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# THE IMPACT OF STREAMING ON ADVERTISING WEBSITES

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## Abstract

*The World Wide Web is revolutionizing the way companies conduct business. This research explores the use of a company's web site as an advertising tool. In particular, we are studying the extent to which streaming technology can be used to satisfy the expectations of potential consumers who come to the web site either to browse or to gain information about an automobile dealership. The subjects are 53 potential dealership customers and 65 MBAs. Using a combination of focus groups and questionnaire surveys in a laboratory setting, we tested a variation of uses and gratifications theory to understand the impact of using streaming technology on a company's homepage as an advertising tool. While the research is incomplete for this proposal, the data are all collected and are being analyzed. The expected date of project completion of the first manuscript is November, 2001.*

**Keywords:** Multimedia, streaming, uses and gratifications theory.

## THEORETICAL FOUNDATIONS

The World Wide Web is a new medium whose functionality as an advertising tool is still being explored. Internet advertising expenditures in January 2001 are estimated to be \$1.8 billion, excluding advertising which companies derive from their own websites (Cardona 2001). Like traditional advertisements, websites convey information and attempt to persuade. Many homepages, and sometimes whole websites, mirror traditional print advertising. But, website ads that mimic print ads do not capture the full potential of the web's hyperlinking and multimedia capabilities.

An advertising web site is one that is a "paid form of nonpersonal representation of ideas, goods or services, by an identified sponsor, with predominant use made of the media of mass communication" (Engle et al. 1979). We focused on advertising web sites because interactive or otherwise program-supported web sites pose different issues with confounding effects. Advertising web sites offer a rich, but untested, potential for streaming.

Streaming audio and video multimedia advancements surfaced in 1995. Streaming technology allows the viewer to watch or hear a file's arrival in real-time. Twenty-seven percent of Americans (61.3 million) have experienced either streamed Internet audio or video and 6% (13.4 million) listen or watch streamed media each week (Arbitron/Edison Media Research 2001). Unfortunately, due to bandwidth limitations of modem-based connections, the frame-rate, screen-size, and image presentation quality for many streaming video viewers is inadequate. The result has been a general hesitancy for commercial web creators to utilize streaming video on their sites.

Today, the diffusion of digital subscriber lines (DSL) and cable modems has greatly increased user bandwidth. Nearly 7% of U.S. households have broadband Internet access, and an additional 8% anticipate broadband access in their homes by mid-2002 (Arbitron/EdisonMedia Research 2001). The tremendous increase in bandwidth, high frame-rates, and good image quality that broadband technologies allow permits web designers to incorporate media rich in sight, sound, and motion.

Because of the multiple media that can be used to convey a message, websites with streaming may be considered especially information-rich. Through streaming, companies may convey more information and better entertain website visitors. Entertainment through the richer medium should increase user engagement in the website and lead to more and longer visits. However, the ability to use streaming technology on a website may not be appropriate under all conditions.

## RESEARCH QUESTIONS

Our proposed research is designed to answer two major questions:

- (1) Are there conditions under which streaming can prove beneficial or detrimental to advertising websites?
- (2) If so, what are those conditions?

## USES AND GRATIFICATIONS THEORY

To provide answers to these questions, we draw from uses and gratifications theory in the communication literature. The uses and gratifications approach is a theoretical tradition that spans 50 years (e.g., Herzog, 1944; Blumler and Katz 1974; Blumler 1979; Palmgren 1984). It suggests that audiences do not just accept media content. Rather, they actively endeavor to use media content to serve their own purposes and interests. Research has identified two major gratifications sought by audiences: (1) passive-entertainment and (2) information-seeking (Palmgren 1984; Rubin and Rubin 1982).

Using measures based on uses and gratifications theory, Eighmey (1997) and Eighmey and McCord (1998) found that website visitors benefitted from both the information and entertainment available at a site, and that the mix of information and entertainment varied across industry. It was not enough to provide organized information; rather, higher levels of user involvement came from producing elements of entertainment and promoting a context for understanding and using the information.

Eighmey's finding on involvement of website visitors is supported by Nel et al. (1999), who report that a construct called *flow* is critical to a visitor's intentions to return to a site. The concept of flow, derived from Csikszentmihalyi's (1990) work on optimal experience, is "a multidimensional construct that represents the user's perception of the medium as playful and exploratory. Flow theory suggests that involvement in a playful, self-directed, exploratory experience is self-motivating because it is pleasurable and encourages repetition" (Nel et al. 1999, pg. 111). We apply a similar concept, *engagement*, which does not require self-directed activities. Website visitors are engaged in a site "when it holds their attention and they are attracted to it for intrinsic rewards" (Jacques et al. 1995, pg. 58).

