The Cultural Context of Web Genres: Content vs. Style

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Abstract

The question we raise here is whether what is culturally established for a given genre in the brick and mortar world applies equally on the World Wide Web. Can we effectively use the styles of one genre to design the site of another genre? Are we wedded to the culturally established attributes of the real world when designing for the Web? We compared users' performance and preference for shopping- vs. news-styled sites. We found that on the whole users liked the "shopping" layout better than the news layout, *even when viewing news content*. This was especially surprising in light of the fact that our users had so much more experience with news sites over shopping sites. This perhaps shows how popular the shopping style is in our culture. People chose News as Shopping as their favorite site, even though it was difficult to use. People who preferred News as Shopping did better on both News as Shopping and News as News, than those who preferred News as News. This suggests a potential relationship between performance on the World Wide Web and preference for the shopping style.

Keywords: web usability, web genres, culture, news, shopping

Introduction

Designers of Web sites draw on culturally established brick and mortar practices to decide what should constitute the style and content of their sites. For example, news site pages incorporate many of the organization features of newspapers. Tourism sites often look like travel brochures. Shopping sites incorporate many of the features of a store such as aisles and shopping carts. News, shopping, entertainment, and information sites are each genres that can be identified and distinguished from the others in the content they provide to their intended audience. Some are informative, some serve to sell products, others exist strictly for entertainment. But we contend that in addition to content, and perhaps more vital than content, each genre has its unique, culturally established presentation style that defines and distinguishes the genre. It is possible that for users to "feel" comfortable with the content of a web site, and to find the site easy to use, they need to recognize the culturally established styles to which they are accustomed.

The genres are sufficiently different in their look and feel that recognition time of a page based on style as belonging to a particular genre is a matter of a few seconds, if not instantaneous, for some genres. Two readily observable genre styles that can be distinguished quite rapidly because of their look and feel are the online news and shopping. Both have distinct characteristics that set them aside from each other and from other genres because they tend to incorporate many of the culturally accepted features of their real world equivalents.

In this paper, we raise the question of whether what is culturally established for a given genre in the brick-and-mortar world applies equally on the World Wide Web. Can we effectively use the styles of one genre to design the site of another genre? Are we wedded to the culturally established attributes of the real world when designing for the Web?

Background

There have been a number of studies that investigated the usability of web page designs (Borges, et. Al., 1998; Grose, et. Al, 1998; Vora, 1998). There are few that have targeted specific genres, and these tended to be predominantly for e-commerce, that is, shopping web sites. E-commerce sites have not only been well studied, but also they have been sharply criticized for their poor usability both in the trade press and by well-known usability experts such as in Weise (2000), Hurst (2000) and Nielsen & Tahir (2001). Gehrke and Turban, (1999), give specific recommendations on design determinants of a successful e-commerce site. Nielsen & Tahir (2001) have developed 222 usability guidelines for design a shopping site, some based on analogies to the brick-and-mortar world. There is some evidence (Ivory et. al. 2000) that, at least for information-centric web pages, such as news sites, that there are quantitative measures that can be related to highly-rated, usable sites. This supports the notion that user expectations within a genre, even low-level ones, affect usability.

There have been a number of investigations of the role of culture in the design of user interfaces. Marcus & Gould (2000) have explored how the work of Hofstede (1997) on cultures and organizations can be applied to web site design. Research in this area is just emerging; for example, see Evers and Day (1997) on how cultural design preferences do affect user acceptance of an interface.

In a cultural usability study, Barber & Badre (1998) found that cultural design markers tended to supersede genre ones when it came to design decisions. For example if the culture was a textual culture and the genre required a predominance of pictures, the site for that genre will be mostly textual. These cultural markers were used in a study by Sheppard & Scholtz (1999) that showed some performance benefits when users from a particular culture were tested with web sites designed with markers from that culture vs. markers from a different culture.

While earlier Barber and Badre (1998) did work establishing a relationship of genre to culture, currently, there is no work done to establish whether cross genre designs are effective or not. For the most part if designers veer from a given genre, it is either because they are copying a design they liked, or because they are innovating. In neither of these cases is the designer's intention to borrow from the style features of another genre.

For this study, we decided to use two styles of sites, news and shopping, to investigate the effects of borrowing genre style. We first examined a handful of the most popular online news and shopping web sites. These included Cnn.com, abcnews.com, newyorktimes.com, and chicagotribune.com for news sites. Shopping sites included amazon.com, valueamerica.com, and landsend.com. Each genre of sites had definite characteristics that stood out. News sites could be characterized as very linear – they had large amounts of information on the front page, with content subdivided very much like traditional newspapers. Graphics on news sites were typically small photos, and minor stories were often just text. Navigation was usually fairly complex, with "related stories" links, broad categories, and jumps to other stories. Our sampling of shopping sites, on the other hand, had a clear tree-based structure. Images were usually icons or retouched photos, and the use of color was immediately noticeable. In general, pages were shorter, with fewer links, and navigation was more direct.

