

# On Measuring and Increasing the Effectiveness of Banner Advertising

Haren Ghosh<sup>1</sup>, Amit Bhatnagar<sup>2</sup>

<sup>1</sup>President & CEO, Analytic Mix Inc., USA

<sup>2</sup>Sheldon B. Lubar School of Business, University of Wisconsin-Milwaukee, USA

**ABSTRACT:** *Despite impressive growth in banner advertising budgets, doubts persist amongst practitioners about the effectiveness of banner advertising and the techniques used to measure it. A number of approaches such as click-throughs, mouse rollovers and eyetracker studies have been developed to measure the banner ad effectiveness. We argue that banner ad effectiveness can also be determined by measuring the change in perceptions of consumers who have been exposed to a banner ad. We further argue that the effectiveness of a banner ad can be increased by identifying the issues that are salient to the target consumers and then aligning the message in the banner ad with these issues. A case study is presented where the technique is demonstrated on an advertising campaign launched by the travel department of an Asian country. Consumers who were exposed to the banner ads were shown to be more likely to visit the advertised country.*

**KEYWORDS:** *Advertising Effectiveness, Ad Recall, Ad Message, Banner Advertising.*

## 1. Introduction

The news regarding online advertising continues to be very exciting. In the first half of 2013, online advertising revenues totaled \$20.1 billion, exhibiting double digit annual growth rates for the past three years (Interactive Advertising Bureau, 2013). Online advertising growth has consistently outperformed total media market growth based on Nielsen and Kantar estimates (Interactive Advertising Bureau). Of all the different advertising formats that have been developed for the online domain, banner ads continues to be an important one. Banner ads are graphics that are placed at an ad hosting website and hyperlinked to the sponsoring website that carries more detailed product and promotional information. In the first-half of 2013, banner ad revenues were \$6.1 billion, a 19% share of the online ad dollars (Please see Table 1).

The only dark cloud in all the exciting news about banner ads is clickthrough rate, defined as the percentage of consumers who are exposed to an ad and who actually click on the ad to get to the sponsoring website (Drèze & Hussherr, 2003; Fisher & Pappu, 2006). Clickthrough rate is an important metric that is frequently used to measure the

**Table 1** Expenditure in Different Advertising Formats in the First-half of 2013

Ad Format	Share of Total Ad Revenue
Search	43%
Banner Advertising	19%
Mobile	15%
Online Classifieds	6%
Digital Video	7%
Lead Generation	4%
Sponsorship	2%
Rich Media	3%
Email	0.4%

Source: Interactive Advertising Bureau (2013).

effectiveness of banner ads. This metric is also used extensively to determine the price of banner ads. According to ComScore ([www.comscore.com](http://www.comscore.com)), over 5.3 trillion display ads were served to US users in 2012, with a typical Internet user served 1,707 banner ads per month. As the number of banner ads served per user has increased, the advertising clutter has also increased (Yaveroglu & Donthu, 2008). Consequently, clickthrough rates have plummeted and stand now at 0.1 percent (Chaffey, 2013). This statistic leads some researchers and practitioners to question whether banner ads are effective.

Some researchers argue that clickthrough rate is not a good measure of banner ad effectiveness. The argument is that even when consumers do not click on a banner ad, they may have paid attention to it. This has led to studies that measure banner ad effectiveness by other means, such as mouse rollovers (Rosenkrans, 2010) and eyetracker analysis (Baraggioli & Brasel, 2008; Lee & Ahn, 2012), that track whether consumers are paying attention to an ad. When consumers pay attention to an ad, they process it peripherally, and get persuaded by the message. Consumers respond to banner ads in a number of different ways, and these responses are not all similar, but follow an hierarchy. There are different hierarchy models, but they all argue essentially that consumers' response to ads progress in an orderly fashion, where the first stage is cognitive ("thinking"), followed by affective ("feeling"), and finally conative ("doing") (Barry & Howard, 1990). We can measure consumer response in any fashion, cognitive, affective, or conative. We decided to measure consumer response by the first stage, that is, cognitive as it leads to all subsequent stages. We put forward a new method to measure banner ad effectiveness by directly ascertaining the changes in perceptions of consumers who have been exposed to a banner ad. Since consumer perceptions drive purchase probability, anything that changes these perceptions should also influence the purchase probability. By directly linking

airiti

exposure to a banner ad to purchase probability, our approach yields a very objective measure of banner ad effectiveness that can be used to determine the return on advertising investments.

A related issue is what drives the effectiveness of banner ads. Extant research has revealed that the effectiveness of banner ads depends on a number of factors, such as consumer characteristics (Palanisamy, 2005), executional elements (Yaveroglu & Donthu, 2008), and banner characteristics (Baraggioli & Brasel, 2008). One of the banner characteristics that is critical to the success of banner ads, but has not been studied so far is the advertising message. Since banner ads change the perceptions of consumers, the message in banner ads must play a critical role in how these perceptions change. This insight can help an advertiser in improving the effectiveness of banner ads. They should first identify the attributes that are salient to the target consumer, and then craft the message in the banner ads to change the perceptions of consumers about these attributes.

To demonstrate how to measure and increase the effectiveness of banner ads, we analyze an online advertisement campaign launched by the national tourism department of an Asian country. We chose the travel sector to demonstrate our strategy as advertising banners are used quite commonly in the travel industry. During March 2012, advertisers in the travel sector in UK placed nearly 3.1 billion display ad impressions, reaching 87 percent of the total internet audience and accounting for 4.5 percent of all display ad impressions served. This Asian country is an upcoming travel destination and their tourism department had launched a major advertising campaign on the Web consisting of banner ads. They wanted to determine if their current online advertising effort has been effective in increasing consumers' likelihood of visiting their country. More importantly, they wanted to identify a cost effective way to increase the effectiveness of their ad campaign. We show that the effectiveness of banner ads can be increased by changing the message in the banner ads.

