating the unique power of television in building brand equity through strong, immersive emotional connections and form a means to explore approaches for maximizing the effectiveness of cross-platform advertising.

METHODOLOGY

The Brand Immersion Model

The BIM is grounded in the belief that platform characteristics, viewer goals, and the interaction between the two have an impact on viewer experiences.

Consumers' experience of media and advertising varies, in part, as a function of the immersiveness and flexibility of a viewing experience. Some platforms allow for more immersion than others. Further, some platforms tend to be used for specific goals (e.g., movie theater), whereas others are used for multiple goals (e.g., laptop). Thus, the experience of media content and advertising is expected to vary across platforms.

The complex intersections of media content, platform characteristics, and consumers' motivational states result in viewing experiences that can be more immersive or flexible. In addition to impacting the overall viewing experience, differences in how immersive or flexible a viewing experience is will affect the manner and degree to which consumers engage with advertisements and brands.

A goal of the BIM was to provide a working, verifiable analytical structure that can explain key aspects of how consumers engage with media content and advertising on different platforms. By appreciating how consumers typically experience content with a given platform, advertisers can improve marketing and media planning efforts to optimize consumers' experience with brands. Understanding differences in how consumers engage with various platforms also is likely to facilitate improved synergistic branding efforts across platforms.

The first fundamental state of engagement is immersive. Immersive environments provide guided, sequential experiences of stories that draw viewers into a new world where someone else serves as the producer and director of the experience. Highly immersive environments provide dynamic experiences typically involving multiple sensory pathways (e.g., auditory and visual).

For example, consider an IMAX theater experience. The story is told via a platform that contains several features designed to enhance viewers' experience of the story (i.e., large screen; surround sound; movement effects). Viewers have limited capacity to alter the viewing experience. They cannot change the channel or alter the story, and their ability to start and stop content is limited. Viewers enter such contexts with the goal of experiencing a story.

The platform and motivational state of viewers interact and—when the media are compelling—work together to *immerse* viewers, opening them up emotionally so that they can experience the story.

This emotionally open state of mind is a key component of immersive engagement. The openness allows for the potential creation of need states where none previously existed, or the reinforcement of need states that already exist, by transferring the emotional journey of the onscreen

characters and stories to the viewer and substituting it for his or her own experience (Pincus, Freeman, and Modell, 2007). Thus, audiences engaged immersively are more likely to identify with protagonists and, thus, to experience the activation of similar emotions and need states.

Based on the modern theory of mirror neurons and "bottom-up" processing that facilitate the recognition of relevant social and nonsocial actions and cognitions in the brain (Bonini and Ferrari, 2011), the model suggests that immersive platforms have the ability to powerfully reinforce existing, or create new, nonconscious emotional connections and associations to a wide variety of media inputs in the brain, helping to shape the attitudes, beliefs, and behaviors of viewers. This occurs via complex hierarchically integrated neural pathways that draw on empathy, emotion, learning, memory, and perception networks in the brain (Preston and deWaal, 2002). People engage with content on immersive platforms because the journey is rewarding and allows someone or something else to supplant their reality with a story that offers an alternative—if not more engaging—version.

The model raises questions about how much the environment created by emotionally evocative, immersive content translates to—and has an impact on—advertising and to what degree it ultimately influences later audience associations, learning, and behaviors (i.e., how receptive the immersive state makes consumers to brand messages). For example, a prior Innerscope finding suggested that strong emotional content significantly influences downstream behaviors of an audience for as long as nine months (Siefert et al., 2009).

Highly immersive environments, however, often limit or preclude input from the viewer. For example, a viewer in a movie theater is unable to change the channel, surf

the Web, or affect the storyline. By contrast, interactive media environments and platforms—such as the Internet, newspapers, and smartphones—allow and encourage consumers to drive their own experience to various levels and direct their attention in a more goal-oriented manner.

Interactive, or flexible, viewing experiences occur when the platform features provide viewers with explicit control over the content they are exposed to and how that content is experienced. For example, viewers surfing the Web may select content; start and stop content; discover and follow content (e.g., “This looks interesting”); and pursue goals (e.g., “I want to watch funny clips with cats in them”).

A number of platforms connecting to the Internet can be used by viewers to explore content-rich environments in which the viewer can select content that serves existing need states. It also is easier for them to disengage from content and avoid content that is unrelated to their current goals. This is consistent with prior research demonstrating that control processes are more involved in more flexible media environments (Pavlou and Stewart, 2000).

The scientific theory of flexible engagement suggests that flexible environments allow for predominantly “top-down” processing, relying more heavily on the rational and cognitive centers of the brain that are involved in purpose driven, goal-directed behaviors and somewhat less on the brain’s emotional centers. In contrast to immersive engagement, flexible engagement demands voluntary task switching; limited stimulus availability; and selective attention under an increased cognitive load (Arrington, 2008; Lavie, 2005). Flexible engagement involves planned action and reaction as consumers control their goal-directed activity to seek out information through media experiences.

The BIM proposes that advertising in a flexible environment competes with a

wide variety of non-advertising content and finds the user in a fundamentally different state of engagement—a flexible state where information and storytelling are experienced in a more fragmented and nonlinear fashion. In such instances, content and advertising have less potential to generate emotional engagement and have more competition for attention and emotional processing. This is of little surprise given that consumers tend to use such devices in a goal-directed manner, and it is unlikely that the goal would be exposure to advertising content.

As such, users may consciously or non-consciously avoid advertisements that are not related to their current goals, directing their attention toward more relevant information instead.

Conversely, environments that generate flexible engagement have the potential to fulfill goals and need states related to information seeking; extend brand engagement with interactions through social media exchanges; and in some cases lead users to directly purchase products or services.

Flexible media consumption involves a self-activated experience. In flexible environments, the users are the directors and producers of their experience as they seek fulfillment of emergent needs and those that already exist. From an advertising perspective, as the consumer creates his or her own experience, they fulfill existing need states and supplement (rather than supplant) their own reality to satisfy their needs. Indeed, there is already some evidence that television advertising that drives consumers to self-select exposure to advertisements using flexible media platforms can be highly effective (Parpis, 2010).