We constructed our news and shopping test sites based on this analysis; they were similar in design to two popular commercial sites. The performance data (number of clicks and time on tasks) was collected automatically by instrumenting the two sites using the NIST (National Institute of Standards and Technology) WebVIP tool (See http://www.nist.gov/webmetrics for details.)

Experiment Design

The goal of the experiment was to determine if applying the style of one genre to the content of another would affect the performance and preference of the participants. How would participants perform on a news site with a shopping layout, or a shopping site with a news layout?

We selected 48 participants who were Georgia Tech students between the ages of 18 and 25. We collected performance data on the order of page view selection, as well as the overall time to search

and find specific information or an item to purchase. We also rated the participant's satisfaction with the usability of the site.

Four web sites were designed for the purpose of the experiment. These were:

A. News as Shopping

B. Shopping as News

C. Shopping as Shopping

D. News as News

We divided the forty-eight participants into twelve groups of four each. The members of each group visited two sites in a predetermined order. Here are the sites visited by the members of each group. They are designated by the codes, A, B, C, and D given above.

Group 1: site A then site B

Group 2: site B then site A

Group 3: site A then site C

Group 4: site C then site A

Group 5: site A then site D

Group 6: site D then site A

Group 7: site B then site C

Group 8: site C then site B

Group 9: site B then site D

Group 10: site D then site B

Group 11: site C then site D
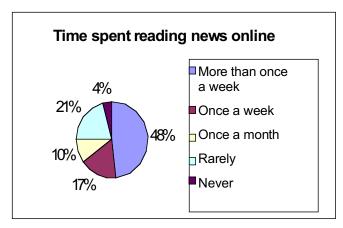
Group 12: site D then site C

The breakdown of groups and sites visited serves two purposes. First, it helps us even out any biases that may come from users seeing one style site before the other by counterbalancing the presentation between groups. For instance, group 1 will first be exposed to news content, and then shopping content. Group 2, however, will be exposed to shopping content before news. The 12 groupings cover every possible combination of site visits. This division allows us to have the equivalent of a control group by also giving us two groups of participants that use only News Style sites, and two groups that only use Shopping Style sites.
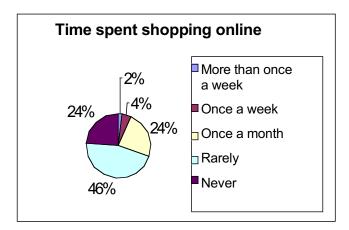
Experiment Procedure

All participants signed a subject consent form. Then, they were first asked to indicate how much time they spent reading news and shopping on the web. Next, they were assigned to one of the twelve groups. The first participant was assigned to the first group, with each succeeding participant to the next consecutive group, until there was a person in each group. This process was repeated until each group had four subjects. Each participant performed the two tasks on the two sites, with instructions given before each task. After the participants finished the tasks, they were asked to respond to a Lickert scale preference questionnaire.

Results and Discussion

Interestingly, our users were much more familiar with online news sites. Forty-eight % (Graph1) of them responded that they read news stories online more than once a week, whereas only 2% (Graph 2) of participants used shopping sites with the same frequency. Thus, we would expect to see a familiarity bias towards the news sites.

Time spent reading news online

4%
21%
10%
17%
48%

- More than once a week
- Once a week
- Once a month
- Rarely
- Never

Graph 1: Time spent reading news online

Time spent shopping online

2%
4%
24%
24%
46%

- More than once a week
- Once a week
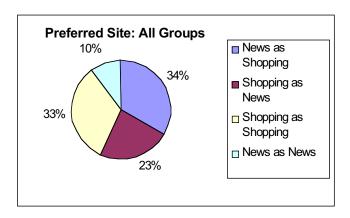- Once a month
- Rarely
- Never

Graph 2: Time spent shopping online

We also asked our participants to rate how much time they spent online per week, and how they rated their skills as a web user. On average our group seems confident with their web skills, and used the Internet frequently enough that any learning curve for the experiment should have been negligible.
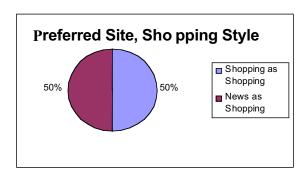
Many of the results we obtained were unexpected. For one, we saw no evidence of a bias based on which site the user visited first – preferences were split nearly 50/50. In addition, **the users preferred the shopping layout to the news layout** three to one.