In the next section, we survey the literature on advertising effectiveness to put the paper in its proper context. We provide details about the data in Section 3 and about the methodology used to analyze this data in Section 4. In Section 5, we discuss the results of our finding and conclude with managerial implications.

## **2. Literature review**

In this section we first review the literature on advertising effectiveness in traditional media. We then review the literature on banner advertising effectiveness, followed by a review of the techniques used to measure banner advertising effectiveness. Last, we review the literature on how consumers choose travel destinations.

### **2.1 Traditional advertising effectiveness**

Advertising effectiveness is one of the most important research issues in marketing. Advertisers constantly strive to implement a media resource allocation program that maximizes the return on media investment. Successful implementation of such a program requires a clear understanding of the role of media dollars in persuading the target segment to purchase the advertised product. Majority of these attempts revolve around media placement decision that relies primarily on reach (Pelsmacker, Geuens & Vermeir, 2004) and frequency (Naples, 1997). Although increasing reach and/or frequency can increase the effectiveness of a campaign, obtaining additional amounts of either or both can quickly become very expensive. This is because managers increase reach or frequency by either buying more impressions (Farris, Bendle, Pfeifer & Reibstein, 2006) for a longer period of time and/or employing multiple media.

While most of the existing research on advertising effectiveness has focused on reach and frequency, some researchers have also identified the important role of advertising message. Research has shown that advertising changes consumers' perceptions about the advertised product (Agostinelli & Grube, 2002; Chang, 2002; Petty & Cacioppo, 1979; 1996; Shao, 2002). Wang (2006) shows that when consumers are engaged with the advertising message, the advertising effectiveness increases. Engagement with an ad can also be managed by the message strategy. For instance, Laskey, Fox and Crask (1995) show that different messages strategies lead to different levels of ad effectiveness, and the optimum message strategy depends on the product category. We extend their finding by arguing that the optimum message strategy will also depend on the market segment. It has been shown that marketing message should be different for men and women (Brunel & Nelson, 2003), different cultures (James & Hill, 1991). This is because different market segments seek different benefits. Therefore, the marketing message should depend on the benefits that the target consumers seek. Managers need to first determine whether their advertising message focuses on issues that are relevant to their target customers. If it is not, then the advertising message should be changed to bring it in alignment.

### **2.2 Banner ad effectiveness**

Banner ad effectiveness depends on a number of factors, such as consumer characteristics (Palanisamy, 2005), executional elements (Yaveroglu & Donthu, 2008), and banner characteristics (Baraggioli & Brasel, 2008). Consumer characteristics, such as gender and culture, have been found to influence banner ad effectiveness. Palanisamy finds that gender influences the attitude towards banner ad, consumer expectations and banner ad effectiveness. In a cross-cultural study carried out in China and UK, Ju (2013) found culture to play a major role in banner ad effectiveness. Möller and Elsend (2010) find that consumers intention to click on banner ads can be explained by Hofstede's

cultural dimensions. Yaveroglu and Donthu focus more on execution strategy and conduct a number of experiments to show that advertising repetition strategy influences banner ad effectiveness. They found that banner ad repetition leads to greater brand recall and intention to click. In a noncompetitive environment, an ad variation strategy works better, whereas in a competitive environment, an ad repetition strategy works better. Other researchers have studied the role of ad size (Baltas, 2003), placement (Rosenkrans, 2010), and duration of exposure (Wang, Shih & Peracchio, 2013) on the effectiveness of banner ads.

The following studies have examined the effect of different aspects of banner ad design on banner ad effectiveness. Robinson, Wysocka and Hand (2007) study the impact of seven banner characteristics on ad effectiveness. The different design characteristics that they study are absence of promotional incentives, animation, presence of company logo, and action phrase. Baraggioli and Brasel (2008) use an eyetracker study to show that larger movements in wide spacing conditions can lead to increased visual attention on peripheral advertising banners. In a similar vein, Lee and Ahn (2012) use an eyetracker study to analyze the role of animation in banner ads in focusing consumer attention and subsequent information processing. They found that animation not only attracts less attention but also reduces the effect on memory. Thota, Song and Larsen (2010) also study the role of animation in banner ads effectiveness. Some other researchers have found animation to play no role in banner ad effectiveness (Robinson et al., 2007). As the evidence regarding animation in banner ads is mixed, Chtourou and Abida (2010) developed a typology of animations to enable better understanding of the effectiveness of different animation characteristics. Chi, Yeh and Chiou (2012) conduct a study to find that information presentation style in a banner ad influences its effectiveness. Rosenkrans (2010) study the role of banner ad design in effectiveness. More specifically, the design criterion they study are interactivity, animation, and nature of appeal (rational or emotional). One of the issues in banner ad design that has been overlooked by existing studies is the role of advertising message. From traditional advertising research, we know that ad message plays a major role in attracting consumer attention and motivating them to purchase the product. Briggs and Hollis (1997) have found that banner ads can change brand perceptions even without click-throughs. In this research, we study the role of advertising message and how it can be changed to maximize the effectiveness of banner ads.

### ***2.3 Measures of banner ad effectiveness***

The earliest and still the most widely used method of measuring brand ad effectiveness is derived from traditional advertising and is based on the number of people exposed to the banner ad. This measure has been criticized, as it is possible that

a consumer may have been exposed to a banner ad but may not have paid any attention to it (Lee & Ahn, 2012). Drèze and Hussherr (2003) find that even when consumers do not click on a banner ad, the banner ads are effective. Unlike traditional retailing environments, consumers' navigation behavior on the web can be recorded. This led to the development of metrics that are more closely tied to consumers' interaction with banner ads, such as click-throughs (Baltas, 2003; Möller & Eisend, 2010) and mouse rollovers (Rosenkrans, 2010). However, these response based metrics are also problematic (Drèze & Hussherr). A couple of eyetracker studies (Baraggioli & Brasel, 2008; Lee & Ahn) have shown that even when consumers do not interact with an ad, they may pay attention to it and cognitively process the message in it. For a banner ad to be effective, consumers not only have to pay attention to it but also recall it after cognitive processing. Some of the factors that increase the recall of banner ads are embedded videos, price, product or services (Alijani, Mancuso, Kwun & Omar, 2010). A reasonable metric of brand ad effectiveness should be based on the fact that if consumers have paid attention to a banner ad and cognitively processed it, then their perceptions about the advertised product should have been altered. We put forward an approach that measures the effectiveness of banner ads by the extent to which consumer perceptions have been altered.