It is important to note that no viewing experience is completely immersive or completely flexible. Viewers at an IMAX can leave the theater, go to the bathroom, or turn away from the screen. Similarly,

a viewer may watch television or movie content on a laptop without surfing other sites or starting or stopping the content. Thus, when describing platforms it is best to consider them as “more” or “less” immersive and flexible, respectively.

Although immersive and flexible platforms conceptually are quite different, there is potential for them to interact in powerful ways. Given the contrasting mental states defined by the BIM for immersive versus flexible engagement and the different ways in which each influences brand behavior, another question this study sought to answer was: To what degree can the more heightened cognitive states inherent in the exploration of flexible platforms also create and extend brand relevance relative to the more emotionally open state of immersive engagement? The model predicts that flexible environments require that a need state or an association to the brand already be established, suggesting that the less open state of mind makes new connections and learning less likely and that they are less able to extend or enhance brand relevance.

The BIM hypothesizes that viewers process advertising communications in different environments very differently. FOX partnered with Innerscope to evaluate this premise with new research on how immersive and flexible platforms impact engagement with both novel and familiar brands and how cross-platform synergy impacts brand associations.

As the first large-scale attempt to validate the BIM, this study focused on the utility of television and an online media platform for creating and extending brand equity via advertising.

- In Phase 1, the research study focused on how consumers’ experience advertising viewed in a more immersive context versus a more flexible context. Phase 1 employed traditional on-set television

advertising as the more immersive media environment and an online personal computer experience—with rich-media display advertising—as the more flexible media environment.

- In Phase 2, FOX and Innerscope tested the “connection-creation” hypothesis suggested by the BIM. The connection-creation hypothesis suggests that experience with media or advertising in one context should alter or enhance the experience of a brand in a different context.

This phase examined synergy across two platforms and sought to determine, specifically, whether prior exposure to brand advertising in an immersive platform enhanced viewers’ responses to the same branding in a more flexible online platform.

In both phases of the research, consumers’ emotional engagement to brand advertising was evaluated on the target platforms using biometric reactions and eye tracking. Innerscope defines emotional engagement as “attention plus emotional intensity” (Marci, 2006).

“Attention” can be defined and measured in multiple ways. For the purposes of this study, the authors defined visual attention per advertisement as “total time spent in fixation measured using state-of-the-art eye tracking technology.”

Emotional response is measured biometrically by four channels of medical-grade, biologically based activity: heart rate variability, skin conductance level, respiratory response, and movement (Marci, 2006). These measures are combined using patent-pending algorithms. In short, emotional engagement with advertising is said to have taken place when an emotional response occurs while the viewer is directing his or her visual attention toward the advertising content.

The impact of the advertising also was evaluated by examining biometric “brand resonance” during the post-exposure period to brand-related imagery. Brand resonance is “an extension of traditional definitions of brand equity.” It quantifies the nonconscious associations between viewer and the brand by examining how the residual effects from brain activity embodied in emotional response generated from exposure to the brand differ across television and online platforms.

The theoretical framework for the brand-resonance scores expands on existing academic theories and models of emotional priming and emotional transference (Ramponi, Richardson-Klavehn, and Gardiner, 2007; Winkielman, Knutson, Paulus, and Trujillo, 2007). Brand resonance, thus, is defined as “the nonconscious associations triggered by a brand exposure resulting in emotional activation as measured by biometrics.” This is an indicator of brand relevance, which can be influenced by prior recent exposure to the brand in the context of an advertisement.

Given that engagement with advertising may vary as a function of prior exposure or experience with the brand, both familiar and unfamiliar brands were utilized in this study. Unfamiliar brands were obtained from Canada and the United Kingdom. Unfamiliar brands were included to better determine the ability of immersive and flexible environments to create connections that previously did not exist, and to look at differences in response to advertisements as a function of the differences in media platforms (i.e., television versus online versus television and online combined).

The primary goal of this research was to examine the following questions raised by the BIM:

- Does the relative level of emotional engagement with advertising differ

when brands are experienced on television versus online?

- How do television and online differ in their ability to create emotional connections to brands after exposure to advertising creative on each platform as measured by biometric brand resonance?
- Are the differences in impact the same for unfamiliar or newly introduced brands versus familiar brands?
- What is the impact of combining television and online advertising synergistically on the ability to create brand resonance?

PHASE 1: COMPARISON OF TELEVISION-VERSUS-ONLINE ADVERTISING

ENGAGEMENT AND BRAND RESONANCE

Methodology

Participants and Branding. In the first phase, 129 participants—approximately 50 percent males and 50 percent females between the ages of 18 and 49 from a variety of profession—were recruited. All participants had a household income of \$25,000 or more and were regular viewers of FOX programming. Participants also spent at least three hours a week online, visited Web sites for news and information content several times a week, and were nonavoiders of general-interest Web sites. To ensure the target advertising was relevant, Innerscope recruited participants who regularly attended movies, were intending to purchase a mobile phone within the next year, and planned to purchase an automobile within the next three years.

