Online Ads in Familiar and Unfamiliar Sites: Effects on Perceived Website Quality and Intention to Reuse

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ABSTRACT

Electronic commerce is an integral part of most businesses today. The perceived quality of the website and whether users intend to reuse the site are of primary concern to online businesses. There are various factors that influence customers' intention to reuse a site. In this paper we investigate two of these factors: whether the site is familiar to the user and whether there are online advertisements on the website. The results indicate that familiarity and online ads do have an impact on quality and reuse, though it is not entirely as expected.

Keywords
e-commerce, online advertising, website quality, familiar/unfamiliar sites

INTRODUCTION

Whether users are familiar with a website is an important concept in online commerce as this familiarity affects users' trust (Siau and Shen, 2003; Yoon, 2002). Although being familiar with a site is not the same as trusting it, the two notions share a close relationship (Gefen, 2000). Increased trust is often the result of credibility that comes with a familiar company (or site) (Corritore, et al., 2003). The web provides companies a means of gaining and exploiting familiarity.

Advertisers use an array of online marketing delivery techniques like banners and pop-up/under ads to increase exposure for products and services. Gao, et al., (2004) looked at ways in which these various techniques have been used. Several studies have recounted consumers' experiences with online advertising. Wegert (2002) reported that consumers find ads intrusive and annoying. As more websites utilize advertising as a revenue source, it is important to assess the impact of these advertisements.

The research questions that this paper addresses are the following:

1. Is the perception of website quality affected by whether the site is familiar or unfamiliar to the user?

2. Does the presence of online advertising affect users’ perception of website quality and their intentions to reuse the website?

BACKGROUND

Online Advertising

Companies need not only ensure that they reach the population that is interested in their product or service, they also must advertise in such a way that consumers will remember their advertisement and product. Furthermore, firms need to ensure that what they are advertising meets consumers’ needs. Finally, companies need to accomplish this while not annoying or aggravating customers, as this may result in a negative effect (Ranganathan and Campbell, 2002).

Firms can choose from an array of promotional online tools to promote their products and services (various ad types are illustrated in Appendix 1). Studies have shown that online advertising is effective and can significantly increase product awareness after just one exposure (Briggs and Hollis, 1997). However, other studies have described them as nonsensical and
ineffective (Bulik, 2000). In particular, pop-up ads have been described as annoying and irritating (Liu and Shrum, 2002; Gao, 2004; 2005).

**Website Quality**

WebQual™ (Loiacono, et al., 2002b) is a comprehensive and well-established website quality measure developed using a four stage instrument development process (based on Churchill, 1979). The result of the rigorous process is an instrument with high validity and reliability (Loiacono, et al., 2002b) that has been used in a number of website studies (Loiacono and Lin, 2005; Tsikriktsis, 2002).

The twelve dimensions of WebQual™ are described in Table 1. The responses to each factor are summed to create an overall website quality score. For a comprehensive review of the twelve dimensions, see Loiacono, et al. (2002b).

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informational Fit-to-Task</td>
<td>The information provided meets task needs and improves performance.</td>
</tr>
<tr>
<td>Tailored Communication</td>
<td>Tailored communication between consumers and the firm.</td>
</tr>
<tr>
<td>Ease of Understanding</td>
<td>Easy to read and understand.</td>
</tr>
<tr>
<td>Intuitive Operation</td>
<td>Easy to operate and navigate.</td>
</tr>
<tr>
<td>Visual Appeal</td>
<td>The aesthetics of a website.</td>
</tr>
<tr>
<td>Innovativeness</td>
<td>The creativity and uniqueness of site design.</td>
</tr>
<tr>
<td>Emotional Appeal</td>
<td>The emotional effect of using the website and intensity of involvement.</td>
</tr>
<tr>
<td>Consistent Image</td>
<td>The website image is compatible with the image projected by the firm through other media.</td>
</tr>
<tr>
<td>Online Completeness</td>
<td>Allowing all or most necessary transactions to be completed on-line (e.g., purchasing over the website).</td>
</tr>
<tr>
<td>Relative Advantage</td>
<td>Equivalent or better than other means of interacting with the company.</td>
</tr>
<tr>
<td>Trust</td>
<td>Secure communication and observance of information privacy.</td>
</tr>
<tr>
<td>Response Time</td>
<td>Time to get a response after a request or an interaction with a site.</td>
</tr>
</tbody>
</table>