Graph 3 shows that 69% of the users liked the "shopping" layout better than the news layout, *even when viewing news content*. This was especially surprising in light of the fact that our users had so much more experience with news sites, and not shopping sites.

Users who were only shown shopping style sites were split down the middle for preference (Graph 4). But users shown only news style sites preferred a shopping content 3 to 1. This suggests that our sample group was more comfortable with the shopping content, but it is interesting to note that that did not seem to have an effect on our overall results. Nearly all users "preferred" the same site that they ranked as "more efficient". Thus for the purpose of further analysis, these two results can be assumed to be the same.
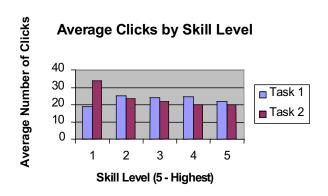
Preferred Site: All Groups

- News as Shopping
- Shopping as News
- Shopping as Shopping
- News as News

10%
34%
23%
33%

Graph 3: Preferred Site

Preferred Site, Sho pping Style

- Shopping as Shopping
- News as Shopping

50%   50%

Graph 4: Preferred Site, Shopping Style

Interestingly, the efficiency of our sample group did not seem to correlate with their self-rated web skill level. While the users who ranked themselves a "1" (lowest) for web skills did take measurably longer to complete the tasks, levels 2-4 are all very close (Graphs 5 and 6). This suggests that our tasks were acceptably difficult, in that experienced users did not have a large advantage over novice users.

Average Clicks by Skill Level

Average Number of Clicks

- Task 1
- Task 2

Skill Level (5 - Highest)

Graph 5: Average Clicks by Skill Level

Graph 6: Average Time by Skill Level

Did people who preferred a site perform better than those who did not?

Table 1 tries to compare how long it took for people preferring a site to use the site to those who did not prefer it. People are said not to prefer a site only if they used the site and did not select it as their favorite. Table1 includes everyone who took the experiment. News as News and Average Time (preferred site) is the average time it took people to use News As News if they preferred News As News. News as News and Average Time (not preferred site) is the average time it took people to use News As News if they did not prefer News As News. Time is recorded in seconds. 14 people preferred News As Shopping and 10 people did not. There were 11 people who preferred and 13 people who did not prefer it. There were 16 people who preferred Shopping As Shopping and 8 who did not prefer it. There were 7 people who preferred News as News and 17 who did not prefer it. The correlation coefficient is comparing the time or the number of clicks it took someone to complete the tasks, to whether or not they preferred the site. One (1) was used to show that they did prefer the site, and (2) was used to show that they did not. This produces a positive coefficient if better performance tended to follow liking the site.

Table 1: Performance versus preference

	News As News	News As Shopping	Shopping As News	Shopping as Shopping
Average Time (preferred site)	152.2727273	210.3846154	150	148.125
Average Time (not preferred site)	203.4210526	207.0	201.6666667	209.375
Average Clicks (preferred site)	16.85714286	24.23076923	19	27.6875
Average Clicks (not preferred site)	15.63157895	29.6	20.58333333	35.125
Correlation Coefficient(time)	0.24282	-0.024114	0.303126	0.42056
Correlation Coefficient(clicks)	-0.06167	0.21906	0.105343	0.311557

In general most people who preferred a given site did better on that site than people who did not. This trend can be seen in the average times it took to complete the same tasks on the same web site, as seen in Table 1. News as Shopping is the only site that did not follow this trend. News as Shopping had a smaller average time for those who did not prefer the site than those who did. It is only slightly smaller though. The other sites had noticeable differences in average times. The correlation coefficient was large enough to show some type of correlation for all the sites, except News as Shopping. News as Shopping was almost 0, showing that there was no relationship between liking the site and their

performance. The importance of the number of clicks varies based on the style of the site. For news styles there was little difference in the number of clicks it took. Therefore, those who did not like a site, did not make more mistakes; they just took longer to decide where to go. There, however, was a noticeable difference in the number of clicks it took for shopping style. Even News as Shopping had better performance, in regards to number of clicks, for those who liked the site over those who did not.

People liking the site but not choosing it as their favorite could have caused the discrepancy with News as Shopping. Although they liked that site, they thought that the other site was slightly better. News as Shopping was the second most popular site. If people, who did not choose News as Shopping as their favorite, did not dislike the site, then it is no longer a comparison between the performance of those liking a site and those not liking a site. Another explanation is that there was something that made the tasks for News as Shopping hard to complete. It did not matter, whether they liked the site or not, they had trouble completing the tasks.