Participants randomly were placed into one of two groups: the television group ($n = 64$) or the online group ($n = 65$; See Figure 1). The television group was exposed to television advertising for 18 brands embedded in a television-viewing experience. The online group was exposed to rich-media display advertising for the

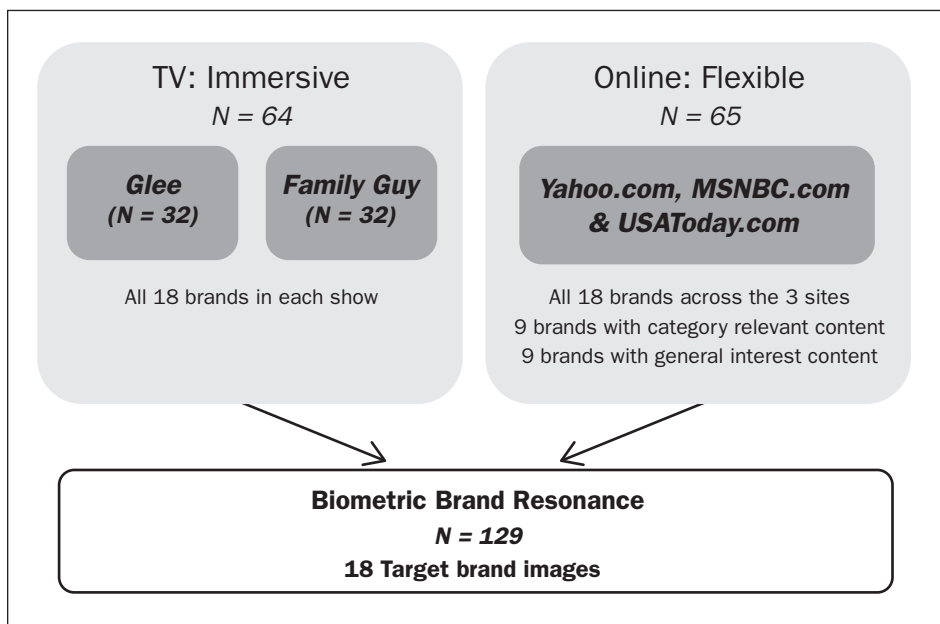


Figure 1 Experimental Study Design for Phase 1 Platform Comparison

same 18 brands embedded online. All participants were passively biometrically monitored with eye tracking throughout their respective experiences.

Media. Participants viewed advertising executions for a total of 24 brands. The advertising included 18 familiar U.S. brands from three categories: entertainment, telecommunications, and automotive. In addition, the study included English-language commercials from either Canada or the United Kingdom for six brands that were unfamiliar to U.S. audiences. The television and online advertisements selected were from brands that had a multi-platform advertising campaign running at the time of the study to control for messaging and product biases across the platforms.

The unfamiliar brands were used to evaluate whether a more immersive experience would generate stronger nonconscious brand connections than a more flexible experience. These categories represent a range of purchase cycles and

brands with a high likelihood of advertising on television and online. Multiple brand advertisements were used in each segment of testing to control for the effect of individual creative elements.

Brands were presented as previously aired advertising within the context of either a FOX television program (“Glee” or “Family Guy”) or as part of an online rich-media environment. The Web sites selected for the study appeal to a broad audience and do not have a niche target demographic (USA Today.com, MSNBC.com, and Yahoo.com). “Evergreen” content on the Web sites specifically was chosen so as not to be overly emotional or dated. Participants were brought to a mirror version of each Web site with the target advertising and asked to surf the Web site as if they were at home.

For both the online and television portions of the study, advertising and associated brands were presented in a counterbalanced fashion with masking brand content. Brand logos and product elements were presented at the end of each

session after the exposure to the advertising to gauge the level of brand resonance as described earlier.

Research was conducted during September and October of 2010 at the Innerscope Media Lab located in Boston, Massachusetts.

Procedure. Participants started with a brief orientation to the study followed by a short reel of video and visual imagery to gauge their baseline biometric responses.

To control for the experience of platforms across the study conditions, all participants started with exposure to television followed by an online experience (target ads were inserted in either the TV or the online experience according to the group assignment). Television content was shown on a 52-inch LCD flat screen television monitor with two-channel stereo sound to simulate an immersive environment; the online content was consumed on a 17-inch eye tracking-equipped computer monitor with a resolution of 1280 × 1024.

All experiences concluded with the brand-resonance exercise where participants were exposed to the target brand logos and product elements along with masking brand imagery on the same monitor.

Biometric Data. Each participant was biometrically monitored continuously throughout the testing experience using Innerscope’s Biometric Monitoring System, which included a lightweight chest belt that quickly and easily slipped on underneath regular clothing. Each belt transmitted four channels of biologically based data wirelessly to computers in the testing facility that run specially designed software collecting data throughout the duration of the study period. The data then were aggregated and analyzed to identify overall level of emotional response to each target advertisement in both

television content and online and the brand images at the conclusion of each session.

The sensor-technology platform integrated into the biometric belt was lithium-ion-powered and weighed 175 grams. The platform was designed to be comfortable and completely unobtrusive to the media experience. Data collection sampling rates were set according to published standards and are described further. The biometric channels included:

- skin-conductance response as measured with 32-bit analog-to-digital conversion at the micro-siemen level from sensor pads on the proximal ventral surface of the second and third digits on the non-dominant hand of each participant (these data were sampled at 10 Hz continuously);
- heart-rate variability as measured using single-lead electrocardiography delivered a raw ECG signal used to calculate the inter-beat interval at the millisecond level (these data were sampled at 256 Hz continuously);
- respiratory response as measured through plethysmographic-based respiratory transducers integrated into the fabric of the belt (these data are sampled at 25.6 Hz continuously); and
- motion was captured through multi-axial 3D accelerometers with micro-control sensor array built into the system on the chest belt to detect subtle movements in the x-y-z coordinate plane of the central axis of each participant. The accelerometer sampled continuously at 25.6 Hz but had an internal hardware time constant of 5 Hz that dampened its high frequency response. The device included a static offset relative to the gravitational horizon for better accuracy.

The four channels of biometrics were time-locked to each test stimulus and the

eye tracking throughout the television, online and brand-resonance experiences and then analyzed using patent-pending algorithms that combined the response on each channel into the measure of emotional intensity (described further; Marci, 2006).

Prior to each test condition, all participants experienced a baseline media clutter reel while they were monitored biometrically. The baseline reel included various video and static images that were designed to trigger a set of diverse emotional responses. Each participant's biometric response to the baseline reel was used to control for individual variability in the biometrics and to allow aggregation across the population.

Eye-Tracking Data. Viewers in each condition were monitored with non-invasive dual-sensor eye-tracking systems integrated into a 17-inch video display monitor that used near-infrared reference lights, glint filters, and dynamic illuminators for an accurate approximation of the eye positioning on the screen.