**Table 1: Initial WebQual™ Dimensions**

Source: Loiacono, et al. (2002a)

**Intention to Reuse**

According to Loiacono, et al., (2002b) website quality affects intention to reuse a website. The authors found that 49.4% of the variance of consumers' intention to reuse was explained through their website quality model. Therefore, consumers who perceive the quality of the website to be high are more likely to reuse the site than consumers who deem the site to be of lower quality.

**HYPOTHESES**

Based on the above discussion, twelve hypotheses are predicted. The first four look at perceived website quality and intention to reuse with a focus on whether a website is familiar or unfamiliar, regardless of the presence of online advertisements. The second set of four hypotheses looks at perceived website quality and intention to reuse with a focus on online advertisements, regardless of whether the website is familiar or not. The last set of four hypotheses examines interaction effects, that is the impact on perceived website quality and intention to reuse of website familiarity and online advertisements together (see Figure 1).
First, we discuss the concept of familiarity. In this research a familiar site would be considered recognizable by many online consumers. Alternatively, an unfamiliar site would be one with which the consumer is unacquainted.

Several website quality factors could be impacted by whether the user is familiar with the website. The first is consistent image. Consumers are more likely to judge that the website is consistent with the company’s overall image if they are familiar with the website.

Customers are also more likely to feel more emotionally secure if they are familiar with the site. Their anxiety level will be less and their online experience more pleasing if they already know of the site and its reputation (Slatalla, 2001). An increased sense of well-being while using the site will result in higher perceived website quality, especially in terms of emotional appeal.

A site that is familiar to users is likely to score higher on trust by consumers because they already know of the company and deem it reputable (Zhang and Ghorbani, 2005). In this research we focus on users who are familiar with a site and whose familiarity results in a positive affective response, rather than users who are familiar with a site and whose familiarity results in a negative affective response (Lowry, et al., 2005).

Also, familiar websites are often the standard with which people judge the ease of navigation and operations of a site. For example, “the reason you go into a McDonald's when you are in a foreign country ... is you know what you are going to get, and you know how the french fries are going to taste. The reason you like a store to look like Amazon is because then you know how to navigate it comfortably” (Slatalla, 2001). Being familiar with a particular site is likely to increase the intuitive operation value of the website and users are more likely to judge it as easy to use.

Whether a user is familiar with a website, regardless of the presence of online advertisements, is likely to have an overall effect on the way consumers perceive its quality. Familiar websites are more likely to be perceived of higher quality than those that are unfamiliar. Since a familiar site is well-known by online consumers, even if they have not used it, it is likely to be perceived as a higher quality site than an unfamiliar one. Thus:

**H1a**: A familiar website without pop-up ads will result in a higher level of perceived website quality than an unfamiliar website without pop-up ads.

**H2a**: A familiar website with pop-up ads will result in a higher level of perceived website quality than an unfamiliar website with pop-up ads.

Further, given a positive relation between perceived website quality and intention to reuse (Loiacono, et al., 2002a), it is predicted that:

**H1b**: A familiar website without pop-up ads will result in higher level of intention to reuse than an unfamiliar website without pop-up ads.
H2b: A familiar website with pop-up ads will result in a higher level of intention to reuse than a familiar website with pop-up ads.