#### ***2.4 Choice of travel destination***

The choice of a travel destination depends on the benefits that consumers seek, i.e., the attributes of travel destination (Kaciak & Louviere, 1990). Advertisers in tourism marketing have identified various benefits that motivate travelers in selecting their travel destinations (Baloglu & Uysal, 1996; Jamrozny & Uysal, 1994; Uysal & Hagan, 1993, etc.). Traditionally, the factors (e.g., beaches, recreation facilities, historic resources, etc.) have been taken as the drivers that attract travelers to a specific destination once the decision of travel is made (Baloglu & Uysal; Christensen, 1983; Crompton, 1979). The factors, which build the association of a brand with its perceived attributes, are instrumental in making effective marketing communications that influence travelers' decision choices about destinations (Baloglu & Uysal). This association of a brand and its perceived attributes has been accepted as a key to building a unique image when communicating a brand position by most advertising campaigns (Romaniuk & Gaillard, 2007). For instance, according to Romaniuk and Gaillard, associating a tourist spot with shopping opportunities builds the association between the tourist spot and shopping opportunities in consumers' mind. This will lead them to access a stronger link between the tourist spot and shopping at the expense of competitors.

A couple of papers have specifically studied the effect of advertising in the travel category and found that advertising changes consumers' perceptions about travel destinations (Greco 1988; Taylor & Franke, 2003). Grønhaug and Heide (1992) studied

the impact of a promotional film about Norway as a travel destination. They found that advertising changes consumers' perceptions about the target, and furthermore the created images may be different from their evaluations based on personal experience. It is therefore reasonable to assume that a target segment chooses a travel destination based on their perception of the destination on different benefit attributes. Their perception of the attributes is influenced by advertising, and therefore right choice of the message can influence the perceptions favorably.

### **3. Data and methodology**

To evaluate the advertising campaign of the travel department of the destination country, data were collected with the help of an online survey. The advertising banner of the destination country was randomly displayed at a well-known travel website. The software dropped cookies on the computers of site visitors. When these visitors visited the site again, they were randomly chosen to participate in the online survey. Therefore, each respondent had visited the site twice. The first time they were exposed to the banner ad and second time they were invited to participate in the survey. The online data collection platform assigned a unique identification number to each of the respondents.

The data collection was carried out over a period of 72 hours. When we started displaying the banner ads, we recorded the time and exactly 72 hours later we stopped collecting the data. After the banner ad started getting displayed at the travel website, we started dropping cookies on the computers of all those who visited the travel site. We invited those visitors who returned to the site within 72 hours of the banner ad going live to participate in the study. Different respondents visited at different times and returned after different durations. For instance, someone might have returned after half an hour and someone else after 27 hours. It is also possible that someone returned after 72 hours, but they were not invited to participate in the study, because we stopped conducting the study after 72 hours. One of the challenges in the study was determining the duration of the study. If the duration is kept short, one does not get enough participants and the sample size becomes small. If the duration is long, the probability of the effect of the ad wearing off starts increasing. After some pre-trial studies, we determined 72 hours as the optimum time duration for the study. We carried out this study in conjunction with the media company of the travel department, and were therefore able to ensure that the banner ads were displayed at only this one travel site. This was necessary to prevent the participants getting exposed to banner ads at some other website.

In the survey, respondents were presented with a list of eight Asian countries that are well-known tourist destinations. The destination country is a south-east Asian

country that is gaining popularity as a tourist destination. The other seven countries were the neighboring countries of south-east Asia. Respondents were asked to state their likelihood of visiting each one of the countries on a 5 point Likert scale anchored by Very Unlikely and Very Likely. Respondents' preferences for the different countries were elicited upfront, so that their stated preferences for different countries were not contaminated by their exposure to the ad banner during the study. After determining respondents' likelihood of visiting different countries, they were asked to evaluate the focal country (hereafter referred as country  $n$ ) on the following set of attributes, (1) has excellent shopping opportunities, (2) an exotic place to visit, (3) a romantic place to visit, (4) a relaxing place to visit, (5) a safe place to visit, (6) a clean place to visit, (7) a place to take kids on vacation, (8) has diverse culture, (9) traditions and history, (10) offers unique culinary adventures, (11) offers the opportunity to observe top class sporting events, (12) has beautiful scenery, (13) is an affordable country to travel to, (14) has beautiful beaches, (15) has exciting city attractions, and (16) is good for nightlife. The attributes were selected by identifying the key message goals of the advertising campaign. For each attribute, respondents were asked to state on a 5-point Likert scale, anchored by Strongly Disagree and Strongly Agree, whether country  $n$  has the attribute.

Finally, respondents were shown the online banner ad, and asked if they recall seeing the ad. The data collection procedure itself is quite unique, because it enabled us to show the actual advertising banner to every respondent. While several studies have used the Internet to conduct surveys, as far as we know this is one of the first studies to leverage the multimedia capability of the Internet to conduct the survey. Exposure to the original ad aided respondents' recall of the original ad. In addition, the survey contained general demographic information, which helped to profile the sample. In all, there were 860 complete responses with no missing data.

We next put forward a model to determine the role of banner advertising in the choice of a travel destination. In the first part of the model, we show how consumers' perceptions of a country influence the consumers' decision to travel to that country for vacation. In the second part, we show how advertising influences consumers' perceptions of the country.