The data were analyzed with commercially available software and algorithms (Tobii Technology, 2012). For the purposes of the current study, the authors defined visual attention per advertisement as "total time spent in fixation." This is in contrast to average fixation duration, where longer individual fixations may indicate tune out or other creative effects of the advertisement. For the television and online portions of the study, average time spent in fixation across all the advertisements on each target platform was used as a visual attention score.

Emotional Engagement

The Innerscope method of comparing non-conscious emotional engagement across platforms generates biometrically based advertising engagement scores through a

measure of biometric intensity, combined with a measure of attention to the advertising creative (Marci, 2006)—a definition that is similar to others in the field (Heath, 2009). The score thus generated was based on the equation:

$$\text{Engagement} = \text{Attention} \times \text{Biometric Intensity}$$

The coding for biometric intensity is a function of change from the normalized response to the baseline reel and represented the cumulative strength (i.e., amplitude) of response in each channel at a given moment time-locked to the media experience. Thresholds of response for each channel were calculated in a running window based on the number of standard deviations above the baseline experience. Each channel was processed separately on the participant level and then combined across participants to give an overall biometric-intensity score for the audience experience.

The biometric-intensity score then was combined with the visual-attention score. The areas of interest in this study were defined by the target advertisements on each platform. Because of the complex and heterogeneous nature of the target advertisements, all results were reported as an indexed multiple of the least engaging advertising platform experience based on the aggregate combination of visual attention to the advertisement and biometric intensity during the advertisement.

Brand-Resonance Score

The brand-resonance score was measured as participants were positioned in front of a computer screen after engaging in their television and/or online experience.

A brand logo and carefully selected images reflecting the product advertised on both television and online appeared on the screen for 10 seconds. This was followed by five seconds of a blank

screen as an inter-stimulus interval, and then the next set of brand imagery was presented. The stimuli were rotated to present brands in a counterbalanced manner across participants.

Each brand-related stimulus appeared in multiple positions in the testing reels (early, middle, and late). The experience also included masking imagery for control brands that did not appear on television or online. Participants were biometrically monitored while viewing all the logos and imagery.

Results

When studying advertisements for unfamiliar brands, television showed the most notable increase relative to online advertising.

Television generated significantly greater emotional engagement for advertising of unfamiliar brands as compared to online offerings. For the unfamiliar brands chosen to determine brand-equity creation, television generated an additional 24-percent increase in engagement with the creative.

Overall, television far surpassed online in its ability to engage nonconscious emotional responses to the advertising. Moreover, post-exposure testing of emotional response to brand images showed a 2.5-fold increase in brand resonance for both familiar and unfamiliar brands, suggesting that the higher levels of emotional engagement translated into greater brand resonance. This explanation aligns with the BIM hypothesis suggesting that television’s immersive environment is more effective than the flexible online environment for creating nonconscious emotional connections to new brand or product introductions.

It is important to note that the differences in engagement with advertisements between platforms often are driven by the low levels of visual attention to online display advertising. For example, participants spent an average

of 17.4 times the amount of time directing their gaze to television advertising versus online display advertisements. Advertisements typically were viewed three times longer on television than the online rich-media advertising.

Television advertisements held visual attention for a majority of their duration, whereas time spent gazing at the online advertisements was limited. This finding was consistent with prior eye-tracking-based data that have suggested that a typical banner advertisement had about 16 percent of the value of a 30-second commercial (McPheters & Company, 2009).

Given the magnitude of the difference between advertising engagement and brand resonance on television and online, it was not surprising that online advertisements placed in category-relevant content or general interest content failed to achieve

statistically significant impact when compared to television.

PHASE 2: TELEVISION AND ONLINE ADVERTISING ENGAGEMENT SYNERGY

Methodology

Participants, Branding, and Media. In Phase 2, 122 participants were recruited. Recruitment criteria for Phase 2 were identical to that of Phase 1. Participants were randomly divided into three groups (See Figure 2):

- One-third (Brand-and-Program Synergy) were exposed to television advertisements for six familiar U.S. brands embedded in a FOX program (“Glee” or “Family Guy”) and then exposed to online rich-media advertisements for the same six brands embedded in the sections of FOX.com dedicated to the

