

MEDIA RICHNESS AND INTERNET EXPLORATION: THE EFFECTS OF SOUNDS AND NAVIGATION CONTROL ON A WEBSITE EVALUATION

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Previous research has found that media richness is associated with a positive evaluation of a website. An experiment was carried out where participants were instructed to explore a website presenting a popular place: Venice, Italy. Participants were exposed (or not) to street sounds when exploring the website and had the possibility to control (or not) the photography (using a 360° navigation with their mouse) displayed on the website. The results showed that higher evaluation was associated with sounds and mouse control. The Theory of Media Richness was used to explain our results and the managerial implications for tourism were discussed.

Key words: Media richness; Website evaluation; Internet

Introduction

Interactivity and vividness have been extensively studied in the field of computer-mediated communication (Freeman, Lessiter, & Ijsselsteijn, 2001), but empirical studies exploring the effect of interactivity and vividness of a website are scarce. However, compared with other media that convey information such as television, or radio, a website is a new environment because interactivity with the user is possible. A website is able to emit information to the user like the other media but it has the possibility to receive information from the user and then to emit subsequent information that varies according to the nature of information sent by the user (Hoffman & Novak, 1996).

A host of definitions of interactivity was found

in literature. The notion of feedback developed by Wiener (1950) is clearly the first approach of interactivity and supposes the possibility to control a system by reinserting information. For Heeter (1989) interactivity supposed the possibility for a system to respond differently to the user. For Steuer (1992) interactivity is explained by the possibility for the user to modify the form and the information content. Klein (2003) used the term telepresence to definite the concept of interactivity between a system and the user. For this author, telepresence refers to the meditated perception of a natural environment in a technology system. Various definitions of interactivity exist (see Fortin & Dholokia, 2005, for a review) but it seems difficult to use a single definition for a website. Perhaps it could be easier to perceive interactivity

as a continuum. A website may use a static page with no picture, no hyperlink, no buttons, and no feedback options and can also use background music, personal information previously entered to recognize the user, and to offer a specific web environment. If a website is considered as a new media that could use interactivity and that could enhance communication between the system and the user, empirical studies that tested the effect of such factors are scarce. However, some works exist that tend to prove that interactivity has a powerful effect on attitude of the user toward a website.

Klein (2003) conducted an experiment using a 2 (media richness) \times 2 (user control) factorial design. She manipulated two different levels of media richness in a website. In a high media richness condition, full-motion video and audio were added in a website presenting a wine. In her experiment, the audio consisted of voice-overs and music and was congruent with the visual information of the website. In the low media richness condition, the same information appeared in text format rather than through voice-overs. The user control was manipulated by two different levels of control over the order of presenting information of the website. In the high user control condition, participants had the possibility to control the order in which they viewed the different attribute qualities of the product whereas in the low user control condition the participants were guided through these attributes qualities in a predetermined order. After viewing the website, participants were instructed to respond to a questionnaire measuring attitude toward the site. Results showed that high control and high media richness were associated with higher realism scores and positive evaluation of the website.

In a recent experiment, Sewak, Wilkin, Bentley, and Smith (2005) used a website to present a new pharmaceutical product (an agent useful to prevent flu in the fall). The manipulation of the website was performed using two versions of the website that contained the promotional information. In one version (website with picture) the website was designed including a picture of sea-shore below the overhang of a tree and the subject headings of the sections of the website were placed in buttons that permitted the participants to

explore the relevant section. In the other version (website with text) no picture and no buttons were present and it was possible for the participant to navigate in the various sections of the website by the means of hyperactive links. The first page of the website was different but the various subheadings were clearly the same and provided similar information presented in the same way in the two versions of the website. Participants were instructed to explore the website and to evaluate the website design. The results showed that the website with picture was highly evaluated in terms of visual appeal and pleasantness. It was also perceived as more attractive and more pretty than the website with text. High quality was also associated with the website with picture. However, no difference was found between the two groups for the other dependent variables used to evaluate the website design: ease of navigation, professional, interest, and facility to find information.

Such experiments showed that control and media richness are associated with higher evaluation of the website. Yet, these later studies were focused on the evaluation of the website and were not focused on the evaluation of information contained in the website (i.e., a product presented in the website). Our experimental interest was to test the effect of the two factors (media richness and control) manipulated by Klein (2003) on the evaluation of the information presented on the website and on behavioral intention toward this information. An experiment was carried out to test the effect of such factor on a tourism product. Participants were instructed to explore a website presenting a highly popular town. According to four experimental conditions, participants were exposed (or not) to street sounds when exploring the website and had the possibility to control (or not) the photography by using a 360° navigation with their mouse. Then, after exploring the website, the participants were instructed to evaluate the website and to evaluate the probability to visit the town.