Next, we turn to online ads and their impact on perceived website quality and intention to reuse. Prior research on online ads is mixed. Rust and Varki (1996) argued that online ads would be less intrusive than ads in traditional media, however Li, et al. (2002) found online ads to be even more intrusive. They also found that online consumers acquire negative attitudes towards the ads which in turn lead them to not return to the site.

Previous banner ad research has shown that such ads are effective in creating brand awareness and positive attitudes (Briggs and Hollis, 1997). However, more recently Bulik (2000) found online ads to be nonsensical, uninformative, unfocused, forgettable, and ineffective.

Pop-up ads are considered especially annoying and intrusive by consumers. Several studies support this finding. For instance, Jupiter Research (1999) found that 69% of those surveyed consider pop-up ads annoying and 23% of the same sample said they would not return to the site because of the ads. McCoy, Everard, Galletta and Polak (2004) discovered pop-up ads to be more annoying than inline ads.

There are several perceived website quality factors that ads are predicted to affect. First, as previous research supports (McCoy, et al., 2004; Parker, 2003) ads are often considered an annoyance. This would impact the emotional appeal of the site if consumers believe the site is producing the ads and detracting from their online experience. Since consumers are forced to click to close a pop-up ad, the level of frustration will increase.

Having to click on the pop-up ad in order to get rid of it will cause numerous interruptions in the navigation of the site as well, thereby decreasing the intuitive operation of the website (Benitez, 2002; Chan, et al., 2004). This will make navigating through the website more difficult and disjointed. Kahneman and Treisman (1984) found that to process several competing stimuli (as in the website and the ads in this case) required increased effort, which can lead to intentions to not revisit the site (Wickens, 1980).

The constant interruptions will also cause consumers to avoid interacting with the company. Research on traditional media has shown that when consumers are given a means to avoid ads, many do by changing the channel or leaving the room (Krugman and Johnson, 1991). Applying this to the web, the relative advantage of a site will decrease as more ads are added.

Finally, the trust a consumer has in a website may diminish if consumers feel that the website is creating ads that are unwanted and annoying (Li, et al., 2002). Without being aware that the pop-up ads will be generated during their visits, consumers are likely to rate trust low regardless of whether the user is familiar with the site (Chan, et al., 2004). The perceived quality of the site is likely to be lower overall given the decrease in the above factors. Thus, it is predicted that:

H3a: A familiar website without pop-up ads will result in a higher level of perceived website quality than a familiar website with pop-up ads.

H4a: An unfamiliar website without pop-up ads will result in a higher level of perceived website quality than an unfamiliar website with pop-up ads.

Further, given the negative impact of online ads on perceived website quality and intention to reuse (McCoy, et al., 2004), it is predicted that:

H3b: A familiar website without pop-up ads will result in a higher level of intention to reuse than a familiar website with pop-up ads.

H4b: An unfamiliar website without pop-up ads will result in a higher level of intention to reuse than an unfamiliar website with pop-up ads.

The development for the final set of hypotheses combines the effects of familiarity and online ads on perceived website quality and intention to reuse. As discussed above, the familiarity of a website may affect positively perceived website quality (Gefen, 2000). On the other hand, as per prior research findings pop-up ads may have the opposite effect, decreasing consumers' perceived quality of a website (Li, et al., 2002). Several website quality factors are affected by both familiarity of the site and pop-up ads.

First, customers will more likely find the website's image consistent with the overall company's image when the site is familiar. However, the presence of pop-up ads on a familiar site may degrade the image of the company if consumers feel that the ads are annoying, of poor quality, or irritating (Rettie, 2001)
Second, a familiar site may induce more positive feelings towards the website (Corritore, et al., 2003). Customers who are more familiar with a website may experience decreased levels of anxiety and increased pleasure from their experience with the website, thereby increasing their perceived quality of the site. Conversely, the presence of ads may counter this positive emotional appeal as ads contribute to consumers' negative experiences by introducing distractions and interruptions (Li, et al., 2002).