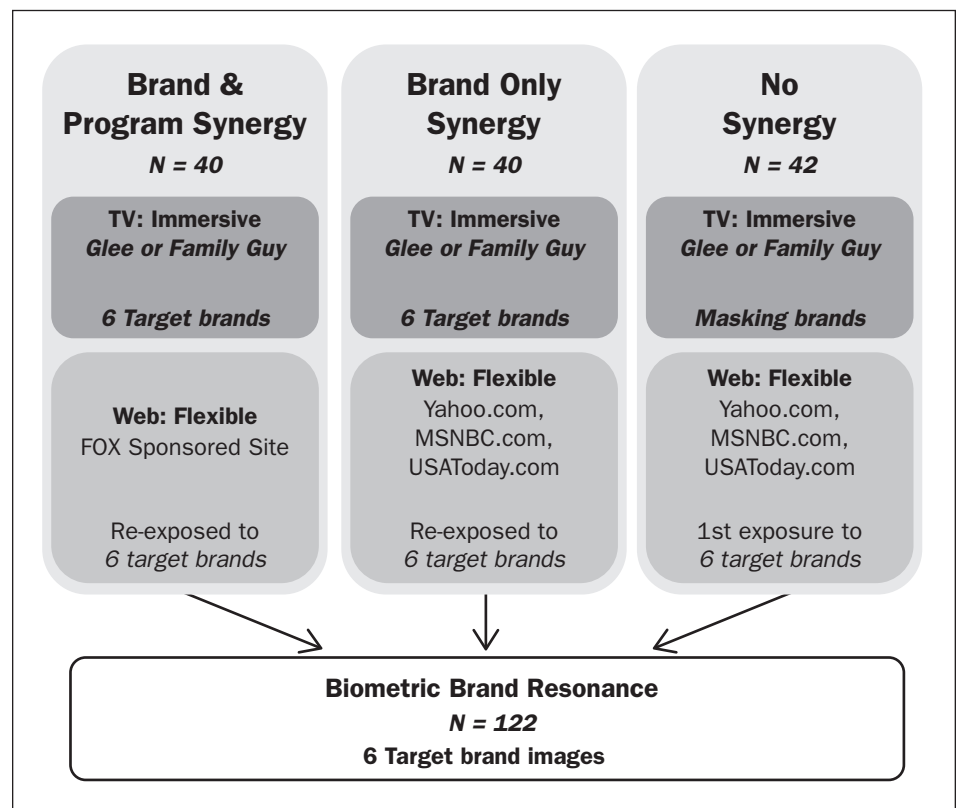


Figure 2 Experimental Study Design for Phase 2 Platform Synergy

same program. In this way, the group experienced the same brands advertised across two media environments with FOX program synergy (the brands advertised in an online environment related to the programming from the television viewing experience). In all cases, the first exposure was in the television environment, and the second was online.

- One-third (Brand-Only Synergy) saw the six familiar U.S. target brands placed within a FOX program (“Glee” or “Family Guy”) and then again within online rich-media display advertisements for the same six brands. For this group, however, advertisements were placed into general interest rich-media Web sites. Thus, participants in the Brand-Only Synergy group experienced brand synergy (exposure to brands in television advertising followed by advertisements for the same brands online), but not program synergy.
- The final third (No Synergy) saw masking advertisements embedded in a FOX program (“Glee” or “Family Guy”) and the six familiar U.S. target brands on the general-interest Web sites. Thus, for participants in this group, there was no synergy as the target brands were viewed only in the online context.

For all three groups, additional content was included within the television, online, and brand-resonance experience to mask the target content used in the analyses. All online advertising was in the form of animated rich-media display advertisements and did not include premium television-based online video content.

Procedure. Visual attention and biometric monitoring procedures in Phase 2 were identical to those used in Phase 1.

Likewise, biometrically based emotional engagement and brand-resonance scores were generated in the same manner as Phase 1.

Results

For the synergy phase of the research, Innerscope and FOX hypothesized that seeing an advertisement in an immersive environment created an emotional connection to the product or brand that carries through to the online environment.

Thus, the more the online experience reflected the original immersive environment, the greater the potential was for engagement with the advertising for the audience, particularly for the same brands. The results largely support these hypotheses.

When comparing the three groups from Phase 2 indexed to the Online-Only condition, the Brand-Only Synergy condition in general-interest context (i.e., same brands on “Glee” and USA Today.com) generated higher biometric intensity, visual attention, and brand resonance than Online-Only. In addition, the Brand-and-Program Synergy condition in program-specific context (i.e., same brands on “Glee” and FOX.com’s “Glee” Web pages) showed an even stronger effect across the outcome measures.

Brand exposure during a popular FOX program, followed by an online exposure to the brand within the vertical Web site related to the same FOX program, created a synergistic effect that increased visual attention and emotional response to the advertisements, and carried over to the brand-resonance experience.

Similar to Phase 1, differences in the Online-Only versus the Television-Only groups were most notable for visual attention, though Television-Only also was significantly higher for biometric intensity. Interestingly, the Brand-Only Synergy in general-interest context was

not significantly higher than Television-Only across outcome measures (Table 1 and Figure 3).

DISCUSSION

The widening array of digital-media platforms has given viewers the ability to consume media content in a variety of ways for a number of purposes.

Differences in the characteristics of a given platform (e.g., screen size, sound quality), the context it is utilized in, and the typical mind state of the viewer when utilizing the platform all are likely to affect how advertising is experienced.

Today, advertisers are faced with the daunting challenge of determining how to adjust marketing efforts to fit the rapidly changing landscape of media consumption. Although such changes inherently present challenges, they also provide opportunities.

The present study demonstrates that synergy across platforms provides an opportunity to reinforce brand messaging experienced on television by extending it into targeted online media experiences. Enhancing branding efforts by forging connections across platforms will be central to maximizing the effectiveness of all platforms.

The purpose of the current study was to offer a new model of emotional engagement and enhance the understanding of how platform characteristics interact with consumers’ goals in ways that affect how media and advertising content is experienced. The authors believe that such an understanding should guide cross-platform marketing efforts and synergistic planning.

The results of this study both support and extend existing multi-platform research showing the greater effectiveness of television advertising relative to online advertising (e.g., Rubinson, 2009). Specifically:

- Phase 1 demonstrated that immersive environments (e.g., television) generated much stronger emotional engagement with advertising than flexible environments (e.g., online), and that increased emotional engagement translated into stronger nonconscious connections post-exposure with the brand.

These data converged with previous findings regarding the status of television and online advertising using more traditional testing methods (BBC, 2010; Beard, 2010; Gobry, 2010; McPheters & Company, 2009).

- Phase 2 of the study examined the impact of combining exposure to advertising for the same brands on both television and online to measure the potential for synergy between the two platforms. The results of Phase 2 showed that planned, synergistic online advertising which builds on traditional advertising can enhance the overall impact of marketing efforts.

The results, furthermore, demonstrated that the most effective advertising leveraged common elements from the television program content across the two media platforms. Extending elements from the program into the online environment may reinforce the original experience, increasing the level of engagement with the online advertising. Further, this increased advertising engagement corresponded to increases in viewers' post-exposure resonance with the brand.

The authors believe that the current study is the first of its kind that uses biometrics and eye tracking as a measure of the nonconscious emotional impact of media-platform synergy for advertising of major brands.

They also believe that the results provide initial validation for the neuroscience-informed BIM. Immersive environments

trigger "bottom-up" processing driven primarily by the emotion centers of the brain with the potential to reinforce or create new need states, whereas flexible environments trigger "top-down" processing driven primarily by goal-directed activity and offer more potential to satisfy existing need states.