The research of Eighmey, Nel, and their colleagues focuses primarily on surfers, or web users who happen accidentally upon websites. Surfers' motives are typically associated with a casual sampling of information and an interest in the sites' entertainment value. Uses and gratifications theory has been used to explain why surfers stay longer at some sites than others. We believe that this theory also can be used to map web users onto the predominant categories of gratifications.

In a recent article about homepages as advertisements, Singh and Dalal (1999) classify web users as surfers and searchers. *Web surfers* are "fun-seekers and explorers who desire entertainment and stimulation" and "are more likely to engage in shallow, sensory-level, peripheral processing of the executional aspects of the message (graphics, images)" (Singh and Dalal 1999, pg. 95). It can be inferred that surfers primarily seek *entertainment gratifications*. On the other hand, *web searchers* "are goal-oriented, looking for specific information and ... will pay more attention to the content of a message" (Singh and Dalal 1999, pg. 95). Searchers are expected to primarily seek *informational gratifications*.

If different types of web users seek different gratifications from websites, then companies using their websites as advertisements must design for both audiences. An emotionally entertaining website may be more critical for enticing surfers to stay longer than the fleeting average of 6.8 seconds per site (Conger and Mason 1997). Surfers may obtain entertainment gratifications from appealing graphics and interesting multimedia applications. Further, they are more likely to be engaged (Chapman et al. 1999),

and persuaded by the website's emotional dimension (Singh and Dalal 1999) than with media-lean applications. The novelty of streamed audio and video may offer surfers greater entertainment value than possible with a text/graphic version of the same page.

On the other hand, web searchers may experience information overload from the streaming (Wurman 1989). The substantial volume of information displayed to them may distract them from satisfying their primary gratification: seeking information. Hence, a match of gratifications sought and obtained is more likely with websites without streaming for web searchers. These relationships are summarized in Table 1.

**Table 1. Expected Gratifications of Web Users in Streaming and Non-streaming Conditions**

	Web Surfers	Web Searchers
<b>Streaming</b>	Match: Entertainment gratification sought and obtained	Mismatch: Information overload
<b>No Streaming</b>	Mismatch: Less entertainment gratification	Match: Information gratification sought and obtained

## HYPOTHESES

Greater bandwidth makes streaming an increasingly viable tool for providing entertainment and imparting information about a product or service. No research, to our knowledge, has attempted to demonstrate the advertising effectiveness of websites with streaming relative to less bandwidth-intensive websites. This research explores whether the effects of streaming on web surfers and searchers differ significantly across sites that are multimedia rich and lean.

In particular, we hypothesize:

- Hypothesis 1:** Websites with streaming are perceived as more entertaining than websites without streaming.
- Hypothesis 2:** Web surfers find their entertainment gratification satisfied more fully (than web searchers) on a website with streaming video.
- Hypothesis 3:** Web searchers find their information gratification satisfied more fully (than web surfers) on a website without streaming video.
- Hypothesis 4:** When compared to websites without streaming, websites with streaming
  - a. are viewed as significantly more persuasive to web surfers than web searchers.
  - b. lead to higher states of engagement for web surfers than web searchers.

## METHODOLOGY

A lab experiment was designed to test the four hypotheses using a simulated website of a Southwestern Lexus automobile dealership. For the experiment, two partial websites were constructed based on the specifications of the automobile dealership seeking to accentuate its quality service. The resulting two websites were the same except one had a link to a streaming video, which could be viewed either in its entirety or by service area; the other started at a text-and-graphics homepage that briefly described seven service areas, and linked to extended service descriptions and distinctions for each area using the same words as those used in the streaming video. The sites were designed by one of the researchers who had 15+ years of experience in visual media industries, primarily television and advertising.

## SAMPLE

Two sets of participants comprise the sample: potential dealership customers and MBA students. A total of 53 customers and potential customers participated in one of six focus groups that explored their perceptions of the website with and without streaming. The first two groups were very small (three to five customers) and were a convenience sample provided by a dealership Sales Manager. To increase group size, the dealership engaged a marketing research company to solicit potential customers to participate in the focus groups. The marketing research company obtained the names of prospective participant's from a

dealership database purchased to locate potential customers. A minimum income of \$50,000 was a precondition for selection to help ensure that the participants could afford the cars advertised. The marketing research company arranged for four focus groups with 10 to 13 potential customers.