The dependent variable is the probability of visiting country  $n$ , and the choice set consists of a list of countries that are rival travel destinations. In the survey, respondents were asked to state the likelihood of visiting each one of the countries in the choice set on a 5 point Likert scale, anchored by Not at all Likely and Very Likely. Let individual  $i$ 's rating of likelihood of visiting country  $n$  on the Likert scale be  $P_i^n$ . Then, individual  $i$ 's probability of visiting country  $n$  from the list of countries can be modeled by the standard multinomial logit probability (Maddala, 1983),



$$\pi_i^n = \frac{\exp(P_i^n)}{\sum_s \exp(P_i^s)} \quad (1)$$

where,

$s$  indexes the countries in the choice set, and

$P_i^s$  is respondent  $i$ 's rating of the likelihood of visiting country  $s$  on the Likert scale.

Our interest is in learning how a respondent's probability of visiting country  $\mathbf{n}$ , i.e.,  $\pi_i^n$  of Equation (1), is influenced by his/her perception of that country. This can be done by regressing  $\pi_i^n$  on consumer perceptions. However, we cannot run OLS regression, as the dependent variable  $\pi_i^n$  is constrained to vary between 0 and 1. We estimate the log odds ratio model, where we just transform the dependent variable to normalize it. Subsequently, we run the following regression equation to estimate the parameters,

$$\ln\left(\frac{\pi_i^n}{1-\pi_i^n}\right) = \alpha + \sum_j \beta_j X_{ij} + \varepsilon_i \quad (2)$$

where,

$\alpha$  is the base preference for country  $\mathbf{n}$ ,

$X_{ij}$  is respondent  $i$ 's perception of country  $\mathbf{n}$  on attribute  $j$ ,

$\beta_j$  is the role of  $j$  attribute in the choice of travel destination,

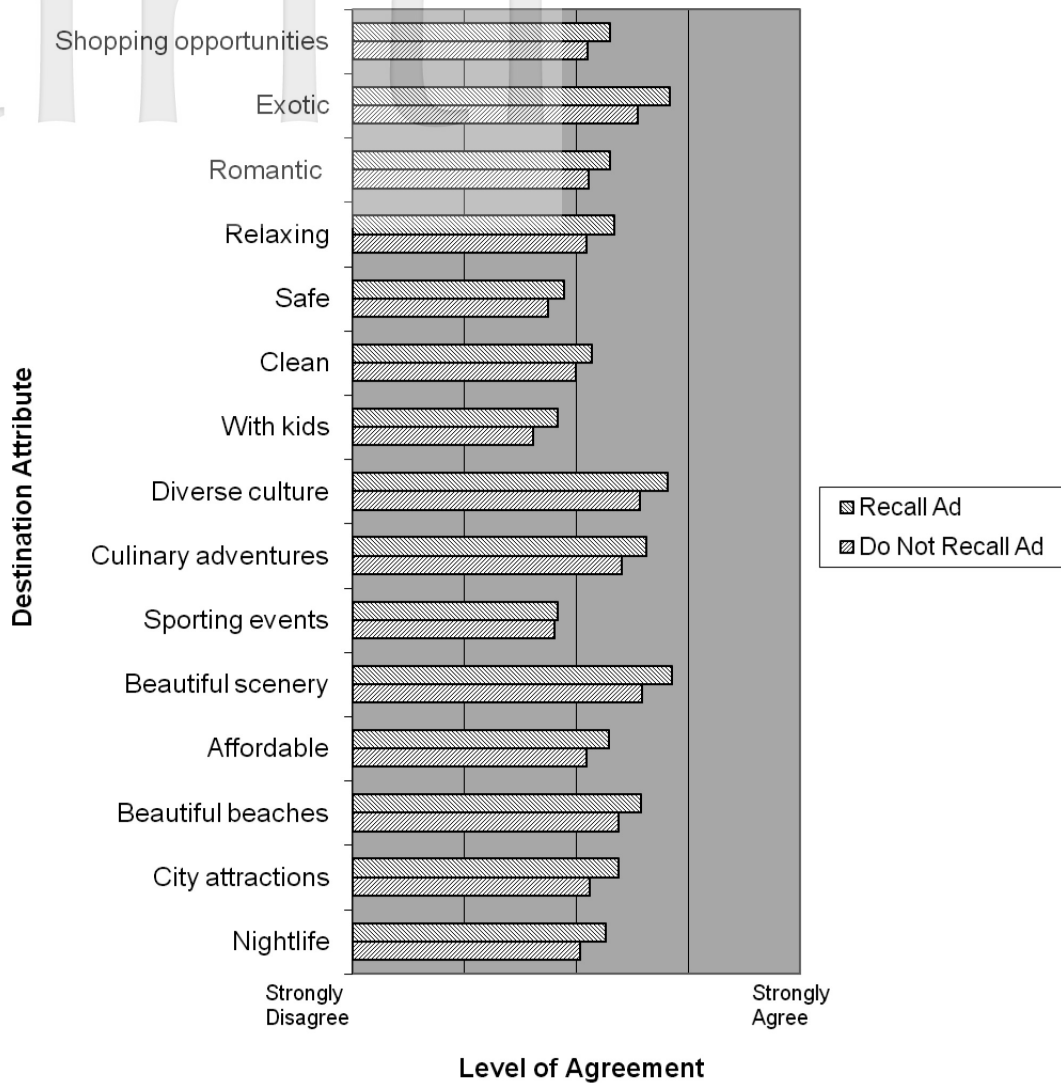
$\varepsilon_i$  is the disturbance term, assumed to have a standard normal distribution.