Third, consumers' trust levels may increase with site familiarity since they are aware of the company and its reputation. Consumers may therefore enter the site with an increased level of trust. This initial trust, however, may be diminished if annoying ads are present.

Finally, consumers may already know the basic layout and overall design of a familiar site. This may contribute to an increased level in ease of use and intuitive operation of the site, thus increasing the website's perceived quality. On the other hand, pop-up ads may reduce a site's ease of use by interrupting a consumer's flow of navigation (Benitez, 2002).

Though pop-up ads have been found to be irritating (McCoy, et al., 2004), we predict that the presence of ads will have a dulling effect on the perceived website quality but not enough to make up for the lack of familiarity. Thus, it is predicted that:

- **H5a:** A familiar website without pop-up ads will result in a higher level of perceived website quality than an unfamiliar website with pop-up ads.
- **H6a:** A familiar website with pop-up ads will result in a higher level of perceived website quality than an unfamiliar website without pop-up ads.

Whether a site is familiar to the user is predicted to have a greater absolute effect on perceived website quality than the presence of pop-up ads. Further, a positive relation between perceived website quality and intention to reuse (Loiacono, et al., 2002a) exists. Thus, it is predicted that:

- **H5b:** A familiar website without pop-up ads will result in a higher level of intention to reuse than an unfamiliar website with pop-up ads.
- **H6b:** A familiar website with pop-up ads will result in a higher level of intention to reuse than an unfamiliar website without pop-up ads.

**RESEARCH METHODOLOGY**

The study was conducted in an experimental setting to control the familiarity of the websites used and the display of advertisements. A 2x2 factorial design was employed, where the factors were familiarity (familiar/unfamiliar) and ads (presence/absence of pop-up ads). Seventy-six volunteer undergraduate students performed several search tasks under conditions chosen for them at random. A pretest was conducted with students to test the materials and confirm that the time needed to find answers to the search tasks was sufficient to view all ads.

**Operationalization of Variables**

**Familiarity of Websites Used**

In order to make the experiment as realistic as possible, we used real websites and real products for the advertisements. In order to limit confounding effects, we chose two sites that focused on book sales. We chose Amazon (www.amazon.com) to represent a familiar website and Powells (www.powells.com) to represent an unfamiliar website based on a pretest of both sites with web users. The pretest panel of users answered questions about both sites. It was found that Internet users were familiar with Amazon, but not Powells, thereby resulting in a dichotomous variable.

**Advertisement placement and timing**

Six original ads and slogans were created for the study. Existing ads and slogans were avoided to prevent prior experience from contaminating the results. Half of the subjects received the six ads, while the other half received no ads. Because users were navigating real sites, we could not have the pop-up ads appear on specific pages. Ads were displayed every 30 seconds.
and appeared at the same location on the webpage for all subjects: at the top, middle of the page. Text was obscured when a page contained an ad, in the conventional style of pop-up ads.

**Dependent Variables**

As stated above, there are twelve dimensions of website quality. Each dimension is represented using three statements measured using a 7-point Likert scale (1 = strongly agree to 7 = strongly disagree). In addition, a measurement of reuse was adopted (Loiacono, et al., 2002b) to determine the likelihood that a user would go back to the site in the future.

**Procedure**

The experimental websites were accessed over the Internet. A computer laboratory containing identical computers further controlled the subjects’ environments. The experimental task consisted of searching for information on nine familiar products contained on the two websites (Amazon and Powells). After browsing the site, subjects placed answers to the search tasks on the code sheet provided. After the experimenter made sure a subject had closed all windows, a new browser window was opened to the online survey.