In addition, 65 MBA students enrolled in an introductory MIS or an e-commerce class at a Southwestern university participated in the experiment and focus groups. The sizes of the eight MBA groups ranged from five to 11 students. The students participated in the experiment as an in-class exercise and received approximately 5% of their total course grade for their participation.

## PROCEDURES

Participants were randomly assigned to one of four treatments: web searchers/streaming; web searchers/non-streaming; web surfers/streaming; web surfers/non-streaming. Experimental conditions were created through instructions: participants in the web surfer groups were told that they would be asked to give their reactions to the website; Participants in the web searcher groups were asked to obtain specific items of information about the dealership (i.e., response time for e-commerce inquiries, response time for rescue response, and information about repair activities).

After reading the instructions, participants completed a pre-survey requesting demographic information, previous exposure and reactions to streaming, and information concerning their beliefs about the web as a means of satisfying entertainment and informational gratifications. We also included questions to check the manipulations.

Following the pre-survey, focus group members saw a treatment (either a streaming or non-streaming website) and completed a post-survey which assessed the extent to which the participants (1) were able to obtain sought gratifications and (2) found the pages entertaining, informative, engaging, and persuasive.

Finally, the subjects in the focus groups discussed their positive and negative reactions to the site. Then they were shown the other treatment's website and asked to comment on the relative effectiveness of both websites. The focus group sessions ranged from 20 to 30 minutes and were audio-taped for later transcription.

**Table 2. Measures**

Measure	# Items	Preliminary Cronbach's $\alpha$	Derived from
Entertainment gratification sought	5	0.87	Abela 1999 Eighmey 1997
Informational gratification sought	9	0.88	Abela 1999 Eighmey and McCord 1998 Winter et al. 1997
Entertainment gratification obtained, i.e., gratification satisfaction: (sought – obtained)	5	0.92	Abela 1999 Eighmey 1997
Informational gratification obtained, i.e., ratification satisfaction: (sought – obtained)	9	0.90	Abela 1999 Eighmey and McCord 1998 Winter et al. 1998
Persuasiveness	3	0.95	Singh and Dalal 1999 (also from Eighmey 1997)
Engagement (curiosity, intrinsic interest, attention focus, overall)	6	0.94	Chapman et al. 1999
Manipulation check: Understood instructions	2	NA	
Manipulation check: information gained	3	NA	
<i>Control variables:</i> Gender, age, web exposure, streaming exposure, education, work experience, car buying behaviors, attitude toward streaming	One item – except two items for attitude toward streaming	NA	

## MEASURES

The treatment variables are type of user (surfer vs. searcher) and medium richness (streaming vs. non-streaming). All other variables are measured with the pre- and post-surveys. The measures, adopted from previous research and modified for the Web, are summarized in Table 2. Focus group transcripts will be analyzed to help interpret the findings. The pre-and post-test surveys and proposed procedures were pilot tested using faculty colleagues. The preliminary Cronbach's alphas in Table 2 are based on the responses of MBA subjects only.

## ANALYSIS

We will complete psychometric analyses for the entire sample and use analysis of covariance to test the hypotheses. Demographic variables (gender, age, major, previous streaming use) will be used as covariates to statistically control for individual characteristics that may influence the effects of streaming.

## CURRENT PROJECT STATUS

Activity	Estimated Completion dates
Data gathering	Completed 2/10/2001
Data entry and verification	5/15/2001 (Completed for MBA sample)
Focus group transcription	6/10/2001
Data and transcript analysis	10/15/2001
First manuscript	11/1/2001

## PRELIMINARY FOCUS GROUP FINDINGS

Some subjects indicated that they found the streaming to be interesting and/or entertaining. A few subjects in the searching focus groups preferred the text page because they could get the information more quickly and have a copy of the information for future reference. Thus, a superficial analysis of results indicates that the treatments were effective and that findings should discriminate between surfer and searcher behaviors.

Several subjects were concerned that the streaming page might not be well-accepted because of bandwidth requirements beyond those the average dealership customers would have. Anecdotal evidence from the focus groups suggests participants favor the use of streaming for product information and advertising rather than services information that the dealership feels highlights its competitive advantage. This finding may provide both guidance for future research and direction for organizations hoping to use streaming effectively in advertising websites.

## WHAT WILL BE PRESENTED AT ICIS

The authors will present the final results from the surveys and focus groups.

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