Let  $\bar{X}_j$  be the sample average value of attribute  $X_{ij}$ , and  $\hat{\alpha}$  and  $\hat{\beta}_j$  be the estimated values of  $\alpha$  and  $\beta_j$  of Equation (2). By substituting  $\bar{X}_j$ ,  $\hat{\alpha}$ , and  $\hat{\beta}_j$  in Equation (2), we can determine the average probability of visiting country  $\mathbf{n}$ , i.e.,  $\pi_i^n$  by the sample.

$$\pi^n = \frac{\exp(\hat{\alpha} + \sum_j \hat{\beta}_j \bar{X}_j)}{1 + \exp(\hat{\alpha} + \sum_j \hat{\beta}_j \bar{X}_j)} \quad (3)$$

#### 4. Data analysis and results

We split the total sample into two segments, those who recall the ad and those who do not. For each segment, we calculate their mean perception of the destination on each one of the sixteen attributes. We have plotted the mean values in Figure 1. From Figure 1, we can see that respondents who recall seeing the ads perceive country  $\mathbf{n}$  to be higher on most of the attributes. To examine if there are any significant difference between the



**Figure 1** Respondents' Perception about the Target Destination

means of these two groups, a one-way ANOVA was run and the results are in Table 2. This shows that advertising does change consumers' perception about the country. The largest impact of advertising is on consumers' perception of the exotic nature of country **n**. The perception increased by 0.28 on a 5-point scale. The second highest impact is on consumers' perception of whether country **n** has beautiful scenery and natural environment. The impact of advertising in terms of decreasing order is on consumers' perceptions about diverse culture, traditions and history, and exciting city attractions. The advertising does not significantly change consumers' perception of two of the sixteen attributes, i.e., safe place to visit and offers the opportunity to observe top-class sporting events.

**Table 2** Impact of Advertising on Perceptions of Travel Destination Attributes

	Mean (Do not Recall Ad)	Mean (Recall Ad)	F Stats	Difference between Means
Has excellent shopping opportunities	3.10 (0.785)	3.30 (0.918)	8.247**	0.20
An exotic place to visit	3.55 (0.986)	3.83 (1.002)	10.675**	0.28
A romantic place to visit	3.11 (0.891)	3.30 (0.980)	6.488**	0.19
A relaxing place to visit	3.09 (0.869)	3.34 (0.968)	10.706**	0.25
A safe place to visit	2.74 (0.957)	2.89 (1.014)	3.465	0.15
A clean place to visit	2.99 (0.822)	3.14 (0.920)	4.512*	0.15
A place to take kids on vacation	2.61 (0.861)	2.83 (0.935)	9.110**	0.22
Has diverse culture, traditions and history	3.56 (0.978)	3.81 (0.967)	9.311**	0.25
Offers unique culinary adventures	3.40 (0.882)	3.62 (0.907)	9.150**	0.22
Offers the opportunity to observe top-class sporting events	2.80 (0.706)	2.83 (0.791)	0.195	0.03
Has beautiful scenery / Natural environment	3.58 (0.963)	3.85 (0.959)	11.118**	0.27
Is an affordable country to travel to	3.09 (0.853)	3.29 (0.953)	7.470**	0.20
Has beautiful beaches	3.37 (0.882)	3.57 (0.912)	7.114**	0.20
Has exciting city attractions	3.12 (0.772)	3.37 (0.853)	13.227**	0.25
Is good for nightlife	3.03 (0.791)	3.26 (0.756)	11.624**	0.23

Note: The numbers in the bracket are the standard deviations. The number of respondents who recall the ad is 175 and the number of respondents who don't recall the ad is 685.

\*\*Significant at 0.01 level; \*Significant at 0.05 level.

To run the regression as specified in Equation (2), the ideal approach would be to run a multiple regression with all the perceptual attributes taken together as the independent variables. However, respondents' perceptions of the country on different attributes were very heavily correlated. This leads to the problem of multicollinearity, which is quite severe in our data. The traditional approach of handling multicollinearity is to combine the independent variables into fewer orthogonal factors. However, we did not wish to combine all the perceptual attributes, as we wanted to measure their individual impact on the choice decision. We, therefore, ran a series of simple regressions with all the attributes taken one by one.

The results of our analysis are reported in Table 3. The second column has estimates of the constant and the third column the coefficient of the country attribute ( $\beta_j$ ). For each model, we tested the model fit by calculating the F statistics; the p-values are reported in the last column. As can be seen from the last column, the model fit for the attributes excellent shopping opportunities, exotic place, diverse culture, traditions and history, offers unique culinary adventures, has beautiful scenery, is an affordable place, has beautiful beaches did not fit the data. The coefficients for these attributes were not significantly different from zero. Therefore, changes in respondents' perceptions of these attributes will have no effect on the probability of visiting country **n**. The second column of Table 3 reveals that consumers' perception about whether a country is a safe place to visit has the maximum impact on respondents' probability of visiting country **n**. In terms of impact, the second most important attribute is whether a country is a place to take kids on vacation, which is followed in order of decreasing importance by a relaxing place, a clean place, a romantic place, good nightlife, exciting city attractions and an opportunity to witness top-class sporting events.

We next determine the probability of traveling to country **n** for the two segments, the segment that recalls the ad and the segment that doesn't. Let  $\bar{X}_{jN}$  be the mean value of respondents' perception of country **n** on attribute  $j$  among those who do not recall the advertisement. Then among respondents who do not recall the banner ad, the average probability of visiting country **n** due to attribute  $j$ , would be,

$$\bar{\pi}_N^n = \frac{\exp(\hat{\alpha} + \hat{\beta}_j \bar{X}_{jN})}{1 + \exp(\hat{\alpha} + \hat{\beta}_j \bar{X}_{jN})} \quad (4)$$

Similarly, if  $\bar{X}_{jA}$  is the mean value of respondents' perception of country **n** on attribute  $j$  among those who recall the ad, then the average probability of visiting country **n** due to attribute  $j$ , would be,

$$\bar{\pi}_A^n = \frac{\exp(\hat{\alpha} + \hat{\beta}_j \bar{X}_{jA})}{1 + \exp(\hat{\alpha} + \hat{\beta}_j \bar{X}_{jA})} \quad (5)$$