**RESULTS**

The statistical analysis was performed with SPSS version 12. The reliability of the website quality factors and reuse are highlighted in Table 2.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fit to Task</td>
<td>.8093</td>
</tr>
<tr>
<td>Tailored Communication</td>
<td>.7118</td>
</tr>
<tr>
<td>Online Completeness</td>
<td>.6484</td>
</tr>
<tr>
<td>Relative Advantage</td>
<td>.7808</td>
</tr>
<tr>
<td>Ease of Understanding</td>
<td>.7878</td>
</tr>
<tr>
<td>Intuitive Operations</td>
<td>.8290</td>
</tr>
<tr>
<td>Trust</td>
<td>.8954</td>
</tr>
<tr>
<td>Response Time</td>
<td>.8208</td>
</tr>
<tr>
<td>Visual Appeal</td>
<td>.8516</td>
</tr>
<tr>
<td>Emotional Appeal</td>
<td>.7283</td>
</tr>
<tr>
<td>Innovativeness</td>
<td>.8633</td>
</tr>
<tr>
<td>Consistent Image</td>
<td>.9297</td>
</tr>
<tr>
<td>Reuse</td>
<td>.9470</td>
</tr>
</tbody>
</table>

*Table 2: Reliability Analysis for Dependent Variables*

H1a predicted that a familiar site without ads would have a higher perceived website quality score than an unfamiliar site without ads. Although in the predicted direction, this hypothesis was not supported. H1b followed this logic and predicted that the likelihood of revisiting would be higher for a familiar site than an unfamiliar site, given that both had ads. This was supported (Table 3).
H2a predicted that a familiar site with ads would have a higher perceived website quality score than an unfamiliar site with ads. This was supported. H2b followed this logic and predicted that the likelihood of revisiting would be higher for a familiar site with ads than an unfamiliar site with ads. This was also supported (Table 4).

H3a predicted that a familiar site without ads would have a higher perceived website quality score than a familiar site with ads. Although not significant, it was in the opposite direction than predicted. H3b predicted that the likelihood of revisiting would be higher for a familiar site without ads than a familiar site with ads. This was not supported, but was in the predicted direction (Table 5).

H4a predicted that an unfamiliar site without ads would have a higher perceived website quality score than an unfamiliar site with ads. Although not significant, it was in the predicted direction. H4b predicted that the likelihood of revisiting would be higher for an unfamiliar site without ads than an unfamiliar site with ads. This was not supported, but was in the predicted direction (Table 6).
### Table 6: Scores with and without Ads for Unfamiliar Site

<table>
<thead>
<tr>
<th></th>
<th>Unfamiliar Site Without Ads (N=19)</th>
<th>Unfamiliar Site With Ads (N=19)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website Quality Score</td>
<td>197.05</td>
<td>202.89</td>
<td>H4A: Not Supported, but in predicted direction (p=.344)</td>
</tr>
<tr>
<td>Reuse</td>
<td>4.19</td>
<td>3.91</td>
<td>H4B: Not Supported, but in predicted direction (p=.862)</td>
</tr>
</tbody>
</table>

H5a predicted that a familiar site without ads would have higher perceived website quality than an unfamiliar site with ads. This was supported. H5b predicted that the likelihood of revisiting would be higher for a familiar site without ads than an unfamiliar site with ads. This was also supported (Table 7).

### Table 7: Scores with and without_ads across both Sites

<table>
<thead>
<tr>
<th></th>
<th>Familiar Site Without Ads (N=19)</th>
<th>Unfamiliar Site With Ads (N=19)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website Quality Score</td>
<td>197.05</td>
<td>174.79</td>
<td>H5A: Supported (p=.011)</td>
</tr>
<tr>
<td>Reuse</td>
<td>5.53</td>
<td>3.91</td>
<td>H5B: Supported (p=.000)</td>
</tr>
</tbody>
</table>

H6a predicted that a familiar site with ads would have a higher perceived website quality score than an unfamiliar site without ads. Although in the predicted direction, this was not supported. H6b followed this logic and predicted that the likelihood of revisiting would be higher for a familiar site with ads than an unfamiliar site without ads. This was supported (Table 8).