A key premise tested in the present study was how media best influenced the creation and extension of brand equity on a nonconscious level, separate from the ability to communicate brand attributes. In short, the authors sought to discover how media exposure can change the nonconscious associations in the brain that are the building blocks of need states and motivate purchase.

Prior academic work combined with the BIM framework and the present study results suggest that immersive media environments (television, for instance) may be optimal for creating brand relevance. To validate this theory, one portion

TABLE 1

Summary of Findings from Phase 1 and Phase 2

Group	Biometric Intensity Index	Visual Attention Index
Online-Only	100	100
TV-Only	223	1675
Brand-Only Synergy	236	1755
Brand & Program Synergy	253	1888

of the current study used non-domestic brands unfamiliar to U.S. audiences. The results showed that emotional engagement with unfamiliar brands was higher when the first exposure was through television than when the same brands were first seen online.

It is important to note that the increased engagement with the advertising

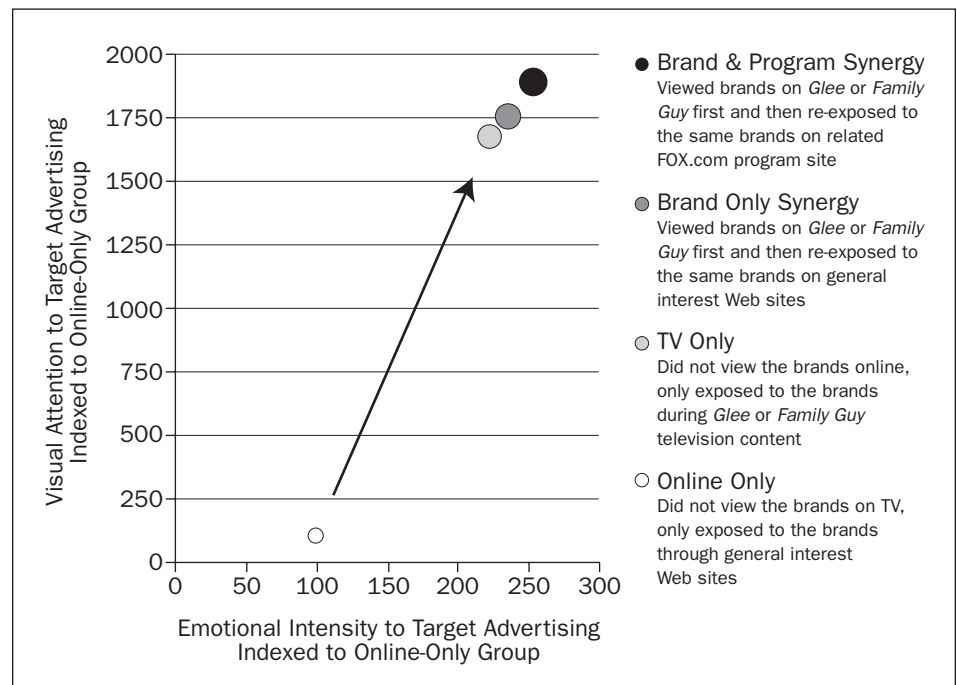


Figure 3 Visual Attention by Emotional Intensity Indexed to Online-Only (Brand Resonance Reflected by Data Point Size)

translated into a nearly 300-percent advantage in post-exposure brand resonance, the biometric measure of media-driven brand equity. In sum, the television experience surpassed the online experience in generating nonconscious emotional responses for unfamiliar brands, confirming television as an effective medium for creating brand equity where previously none existed.

Also consistent with the BIM, the difference between high levels of engagement with unfamiliar advertisements on television relative to online suggests that consumers are unlikely to interact with brands that are new to them (i.e., less relevant) in a flexible environment. Differences across conditions were driven, in large part, by the low levels of visual attention to the online rich-media ads. Stated simply, unfamiliar brands appeared less likely to attract visual attention online. This is problematic, given that visual attention is an important part of engagement, particularly in the typically content-dense online environment.

By contrast, the more immersive, “bottom-up” processing environment of television was stronger in garnering and holding visual attention during advertising. Thus, the authors believe that television may be in a better position to create associations for unfamiliar brands and strengthen associations for existing and known brands. This is consistent with the “connection-creation” hypothesis that suggests that brand resonance is best generated with stronger engagement inherent in immersive experiences.

The results from Phase 2—the synergy component of the study—supported two key assertions:

- Online brand exposure exponentially is more relevant and effective when prior emotional connections exist.

- Re-exposure online to common thematic elements of the original television program environment likely facilitates activation of brand associations from previous exposure.

Said differently: Shared thematic elements across platforms may prime the viewer emotionally, increasing the relevance and noticeability of the experience of the brand online. This increased relevance may result in a greater likelihood that brand-related information will be tagged in the brain as relevant, resulting in greater attention and emotional engagement to the brand in the flexible media environment.

Increasing the “bottom-up” relevance of such content is highly important, as prior research suggests, and the present study confirms, that a key difference between online and television advertising is that online advertising can be more easily ignored (Dreze and Hussherr, 2003). Further, this finding helps identify mechanisms to explain prior research demonstrating increased advertising effectiveness with cross-platform exposure (Nielsen, 2010; IAB, 2008).

The results, therefore, would seem to support a synergistic media-planning process of forging and maintaining brand equity with television while enhancing brand engagement by advertising in thematically related context online.

The authors believe that the study has a number of strengths:

- The inclusion of a large number of brands across the major advertising categories of entertainment, telecommunications, and automotive allows for broad generalization of the results. To control for relevance, participants were screened for actively attending movies, considering a new cell phone purchase, and likelihood of buying a car in the next three years.

- The practice of leading-edge multi-channel biometrics was combined with state-of-the-art eye tracking and used in a unique experimental design. The medical-grade quality of the biometric sensor platform and industry-reviewed metrics (including completion of an independent Advertising Research Foundation [ARF] Research Review and participation in the ARF NeuroStandards Collaboration) allowed for high-quality, comfortable, passive, non-invasive measurement of brand and content exposure on multiple platforms with no interruption of the experience.