It seems like people perform better on a site that they like than a site they don't like, with News As Shopping being an exception because it was too difficult. Another explanation is that people choose sites on which they performed better.

Did people perform better on the site that they preferred?

Participants only using shopping content

Table 2 shows the average time and number of clicks to complete the shopping tasks on different styles separated by which style they preferred. SAS stands for Shopping As Shopping, and SAN stands for Shopping As News. It took people, who preferred Shopping As Shopping, 134 seconds to complete the tasks for Shopping As Shopping, 241 Seconds to completed the tasks for Shopping As News, 26.8 clicks for Shopping As Shopping, and 19.14 clicks for Shopping As News. There were 5 people who liked using Shopping As Shopping, and 3 people who liked using Shopping As News. Table 2 and Table 3 include only people who saw both sites having shopping content. Table 3 shows the number of people who preferred a given site that did better on that site. For people preferring Shopping As News, two people completed it faster and with fewer clicks then they did Shopping as Shopping, and one person took the same amount of time and clicks for both sites. The correlation coefficient for having a better performance on a site with regards to time and choosing that site as the preferred site is 0.596285. The correlation coefficient for having a better performance on a site with regards to number of clicks and choosing that site as the preferred site is -0.14907. This was calculated using 1 if the preferred a site and 0 if they did not. They were assigned a 0 if they performed worst on the site, a 1 if they performed the same on both sites, and a 2 if the performed better on the site. This produces a positive coefficient if people choose the site on which they performed better.

Table 2: Average Time and Clicks for Shopping Content

	Time(SAS)	Time(SAN)	Clicks(SAS)	Clicks(SAN)
Preferred Shopping as Shopping	134	241.4285714	26.8	19.14285714
Preferred Shopping as News	161.66667	113.3333333	25.33333333	19.66666667

Table 3: Preferences based on performance

	Completed faster (SAS)	Completed faster (SAN)	Completed Same	fewer clicks (SAS)	fewer clicks (SAN)	Clicks Same
preferred Shopping as Shopping	3(60%)	1(20%)	1(20%)	0(0%)	4(80%)	1(20%)
preferred Shopping as News	0(0%)	2(66.67%)	1(33.33%)	0(0%)	2(66.7%)	1(33.3%)

For shopping content, the majority of the people chose the site that they performed better (completed in less time) on as their favorite site (see Table 3). The number of clicks did not seem to influence the decision. Shopping as News took less clicks to complete than Shopping as Shopping. This is because news style sites had fewer but larger pages. No one had fewer clicks for Shopping as Shopping than they did for Shopping as News. Therefore there was no relationship between the number of clicks it took someone to complete the tasks and which site they preferred.

Participants using only news content

Table 4 shows the average time and number of clicks to complete the news tasks on different styles separated by which style participants preferred. It took subjects, who preferred News As Shopping 173.75 seconds to complete the tasks for News As News, 188.75 Seconds to completed the tasks for News As Shopping, 15.25 clicks for News As News, and 16.75 clicks for News As Shopping. There were 4 subjects who liked using News As Shopping, and four who liked using News As News. Table 4 and Table 5 include only people who saw both sites having news content. Table 5 shows the number of subjects who preferred a given site where they performed better. For people preferring News As News 3 people completed it faster and with less clicks then they did News as Shopping, and 1 person took less time and clicks for both sites. The correlation coefficient for having a better performance on a site with regards to time and choosing that site as the preferred site is 0.0. The correlation coefficient for having a better performance on a site with regards to number of clicks and choosing that site as the preferred site is 0.0. This was calculated using 1 if subjects preferred a site, and 0 if they did not. A 0 was assigned if they performed worst on the site x, a 1 if they performed the same on both sites, x and y, and a 2 if the performed better on site x. This produces a positive coefficient if people choose the site on which they performed better.

Table 4: Average Time and Clicks for Shopping Content

	Time(NAN)	Time(NAS)	Clicks(NAN)	Clicks(NAS)
Preferred News as News	137.5	210	17	28.25
Preferred News as Shopping	173.75	188.75	15.25	16.75

Table 5: Preferences based on performance

	Completed faster (NAN)	Completed faster (NAS)	Completed Same	fewer clicks (NAN)	fewer clicks (NAS)	Clicks Same
Preferred News as News	3(75%)	1(25%)	0(0%)	3(75%)	1(25%)	0(0%)
Preferred News as Shopping	3(75%)	1(25%)	0(0%)	3(75%)	1(25%)	0(0%)

Table 6 shows the average times to complete each site for those who did better on News as News. There were 3 people preferring News as News and 3 people preferring News As Shopping in this table. The correlation coefficient of the time it took to complete News As Shopping to whether they preferred it is 0.323708. The correlation coefficient of the time it took to complete News As News to whether they preferred it is -0.25751. 1 was used to show that they did prefer the site, and 2 was used to show that they did not. This produces a positive coefficient if better performance tended to follow liking the site.