### Table 8: Scores with and without Ads across both Sites

<table>
<thead>
<tr>
<th></th>
<th>Familiar Site With Ads (N=19)</th>
<th>Unfamiliar Site Without Ads (N=19)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website Quality Score</td>
<td>202.89</td>
<td>186.47</td>
<td>H6A: Not Supported, but in predicted direction (p=.096)</td>
</tr>
<tr>
<td>Reuse</td>
<td>5.29</td>
<td>4.19</td>
<td>H6B: Supported (p=.017)</td>
</tr>
</tbody>
</table>

### DISCUSSION

Although we expected that familiarity and presence of pop-up ads would have a larger impact on perceptions of website quality and intentions to reuse a site, that was not the case. The web users in our study did not see a significant difference in...
the quality of Amazon and Powells based on whether they were familiar with the site or not. However, these users did rate the likelihood of returning to these sites differently. They are more likely to return to Amazon than to Powells.

Our findings show that when pop-up ads are introduced, there is a significant difference in website quality between familiar and unfamiliar sites. This demonstrates that the additional negative influence of ads on an unfamiliar site is more detrimental than their influence on familiar sites. This finding extends to perceptions of reuse, as the familiar site with ads was more likely to be reused than the unfamiliar site with the ads.

One of the more surprising findings is that a site without ads is not perceived to be of higher quality than a site with ads. The explanation for this most likely rests with the frequency and type of ads displayed. As highlighted above, the ads were pop-ups and were displayed every 30 seconds. Because these ads are easily closed and the infrequency of the display could explain how users did not view them any differently than if they had not received ads. This reasoning explains why there was no difference in intentions to reuse the familiar/unfamiliar site with or without ads.

As predicted, familiar sites without ads were rated as higher quality than unfamiliar sites with ads. This was an expected interaction, and as predicted, held. Similarly, the intentions to revisit a familiar site without ads was higher than an unfamiliar site with ads.

A somewhat uncertain relationship between familiar sites with ads and unfamiliar sites without ads was found to be significantly equal. We argued that familiar sites with ads would have higher website quality than unfamiliar sites without ads. This logic was based on the importance we felt was placed on familiar sites. However, as highlighted earlier, there was no difference in website quality between familiar and unfamiliar sites without ads. Therefore, the fact that we found no difference between website quality of familiar sites with ads and unfamiliar sites without ads is understandable, as familiarity with the site did not seem to impact users' perception of quality. However, these users did rate the likelihood of returning to these sites differently. Users are more likely to reuse a familiar site with ads than an unfamiliar site without ads. This means that there is something other than whether users are familiar with the site that is causing reuse.

LIMITATIONS

A limitation in this study is that it took place in a laboratory so that the ads and search tasks could be controlled. Although this was an artificial environment, we were able to provide the subjects with realistic websites that they would navigate in a typical context. By using real sites, however, we were unable to control every design element of the sites. This results in additional “noise” that cannot be controlled. Another limitation is that the subjects were college students. Although some may contend that we cannot generalize our results to the rest of the population, it is important to note that Voich (1995) found students to be particularly representative of values and beliefs of individuals employed in a variety of occupations.

CONCLUSION

Online advertising has increased in importance over the past few years. As more people turn to the web to search and make purchases, the opportunity for advertisers to put ads in front of them increases. Although some tools are now available to block pop-ups, there are other types of ads that are not blockable (in-line, overlay, etc.). In addition, savvy programmers can always overcome the ad blockers. This brings us to somewhat of a battle between the advertisers who try to put more products and services in front of users and users who try to avoid these advertisements and focus on their web task. As this new advertising medium grows, it is important to have controlled studies informing us of the effects of these ads. This study takes an initial step towards our understanding of the impact of one type of ad.
ABBREVIATED REFERENCES


Appendix 1: Illustrations of Web Ad Types

Static Banner Ad

Animated Banner Ad (Part A and B)
Pop-Up Ad

In-Page Animation

Alternative “Sidebar” Ads (similar to banner ads)