**Table 3** Impact of Travel Destination Attributes on Travel Destination Choice

	Constant	Coefficient	F Stats	Sig
Has excellent shopping opportunities	-3.023** (0.144)	0.081 (0.044)	3.349	0.068
An exotic place to visit	-2.687** (0.137)	-0.022 (0.037)	0.366	0.546
A romantic place to visit	-3.334** (0.129)	0.180** (0.039)	20.877	0.000
A relaxing place to visit	-3.553** (0.130)	0.250** (0.040)	39.528	0.000
A safe place to visit	-3.803** (0.104)	0.374** (0.035)	112.276	0.000
A clean place to visit	-3.468** (0.133)	0.232** (0.042)	28.880	0.000
A place to take kids on vacation	-3.557** (0.112)	0.297** (0.040)	55.013	0.000
Has diverse culture, traditions and history	-2.642** (0.139)	-0.035 (0.037)	0.872	0.351
Offers unique culinary adventures	-2.688** (0.145)	-0.023 (0.041)	0.315	0.575
Offers the opportunity to observe top-class sporting events	-3.074** (0.145)	0.109* (0.050)	4.743	0.030
Has beautiful scenery / Natural environment	-2.780** (0.141)	0.003 (0.038)	0.008	0.929
Is an affordable country to travel to	-2.947** (0.135)	0.057 (0.041)	1.912	0.167
Has beautiful beaches	-2.881** (0.144)	0.033 (0.041)	0.662	0.416
Has exciting city attractions	-3.208** (0.149)	0.139** (0.046)	9.271	0.002
Is good for nightlife	-3.235** (0.146)	0.152** (0.046)	10.969	0.001

Note: The Numbers in the bracket are the standard errors.

\*\*Significant at 0.01 level; \*Significant at 0.05 level.

The results of the analysis are reported in Table 4. The first column in Table 4 has the probability of visiting the target country for the respondents who do not recall the ad and the second column has the probability of visiting for those who do. The probability of visiting country *n* is higher among the respondents who recall the advertisement. The third column has the percentage increase in probability due to advertising. Since only

**Table 4** Impact of Advertising on Perceptions of Travel Destination Attributes

	Likelihood of Visiting (Do not Recall Ad)	Likelihood of Visiting (Recall Ad)	% Increase in Likelihood of Visiting (Everyone Exposed to Advertising)	Likelihood of Visiting (With Proposed Strategy)	% Increase in Likelihood of Visiting (With Proposed Strategy)
Has excellent shopping opportunities	0.046	0.046	0.000	0.046	0.00
An exotic place to visit	0.064	0.064	0.000	0.064	0.00
A romantic place to visit	0.059	0.061	3.165	0.062	4.85
A relaxing place to visit	0.058	0.062	5.705	0.062	6.80
A safe place to visit	0.059	0.062	5.136	0.065	10.33
A clean place to visit	0.059	0.061	3.219	0.062	6.29
A place to take kids on vacation	0.058	0.062	5.956	0.063	8.12
Has diverse culture, traditions and history	0.066	0.066	0.000	0.066	0.00
Offers unique culinary adventures	0.064	0.064	0.000	0.064	0.00
Offers the opportunity to observe top-class sporting events	0.059	0.059	0.307	0.061	2.91
Has beautiful scenery / Natural environment	0.058	0.058	0.000	0.058	0.00
Is an affordable country to travel to	0.050	0.050	0.000	0.050	0.00
Has beautiful beaches	0.053	0.053	0.000	0.053	0.00
Has exciting city attractions	0.059	0.061	3.215	0.061	3.73
Is good for nightlife	0.059	0.061	3.234	0.061	4.08

25.5% of the sample recalls the ad, the obvious recommendation would be to increase the percentage of respondents who recall the advertisement. This is normally achieved by increasing the ad reach and/or frequency, both of which are expensive propositions.

## 5. Managerial implications

According to Table 2, respondents who recall the ad perceive the shopping opportunities to be higher in country **n**. However, according to Table 3, respondents' choice of country **n** as a travel destination is not influenced by the shopping opportunities in country **n**. Further examination of Table 3 shows that while choice of country **n** is not influenced by shopping opportunities, respondents are more likely to visit country **n** if they perceive it to be a romantic place. From Table 2, we find that advertising actually increased respondents' perception that the target country is romantic. Therefore, while advertising increases respondents' perceptions of both shopping opportunities and romantic place by the same factor (i.e., 0.2), only perception of romantic place is relevant in determining the likelihood of visit.

Managerial implications are fairly obvious. The advertising message should focus on changing consumers' perceptions of those attributes that are relevant to the target customer. Data regarding consumers' perception of a country can be easily elicited through a survey, where the participants are asked to rate the country on a set of attributes. They can also be asked to rate how important each one of the attributes is to them. This data can be then used to learn what attributes are important to the customers and how the country rates on those attributes. Banner ads can be then used to change or reinforce consumers' perceptions. If perception of the country as a romantic place is more important, then the advertising message should try to persuade consumers that the destination is a romantic place. If perceptions of certain attributes are not relevant to the consumers, then advertising message should not focus on those. From Table 2, we find that advertising has made the maximum impact on respondents' perception of the country as an exotic place; it has gone up by a factor of 0.28 on a 5-point scale. If the advertising message had been able to improve respondents' perceptions of other attributes by the same magnitude, then the probability of visiting country **n** would have gone up significantly. This scenario analysis has been examined for each attribute; the new probabilities and percentage increases are reported in columns 4 & 5 of Table 4. The factor that produces maximum increase in the probability of visiting country **n** is the perception of the country as a safe place to visit, followed by a place to take kids on vacation.

Until now, the advertising focus has been on persuading respondents that country **n** is an exotic place with lots of beautiful scenery, exciting city attractions, etc. However,

these attributes are not drivers of country *n*'s choice as a travel destination for the target consumers. Respondents are more concerned about whether the country is a safe place where they can take their kids on a vacation. We have plotted the mean values of Table 2 in Figure 1, which shows that even the respondents who do not recall the ad have very high perceptions about whether the country is exotic, has diverse culture, has beautiful scenery, etc. On the other hand, respondents have very poor image of country *n* on some of the key drivers such as whether it is a safe place, a place to take kids, and a clean place. Based on these findings, advertisers should try to improve the country's image on key drivers (e.g., safety, place for family with kids, etc.), which will improve the likelihood of visiting country *n*. From Table 4, we see that if everyone can recall the message, the maximum increase in market share would be 5.956%. Achieving a 100% recall rate is not only nearly impossible, but also would be extremely expensive. On the other hand, if we just change the advertising message to change respondents' perception about safety, we can increase the market share by 10.33%. This can be achieved with the current level of advertising expenditures.