Table 6: Average Times for people who did better on NAN than NAS

	Time(NAN)	Time(NAS)
Preferred News as News	120	233.3333333
Preferred News as Shopping	103.3333333	166.6666667
Correlation Coefficient	-0.25751	0.323708

Table 7 shows the average times to complete each site for those who did better on News as Shopping. Each site had only one person who preferred it included in the table.

Table 7: Average Time for people who did better on NAS than NAN

	Time(NAN)	Time(NAS)
Preferred News as News	190	80
Preferred News as Shopping	100	85

The trend we see for shopping content does not seem to apply to news content. The majority of the people completed News as News faster than News as Shopping (6 to 2 as seen in Table 5). But both sites had just as many choices for favorite site. This produces a 0.0 correlation coefficient, which shows that there was no relationship between doing better on a site and choosing that site as the preferred site. From Table 6 one can see that participants who preferred News As Shopping had a faster average completion time for News As Shopping than those who preferred News As News. Those who chose News As Shopping as their favorite are the ones who did better on it. They also had a lower average time to complete News As News. This might suggest that News As Shopping is more appealing to regular internet users. Another conclusion is that performance is not a factor in choosing a favorite site. The shopping style might just have felt better to them, even if it did not make it easier to

use. Like shopping content, news content had fewer clicks with news style than shopping style

Experience

Tables 8 through 11 break people up based on whether they had more experience with news online, with shopping online, with both equally, or experience with none of them. Then they show which site they preferred. Note that from Table 11, there were 3 people who had more news experience. Out of those, 2 preferred Shopping as News, and 1 preferred News As News. There was no one who had good shopping experience without news experience. The majority of the users were news users.

Table 8: Preference based on experience, used only news content

	Shopping experience	News experience	Experience with both	Experience with neither
Preferred NAS	NA	1(25%)	NA	3(75%)
Preferred NAN	NA	3(75%)	NA	1(25%)

Table 9: Preference based on experience, used only shopping content

	Shopping experience	News experience	Experience with both	Experience with neither
Preferred SAS	NA	2(50%)	1(50%)	1(50%)
Preferred SAN	NA	2(50%)	1(50%)	1(50%)

Table 10: Preference based on experience, used only shopping style

	A lot of shopping experience	A lot of news experience	Experience with both	Experience with neither
Preferred SAS	NA	3(42.86%)	NA	1(100%)
Preferred NAS	NA	4(57.14%)	NA	0%

Table 11: Preference based on experience, used only news style

	A lot of shopping experience	A lot of news experience	Experience with both	Experience with neither
Preferred SAN	NA	2(66.67%)	0%	4(100%)
Preferred NAN	NA	1(33.33%)	1(100%)	0%

Summary and Conclusions

The shopping layout was more popular overall than the news layout.

Participants who preferred a site they performed on, took less time to complete that site's task than those who did not prefer it.

On average for shopping style sites, those who preferred a site visited fewer pages to complete that site's tasks, than those who did not prefer it.

On average for news style sites, those who preferred a site did not visit fewer pages to complete that site's tasks, than those who did not prefer it.

Those who saw only news content sites and chose News as Shopping, performed better than those who saw only news content sites and chose News as News.

People who saw only news content, chose their preference based on experience. Those with news experience preferred News as News. Those with no experience chose News as Shopping.

The shopping layout was more popular than the news layout. Sixty seven percent of the News as Shopping was the most popular site. Shopping as Shopping was the next most popular.

On average people preferring a site performed better on that site than those who did not prefer it. The average time to complete the tasks were significantly lower for those preferring the site for all the sites except News as Shopping. The average number of pages people visited to complete the tasks were lower for those preferring the site for shopping style sties. This even applied to News as Shopping. The average number of pages people visited to complete the tasks for news style sites were about the same between people preferring the site and those not.

It was assumed that people would prefer the site on which they performed better. This appears to be true for shopping content. Most people completed News as News faster than News as Shopping. People chose News as Shopping as their favorite site, even though it was difficult to use. People who preferred News as Shopping did better on both News as Shopping and News as News, than those who preferred News as News. This shows that people who are better at using the Web prefer the shopping style, suggesting a potential cultural bias.

Acknowledgements

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