According to the later studies that showed that media richness and control were associated with positive evaluation of the website, we hypothesized that displaying street sounds and offering a 360° control to the user would lead him/her to evaluate the website and the product more favorably and

to increase his/her behavioral intention to visit the town.

Method

A website developed for the experimenter was used in the four experimental conditions. The website contained only high-resolution photography displayed on a 24-inch panoramic screen. In each page of the website, a menu containing six hyperlinks appeared. The words underlined with each hyperlink contained the name of six famous areas of Venice: San Marco, Cannaregio, Dorsoduro, etc. When the hyperlink was clicked, a set of eight small photographs of the area selected appeared on the screen. Each of the photographs was associated with a hyperlink that permitted obtaining a high-resolution photograph of the place using 83% of the screen area. Each of the photographs was associated with a 1-minute file sound (coded in MP3). Each file displayed various street noises (sound of footsteps, pigeons cooing, whispered conversations, etc.). In some experimental conditions, the photograph was smaller (48% of the screen area) but was associated with a 360° navigation. The possibility to control the navigation was formulated by the means of a sentence that was written below the photograph: "If you want to explore the area then click on the left button of your mouse, keep the button pressed and move your mouse." In this condition it was possible to show the whole of the photograph that was entirely displayed on the screen when no navigation was possible. In the two screen conditions (large and static photography or with 360° navigation) the resolution and the size of each element of the photography were the same.

The participants were 79 undergraduate students (34 males and 45 females) in various life sciences and social sciences in the University of South Brittany in France. Three participants (three males) were first discarded because they had previously visited Venice. All of them were volunteers and had given their written informed consent to participate in the following experiment. A post hoc interrogation was conducted in order to discard potential participants who were not familiar with the Internet but no one was found. The partic-

ipants were randomly assigned in one of the four experimental conditions by way of a randomizer freely available on the web (<http://www.assumption.edu/users/avadum/applets/applets.html>).

The experimentation took place on an individual basis in a medium size laboratory (3 × 4 meters) that was equipped with a computer a desk and a chair. On the other side a small table and a chair were present. As the participant arrived in the lab, he/she was greeted by the same male experimenter. The participant was told by the experimenter that the objective of the study was to test and to evaluate a website presenting the street and the public and living quarters of a famous town: Venice. The participant was further instructed that the website was experimental to date, which was why it was implemented on the hard-disk of the computer and not available on the web. Furthermore, the experimenter added that this site was developed as a real website that somebody could explore on the web.

After being given the experimenter's instruction, the participant was invited to sit in front of a computer. Media richness was operationalized in two ways by the help of a 2 (presence versus absence of street noises) × 2 (control no control of the photography) factorial design. In the two street noises conditions, sounds were played by way of a pair of two loudspeakers that were placed on the side of the screen. According to the random group assignment of the participants, the loudspeakers were switched on or switched off before the participant entered the experimental room. The starting web page for the experiment was also displayed on the screen before the participant entered the lab and it contained the words "press spacebar to begin." After the participant was seated on the chair, the experimenter instructed him/her that he/she had to explore the website for exactly 5 minutes. The experimenter said that it was not necessary for the participant to consult his/her watch because it was his responsibility to stop the participant when the time was reached. The experimenter explained to the participant that during the navigation, he would be seated on the chair on the other side of the room. Then the participant was instructed to begin to explore the website. The experimenter then set on a chronometer and sat

down in the chair that was placed on the opposite side of the participant. At the end of the 5-minute test period the experimenter came back and told the participant that he/she could stop the navigation. Then the experimenter switched off the screen.

The participant was then asked to answer some questions about the website. A questionnaire was submitted to evaluate the website with the help of five questions, all using a 7-point semantic differential scale. Each scale began like this: "The navigation was: unexciting/exciting, boring/interesting, unpleasant/pleasant, and difficult/easy." A later question was used to evaluate the interest of the participant toward Venice: "After viewing some areas of Venice, could you evaluate on this later scale the probability to visit this town in the future: no probability/high probability."

Results

As no interaction between participants' gender and the two independent variables used in the ex-

periment was found, data were collapsed across participants' gender. Each scale was analyzed with the help of a two-way ANOVA: 2 (presence versus absence of street noises) \times 2 (control/no control of the photography). The results are presented in Table 1.

In each experimental condition and for all the dependent variables we can see that the evaluations of the participants were highly positive. Such results could be explained by the fact that Venice was presented in the website with the help of high-definition photography of famous areas of the town that make the town become highly attractive for the participants and then to lead them to evaluate the website positively. However, in spite of such general positive evaluation, differences between conditions appeared. We have found that the website was evaluated to be more exciting when street noises were displayed during the exploration of the site and when 360° navigation was possible. Yet, no interaction effect was found between the two independent variables.