All results were based on nonconscious responses to stimuli as they occurred in the Innerscope Media Lab in Boston, Massachusetts.

- Emotional engagement and emotional resonance are proven as predictive of human behavior and occur below the level of human consciousness and cognitive processing. Traditional survey methods offer little or no ability to capture engagement with advertising, seen individually or in combination, as they are experienced across platforms. By measuring emotional engagement passively with biometrics and eye tracking in a manner more typical of real-world viewing, levels of engagement to advertising in multiple contexts can be quantified, compared, and generalized to real-world experience more meaningfully than traditional measures.

In addition to nonconscious emotional engagement with the advertising, Innerscope introduced a new biometric brand-resonance score. As noted in the Methods section, all participants were shown images of brand logos, product elements, and a selection of masking content after the media

exposure, allowing for a nonconscious measure indicative of lasting connections.

Thus, the present methodology measured both advertising engagement and the more-lasting brand impact that follows exposure.

This study also has a number of limitations:

- It did not test the connection-creation process for the synergy condition in reverse (i.e., have brands appear online first and then gauge the subsequent impact to television exposure). The decision to exclude this condition was based on the early finding that television contributed an overwhelming share of brand engagement and brand resonance in isolated exposure, predicting that initial online exposure would have minimal added effect on television.
- Viewers in the television condition were not given the opportunity to change channels or fast forward. Although this is a limitation, the television experience did allow viewers to avert their gaze and emotionally “tune out”—behaviors that would be captured by the eye tracking and biometrics, respectively. All research methods have limits, and this was deemed an acceptable tradeoff given that most television advertisements are experienced by large numbers of viewers and thus inevitably have some impact (Rubinson, 2009).
- The current study did not test advertising in online vehicles more comparable to television (e.g., online long-form or short-form video). Although rich-media display is still the most common form of advertising online, the expectation is that the audio and storytelling elements of dynamic online video renders it an environment that aligns more closely with immersion than flexibility and

likely confers many of the same benefits as television. Future studies should test the role of online video in the next iteration of BIM validation.

CONCLUSIONS

The present study indicated that immersive media environments—as often embodied by television—can create strong and lasting emotional connections that transfer to the brands showcased. And, by comparison, online environments are less able to generate an environment conducive to brand resonance that is measurable post-exposure—even when using rich-media display advertising.

Instead, online advertising does appear to build stronger brand connections when a brand association or need state already exists. Although category-relevant online context may evoke an established need state and flexible environments allow for consumer interaction in general, the online environment is far less able to invoke non-conscious emotional connections that are the most important component of media-delivered brand equity.

The optimal use of online flexibility is to reinforce prior emotional connections to brands, most efficiently generated by the immersive experience of television, particularly through the use of related program content across platforms.

These results converge with a number of other studies offering marketers a scientifically validated rationale for identifying and employing the best means to connect with consumers when and where they are most receptive to engaging with brands. **JAR**

AUDREY STEELE is senior vice president of sales research and marketing for Fox Broadcasting Company, where she is responsible for marketing the network’s sales and programming strategy to the advertising community through the development of

sales positioning, materials, and primary research initiatives. She received her bachelor’s degree in political science from Fordham University.

DEVRA JACOBS is vice president of strategic insights and director of media research for Innerscope Research, where she identifies new products and directs client research teams. Prior to Innerscope, she conducted neuroimaging and neurolinguistic studies in the behavioral neurology department at the University of Pennsylvania School of Medicine. She received her BA from the University of Pennsylvania and MEd from Harvard University. She has received an Advertising Research Foundation Great Mind Award and serves as a judge in the annual ARF’s David Ogilvy Awards program.

BRIAN LEVINE is co-founder, president, and chief innovation officer for Innerscope Research. Prior to Innerscope, he directed research and design teams for consumer brands across a range of industry categories including consumer product goods, fashion, gaming, and financial services. He led front-end design and customer research for the creation of Major League Baseball’s Web site network. He received his BA in design from the University of Wisconsin and his MBA from the Massachusetts Institute of Technology Sloan School of Management.

RANDALL RULE, PhD, is senior scientist and director of research for Innerscope Research and a cognitive neuroscientist with extensive experience in the field of higher cognitive functions including memory, attention, and emotional response. He is a former assistant professor in the School of Medicine at the University of California, San Francisco, and received his PhD in cognitive neuroscience from the University of California, Berkeley.

CALEB SIEFERT, PhD, is a senior advisor and consultant to Innerscope Research and is an assistant professor in the department of behavioral sciences at the University of Michigan-Dearborn. He runs the Interpersonal Relationships, Emotions, and Personality Lab, and his research focuses on how emotional processes influence attention, memory, perception,

and decision making across a wide range of contexts. He received his BA from Michigan State University, his MA and PhD in clinical psychology from Adelphi University, and completed his postdoctoral training at Harvard Medical School.

.....
CARL D. MARCI, MD, is co-founder, chairman, and chief science officer of Innerscope Research and is on faculty at Harvard Medical School. He received his BA at Columbia University, his MA in psychology and philosophy at Oxford University, and his MD at Harvard. He has extensive training in biometrics and neuroscience through two National Institutes of Health fellowships and his work has been published in *Biological Psychiatry*, the *Journal of Advertising Research*, and the *International Journal of Advertising*.