By understanding the impact of advertising message on consumers' purchase likelihood and market share, media planners and advertisers can focus on a cost effective strategy that can improve advertising effectiveness. The study demonstrates that just by reaching consumers through an advertisement and exposing the message multiple times will not help gain larger market share, unless the message stimulates consumers' emotion. The study also suggests the identification of the key drivers that arouse consumers' emotion and recommends a positive relationship between those drivers and the advertising message. However, there are some limitations to this study that offer opportunities for further research. First, the study has examined a particular product, i.e., tourism destination, where the verbal message and visual format have influential roles (Dann, 1996). The approach of this study can be applied to other product categories to generalize the findings. Second, the study examines the effectiveness of advertising message only for a single media channel; a study combining multiple media carrying an integrated message, especially a combination of online and offline media would be a very useful tool for planning an integrated marketing communication strategy. We also do not control for any moderating variables. The effectiveness of banner advertising depends on a number of factors and their effects needs to be controlled for in any analysis. Future researchers should collect data on all determinants of online advertising and allow for their moderating influence on the determinants included in this study.



## References

- Agostinelli, G. and Grube, J.W. (2002), 'Alcohol counter-advertising and the media. A review of recent research', *Alcohol Research & Health*, Vol. 26, No. 1, pp. 15-21.
- Alijani, G.S., Mancuso, L.C., Kwun, O. and Omar, A. (2010), 'Effectiveness of online advertisement factors in recalling a product', *Academy of Marketing Studies Journal*, Vol. 14, No. 1, pp. 1-10.
- Baloglu, S. and Uysal, M. (1996), 'Market segments of push and pull motivations: a canonical correlation approach', *International Journal of Contemporary Hospitality Management*, Vol. 8, No. 3, pp. 32-38.
- Baltas, G. (2003), 'Determinants of internet advertising effectiveness: an empirical study', *International Journal of Market Research*, Vol. 45, No. 4, pp. 505-513.
- Baraggioli, F. and Brasel, S.A. (2008), 'Visual velocity: content font effects and incidental online ad exposure', *Advances in Consumer Research*, Vol. 35, pp. 600-606.
- Barry, T.E. and Howard, D.J. (1990), 'A review and critique of the hierarchy of effects in advertising', *International Journal of Advertising*, Vol. 9, No. 2, pp. 121-135.
- Briggs, R. and Hollis, N. (1997), 'Advertising on the web: is there response before click-through?', *Journal of Advertising Research*, Vol. 37, No. 2, pp. 33-46.
- Brunel, F.F. and Nelson, M.R. (2003), 'Message order effects and gender differences in advertising persuasion', *Journal of Advertising Research*, Vol. 43, No. 3, pp. 330-341.
- Chaffey, D. (2013), 'Display advertising clickthrough rates,' available at <http://www.smartinsights.com/internet-advertising/internet-advertising-analytics/display-advertising-clickthrough-rates/> (accessed 12 May 2014).
- Chang, C. (2002), 'Self-congruency as a cue in different advertising-processing contexts,' *Communication Research*, Vol. 29, No. 5, pp. 503-536.
- Chi, H.K., Yeh, H.R. and Chiou, C.Y. (2012), 'The mediation effect of information presentation style on the relationship between banner advertisements and advertising effectiveness,' *International Journal of Business and Management*, Vol. 7, No. 14, pp. 46-52.
- Christensen, J.E. (1983), 'An exposition of canonical correlation in leisure research,' *Journal of Leisure Research*, Vol. 15, No. 4, pp. 311-322.
- Chtourou, M.S. and Abida, F.C. (2010), 'What makes one animation more effective than another? an exploratory study of the characteristics and effects of animation in internet

- advertising,' *International Journal of Internet Marketing and Advertising*, Vol. 6, No. 2, pp. 107-126.
- Crompton, J.L. (1979), 'Motivations for pleasure vacation', *Annals of Tourism Research*, Vol. 6, No. 4, pp. 408-424.
- Dann, G.M.S. (1996), *The Language of Tourism: A Sociolinguistic Perspective*, CAB International, Wallingford, UK.
- Drèze, X. and Hussherr, F.X. (2003), 'Internet advertising: is anybody watching?', *Journal of Interactive Marketing*, Vol. 17, No. 4, pp. 8-23.
- Farris, P.W., Bendle, N.T., Pfeifer, P.E. and Reibstein, D.J. (2006), *Marketing Metrics: 50+ Metrics Every Executive Should Master*, Prentice Hall, Upper Saddle River, NJ.
- Fisher, J. and Pappu, R. (2006), 'Cyber-rigging click-through rates: exploring the ethical dimensions', *International Journal of Internet Marketing and Advertising*, Vol. 3, No. 1, pp. 48-59.
- Greco, A.J. (1988), 'The elderly as communicators: perceptions of advertising practitioners', *Journal of Advertising Research*, Vol. 28, No. 3, pp. 39-46.
- Grønhaug, K. and Heide, M. (1992), 'Stereotyping in country advertising: an experimental study', *European Journal of Marketing*, Vol. 26, No. 5, pp. 56-66.
- Interactive Advertising Bureau. (2013), 'IAB internet advertising revenue report: 2013 first six months' results', available at <http://www.iab.net/media/file/IABInternetAdvertisingRevenueReportHY2013FINALdoc.pdf> (accessed 7 May 2013).
- James, W.L. and Hill, J.S. (1991), 'International advertising messages: to adapt or not to adapt', *Journal of Advertising Research*, Vol. 31, No. 3, pp. 65-71.
- Jamrozy, U. and Uysal, M. (1994), 'Travel motivation variations of overseas German visitors', *Journal of International Consumer Marketing*, Vol. 6, No. 3/4, pp. 135-160.
- Ju, B. (2013), 'A proposed cross-cultural examination of online advertising effectiveness in china and the UK', *International Journal of Business and Management*, Vol. 8, No. 6, pp. 34-39.
- Kaciak, E. and Louviere, J. (1990), 'Multiple correspondence analysis of multiple choice experiment data', *Journal of Marketing Research*, Vol. 27, No. 4, pp. 455-465.
- Laskey, H.A., Fox, R.J. and Crask, M.R. (1995), 'The relationship between advertising message strategy and television commercial effectiveness', *Journal of Advertising Research*, Vol. 35, No. 2, pp. 31-39.