Table 1
Means (SD in Parentheses) of Evaluation Scales

Semantic Differential Scale	Street Noises		Results of Two-Way ANOVA
	Displayed	Not Displayed	
Unexciting/exciting			
360° navigation	6.17 (1.69)	5.32 (1.07)	A: $F(1,72) = 4.45, p < 0.04$
No 360° navigation	5.16 (0.97)	4.78 (1.23)	B: $F(1,72) = 7.07, p < 0.01$ C: $F(1,72) = 0.65, NS$
Boring/interesting			
360° navigation	5.82 (2.04)	5.29 (2.01)	A: $F(1,72) = 0.81, NS$
No 360° navigation	5.05 (1.78)	4.76 (2.06)	B: $F(1,72) = 2.06, NS$ C: $F(1,72) = 0.07, NS$
Unpleasant/pleasant			
360° navigation	6.16 (1.38)	5.39 (1.77)	A: $F(1,72) = 4.37, p < 0.04$
No 360° navigation	6.01 (1.29)	5.22 (1.49)	B: $F(1,72) = 0.18, NS$ C: $F(1,72) = 0.01, NS$
Difficult/easy			
360° navigation	6.17 (1.60)	5.06 (1.71)	A: $F(1,72) = 4.24, p < 0.05$
No 360° navigation	5.45 (1.29)	5.11 (1.37)	B: $F(1,72) = 1.03, NS$ C: $F(1,72) = 1.15, NS$
Probability to visit Venice			
360° navigation	6.64 (1.18)	6.06 (1.24)	A: $F(1,72) = 4.38, p < 0.04$
No 360° navigation	6.37 (1.16)	5.78 (1.29)	B: $F(1,72) = 0.97, NS$ C: $F(1,72) = 0.00, NS$

A: Effect of noises, B: Effect of the navigation, C: Interaction.

When street noises were displayed during the navigation on the website, the site was perceived to be more pleasant and easier. As we can see, no further effect was found and not difference according to the experimental condition manipulated was found when interest toward the site was evaluated by the participants. Furthermore, displaying street noises during the navigation led to increase the probability to visit the town. Again no effect of the presence versus absence of 360° navigation was found and no interaction appeared when analyzing this dependent variable.

Discussion

In this experiment we found that street noises that were displayed during the visit of a website presenting a famous town, illustrated with the help of various photographs, led participants to evaluate the site as more exciting, pleasant, and easy and increased the probability to visit the town in the future. The effect of control with the help of a 360° navigation led participants to evaluate the site as more exciting but had no effect on the other measures. Perhaps the absence of a consistent effect of the presence of 360° navigation was explained by a floor effect. Indeed, it was found that, in this experiment, the evaluation of the various characteristics of the website and the probability to visit the town was high in the control (no sound, no 360° navigation) condition. When the two factors (360° navigation and sounds) were combined, higher positive influences on the user's evaluation of the website were found. Such results seem to show that media richness and user control had significant positive influences on the evaluation of a website intended to increase the value of a town. These results confirm and extend the results obtained by Klein (2003). In two experiments, Klein found that a product (a wine or a facial cream) presented by way of a website led the user to attribute higher score of telepresence to the website when control (possibility to control the presentation of information by way of buttons associated with hyperlinks) and media richness (audio contents) were manipulated. The website was perceived as more realistic in this condition and positive attributes were associated with the website

when control and media richness were displayed. Our results extend Klein's results because we have found that media richness and control had a positive effect on behavioral intention toward the product presented by way of the website.

Such results have some managerial interest because we found that when information corresponding to natural perception of a real place is present in a website, a positive evaluation of the site is found and the attractiveness of the place is increased. It will be interesting for a Webmaster who manages websites that promote a town or a tourist destination to introduce such natural information. Many applications are possible in this area. It will be interesting to add the sound of the swirl of the sea when promoting a seaside spot. In France, where our experiment presented above was carried out, a host of people used to stay in a farm for a weekend during the summer holidays; such a stay, called "welcome in the farm" or "farmer's stay," is frequently reserved by way of a website. It will be interesting for the farmer to record the sounds of his/her farm, such as farmyard animals or insects' buzz and to display these sounds on his/her website in order to create positive evocation and perhaps increase a more genuine effect of the farm.

Limitations and Future Research Direction

This study suffers from several shortcomings. Only one town was tested in this experiment and it is a very famous town that led to create a high floor effect in the control condition. It will be interesting for further studies to evaluate the impact of user control and media richness with a less known tourist center. In this condition perhaps we could find a general positive effect of the 360° control of the user evaluation. The level of control is perhaps inadequate and it will be necessary to use a high user control, which is the case when the user has the possibility to control the information acquisition. Like Klein (2003), it will be interesting to explore media richness by using voice speech. It will be interesting to have the sound of the street and voice speech presenting the town. Thus, future research needs to explore various variables that could enhance interactivity between

the user and the system and that would create a feeling to be actually in the place by way of virtual information presented on the website.

Biographical Notes

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