REFERENCES

- ARRINGTON, C. M. "The Effect of Stimulus Availability on Task Choice in Voluntary Task Switching." *Memory & Cognition* 36, 5 (2008): 991-997.
- BBC. (2010). "TV Ads More 'Effective than Online', says Poll." Retrieved from www.bbc.co.uk/news/business-11068438.
- BEARD, R. "The 5 Truths of TV Advertising Effectiveness." January 18, 2010. Retrieved December 5, 2011, from URL: <http://randallbeard.wordpress.com/2010/01/18/5-truths-of-tv-advertising-effectiveness>.
- BECHARA, A., and A. R. DAMASIO. "The Somatic Marker Hypothesis: A Neural Theory of Economic Decision." *Games and Economic Behavior* 52, 2 (2005): 336-372.
- BONINI, L., and P. F. FERRARI. "Evolution of Mirror Systems: A Simple Mechanism for Complex Cognitive Functions." *Annals of the New York Academy of Sciences* 1225 (2011): 166-175.
- BRADLEY, M. M., M. CODISPOTI, B. N. CUTHBERT, and P. J. LANG. "Emotion and Motivation I: Defensive and Appetitive Reactions in Picture Processing." *Emotion* 1, 3 (2001): 276-298.
- CRITCHLEY, H. D. "Neural Mechanisms of Autonomic, Affective, and Cognitive Integration." *Journal of Comparative Neurology* 493, 1 (2005): 154-166.
- DAVIS, M. "The Role of the Amygdale in Conditioned and Unconditioned Fear and Anxiety." In *The Amygdale*, vol. 2, J. P. Aggelton, ed. Oxford, England: Oxford University Press, 2000.
- DAVIS, M., and P. J. LANG. "Emotion: Integration of Animal and Human Data and Theory." In *The Comprehensive Handbook of Psychology: Volume 3. Biological Psychology*, M. Gallagher and R. J. Nelson, eds. New York, NY: Wiley, 2001.
- DREZE, X., and F. HUSSHERR. "Internet Advertising: Is Anybody Watching?" *Journal of Interactive Marketing* 17, 4 (2003): 8-23.
- EAGLEMAN, D. *Incognito: The Secret Lives of the Brain*. New York, NY: Pantheon Books, 2011.
- GOBRY, P. "This Amazing Video Is Why TV is Bigger than the Internet." *Business Insider*, May 21, 2010. Retrieved December 5, 2011, from URL http://articles.businessinsider.com/2010-05-21/sports/30010311_1_online-ad-tv-ad-internet.
- GRAY, J. R. "Integration of Emotion and Cognitive Control." *Current Directions in Psychological Science* 13, 2 (2004): 46-48.
- HEATH, R. G. "Emotional Engagement: How Television Builds Big Brands at Low Attention." *Journal of Advertising Research* 49, 1 (2009): 62-73.
- INTERACTIVE ADVERTISING BUREAU. (2008). "TV & Online: Better Together." Retrieved from www.thinkbox.tv/server/show/nav.1053.
- LANG, P. J., M. M. BRADLEY, and B. CUTHBERT. "Motivated Attention: Affect, Activation, and Action." In *Attention and Orienting*, P. J. Lang, R. F. Simons, and M. T. Balaban, eds. Hillsdale, NJ: Lawrence Erlbaum, 1997.
- LAVIE, N. "Distracted and Confused?: Selective Attention under Load." *Trends in Cognitive Sciences* 9, 2 (2005): 75-82.
- LEDoux, J. E. "Emotion, Memory and the Brain." *Scientific American Magazine*, June 1994.
- MANDESE, J. "This Is Your Brain on Screens." *MEDIA Magazine* spring (2010): 30-33.
- MARCI, C. D. "A Biologically Based Measure of Emotional Engagement: Context Matters." *Journal of Advertising Research* 46, 4 (2006): 381-387.
- MCPHETERS & COMPANY. (2009). "TV and Magazine Ads More Effective Than Ads on Internet." Retrieved December 13, 2012, from <http://mcpeters.com/2009/04/01/tv-and-magazine-ads-more-effective-than-ads-on-internet>.
- NIELSEN. (2010). "Data Integration Optimizes Advertising Media Mix." Retrieved December 13, 2012, from http://blog.nielsen.com/nielsenwire/online_mobile/data-integration-optimizes-advertising-media-mix.
- PARPIS, E. "Spice It Up." *ADWEEK*, July 26, 2010. Retrieved December 6, 2011, from URL: www.adweek.com/news/advertising-branding/spice-it-102895.
- PAVLOU, P. A., and D. W. STEWART. "Measuring the Effects and Effectiveness of Interactive Advertising: A Research Agenda." *Journal of Interactive Advertising* 1, 1 (2000): 62-78.
- PINCUS, D., W. FREEMAN, and A. MODELL. "A Neurobiological Model of Perception: Considerations for Transference." *Psychoanalytic Psychology* 24, 4 (2007): 623-640.
- PRESTON, S. D., and F. B. M. DEWAAL. "Empathy: Its Ultimate and Proximate Bases." *Behavioral and Brain Sciences* 25, 1 (2002): 1-72.

RAMPONI, C., A. RICHARDSON-KLAVEHN, and J. M. GARDINER. "Component Processes of Conceptual Priming and Associative Cued Recall: The Roles of Preexisting Representation and Depth of Processing." *Journal of Experimental Psychology: Learning, Memory, and Cognition* 33, 5 (2007): 843–862.

RUBINSON, J. "Empirical Evidence of TV Advertising Effectiveness." *Journal of Advertising Research* 49, 2 (2009): 220–226.

SIEFERT, C. J., R. KOTHURI, D. B. JACOBS, B. LEVINE, J. PLUMMER, and C. D. MARCI. "Winning the Super 'Buzz' Bowl: How Biometrically Based Emotional Engagement Correlates with Online Views and Comments for Super Bowl Ads." *Journal of Advertising Research* 49, 3 (2009): 293–303.

TOBII TECHNOLOGY. (2010). "Timing Guide for Tobii Eyetrackers and Eye Tracking Software." Technical White Paper, February 23, 2010. Tobii Technology. Stockholm, Sweden.

TREUTLER, T., B. LEVINE, and C. D. MARCI. "Biometrics and Multi-Platform Messaging: The Medium Matters." *Journal of Advertising Research* 50, 3 (2010): 243–249.

WINKIELMAN, P., B. KNUTSON, M. PAULUS, and J. L. TRUJILLO. "Affective Influence on Judgments and Decisions: Moving Towards Core Mechanisms." *Review of General Psychology* 11, 2 (2007): 179–192.