- Lee, J.W. and Ahn, J.H. (2012), 'Attention to banner ads and their effectiveness: an eye-tracking approach', *International Journal of Electronic Commerce*, Vol. 17, No. 1, pp. 119-138.
- Maddala, G.S. (1983), *Limited-Dependent and Qualitative Variables in Econometrics*, Cambridge University Press, Cambridge, UK.
- Möller, J. and Eisend, M. (2010), 'A global investigation into the cultural and individual antecedents of banner advertising effectiveness', *Journal of International Marketing*, Vol. 18, No. 2, pp. 80-98.
- Naples, M.J. (1997), 'Effective frequency: then and now', *Journal of Advertising Research*, Vol. 37, No. 4, pp. 7-12.
- Palanisamy, R. (2004), 'Impact of gender differences on online consumer characteristics on web-based banner advertising effectiveness', *Journal of Services Research*, Vol. 4, No. 2, pp. 45-55.
- Pelsmacker, P., Geuens, M. and Vermeir, I. (2004), 'The importance of media planning, ad likeability and brand position for ad and brand recognition in radio spots', *International Journal of Market Research*, Vol. 46, No. 4, pp. 465-477.
- Petty, R.E. and Cacioppo, J.T. (1979), 'Effects of message repetition and position on cognitive responses, recall and persuasion', *Journal of personality and Social Psychology*, Vol. 37, No. 1, pp. 97-109.
- Petty, R.E. and Cacioppo, J.T. (1996), *Attitudes and Persuasion: Classic and Contemporary Approaches*, Westview Press, Boulder, CO.
- Robinson, H., Wysocka, A. and Hand, C. (2007), 'Internet advertising effectiveness: the effect of design on click-through rates for banner ads', *International Journal of Advertising*, Vol. 26, No. 4, pp. 527-541.
- Romaniuk, J. and Gaillard, E. (2007), 'The relationship between unique brand associations, brand usage and brand performance: analysis across eight categories,' *Journal of Marketing Management*, Vol. 23, No. 3-4, pp. 267-284.
- Rosenkrans, G. (2010), 'Maximizing user interactivity through banner ad design', *Journal of Promotion Management*, Vol. 16, No. 3, pp. 265.
- Shao, A.T. (2002), 'Nonconformity advertising to teens', *Journal of Advertising Research*, Vol. 42, No. 3, pp. 56-65.
- Taylor, C.R. and Franke, G.R. (2003), 'Business perceptions of the role of billboards in the US economy', *Journal of Advertising Research*, Vol. 43, No. 2, pp. 105-161.

- Thota, S.C., Song, J.H. and Larsen, V. (2010), 'Do animated banner ads hurt websites? The moderating roles of website loyalty and need for cognition', *Academy of Marketing Studies Journal*, Vol. 14, No. 1, pp. 91-116.
- Uysal, M. and Hagan, L.A.R. (1993), 'Motivation of pleasure travel and tourism', in Khan, M.A., Olsen, M.D. and Var, T. (Eds.), *VNR's Encyclopedia of Hospitality and Tourism*, Van Nostrand Reinhold, New York, NY, pp. 798-810.
- Wang, A. (2006), 'Advertising engagement: a driver of message involvement on message effects', *Journal of Advertising Research*, Vol. 46, No. 4, pp. 355-368.
- Wang, K.Y., Shih, E. and Peracchio, L.A. (2013), 'How banner ads can be effective: investigating the influences of exposure duration and banner ad complexity', *International Journal of Advertising*, Vol. 32, No. 1, pp. 121-141.
- Yaveroglu, I. and Donthu, N. (2008), 'Advertising repetition and placement issues in on-line environments', *Journal of Advertising*, Vol. 37, No. 2, pp. 31-43.

### About the authors

**Haren Ghosh** is the President and CEO at Analytic Mix Inc. He has a decade long quantitative research and entrepreneurial experience. He has served in executive positions in three different companies, including Chief Analytics Officer at Symphony Health Solutions, GM & Chief Analytics Officer at Symphony Advanced Media, and SVP of Marketing Sciences & CMO at Factor TG. Haren received an MBA in Finance and Marketing from Louisiana Tech University and his PhD studies in Marketing, with a focus in Applied Statistics and Advanced Econometrics from Louisiana State University. He received an undergraduate degree in Mechanical Engineering from Jalpaiguri Government Engineering College in India. He was a visiting Assistant Professor of Marketing at South Eastern Louisiana University before joining Factor TG. E-mail address: Haren.Ghosh@AnalyticMix.com

**Amit Bhatnagar** has a PhD in Marketing from SUNY -- Buffalo, MS in Aerospace Engineering and BS in Mechanical Engineering from IIT Kanpur. Dr. Bhatnagar has published papers in the *Journal of Business*, *Marketing Letters*, *Journal of Advertising*, *Journal of Business Research*, *Journal of Retailing*, *European Journal of Operations Research*, *International Journal of Research in Marketing*, etc. He has served as a reviewer for the *Marketing Science*, *Marketing Letters*, *Journal of Retailing*, *Journal of Business Research*, etc.

Corresponding author. Sheldon B. Lubar School of Business, University of Wisconsin-Milwaukee, Milwaukee, WI 53201, USA. Tel: +1-414-229-2520. E-mail address: amit@uwm.edu