

End-User Perceptions of Formal and Informal Representations of Web Sites

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ABSTRACT

Web site designers have expressed concerns that formal, cleaned-up representations of early ideas cause end-users to focus on inappropriate details. It is believed that the high-fidelity of formal representations cause end-users to believe a design is more complete and therefore not amenable to high-level changes and suggestions. In this paper we present an experiment comparing end-user perceptions of formal and informal electronic representations of web site designs. We found that end-users do in fact believe formal representations are finished and unchanging, but that this does not seem to influence the level of detail in their suggestions. However, it appears that informal designs presented in an electronic medium raises user expectations such that lower-level suggestions about the visual aspects were made.

Keywords

Web design, sketching, informal, formal, prototyping

INTRODUCTION

One study of web site designers discovered that sketching on paper is especially important during the design exploration phases of a project [3]. The usefulness of sketching in early stages of design has also been documented in the case of GUIs [1, 4]. Sketches are inherently ambiguous, which allows the designer to focus on basic structural issues instead of unimportant details.

In many cases, designers expressed concern over the tendency of formal representations of early, unfinished ideas to cause viewers to focus on inappropriate details. Many designers reported that clients and even other designers tend to focus on details like color and typography when presented with a set of high-fidelity mock-ups and have trouble focusing on the larger concepts [1]. During the early stages of design, this kind of feedback is not as useful as high-level comments about the overall design.

In this paper, we discuss an experiment we ran to verify these claims. Specifically, our hypothesis is that the comments generated by end-users evaluating a web site design in an informal, sketched representation will be of greater value to designers and lead to a higher quality end product than a formal, cleaned-up representation. To test this hypothesis, we ran a task-based usability evaluation of two web site designs in both formal and informal representations.

EXPERIMENT DESIGN

We ran a 2×2 within-subjects experiment with 8 participants, using formal and informal representations of two actual e-commerce web sites. These web sites were similar in terms of number of products offered, web site depth, navigation, and information architecture.

The formal representations were obtained by downloading local copies of the two web sites. Since these were finished web sites, parts of the formal representations were greeked so that they would not have a completed feel to them. These web sites did not have dynamic content other than a shopping cart, which lists the items customers are considering purchasing. We mocked up the shopping cart pages by hardwiring the data to be correct for the experimental tasks.

We also created informal mockups of these same portions using DENIM, a sketch-based web site design tool [2]. We sketched out copies of the pages that were downloaded, using scribbles to represent significant portions of text and making rough copies of the pictures. We then used DENIM's "Export to HTML" feature, which generates GIF images and HTML image maps, allowing pages drawn in DENIM to be viewed in standard web browsers. The exported images were touched up in a paint program to improve readability, and HTML text entry fields were manually added where needed (e.g. address fields).

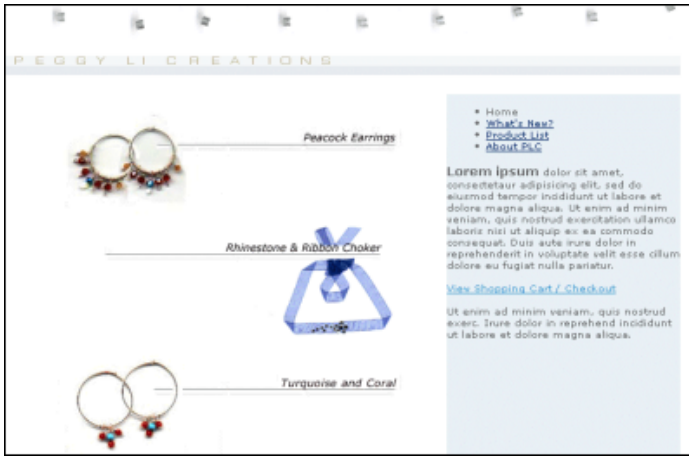


Figure 1 – A formal representation of an e-commerce web site

Participants were informed that the web sites represented early designs. They were asked to perform ten tasks total, five for each web site. The two sets of tasks were designed to match in terms of goal and difficulty. The first two tasks were familiarization tasks, in which participants were asked to find specific pieces of information on the site. The next task was a more complex variation of finding a specific piece of information. The fourth task was to add two items to the shopping cart, and the last task was to purchase the items using a fake name, address, and credit card number. All of the web transactions were also logged using a custom-built logging tool.

After each task, participants were asked for their feedback on how well the web site supported the task and for ways the web site could be improved. After completing the tasks for each web site, they were asked for their overall impressions of the site (e.g., ease of use, quality, professional look) and to prioritize ten different ways of possibly improving the web site. These improvements included structural, navigational, and visual design issues.

ANALYSIS AND RESULTS

First, we compared the data of the two informal sites with each other, and the two formal sites with each other. We found that there were few significant differences in the results between the two web site designs. To make the analysis easier, we analyzed all of the data from the two informal sites together and the two formal sites together.

Perception	Formal	Informal	Sig.
Professional	8.88	4.38	< 0.01
Finished	8.13	7.13	ns
Functional	8.75	2.63	< 0.01
Likely to Change	4.25	8.38	< 0.05

Table 1. Scale 0-10, where 0 is less and 10 is more

Participants rated different attributes of their perceptions of the web site designs on a scale of 0-10. The data in table 1 shows that formal representations of design were perceived to be very professional, close to finished, and less likely to change. Informal representations were perceived to be unprofessional, incomplete, and very likely to be changed. Both formal and informal representations were rated

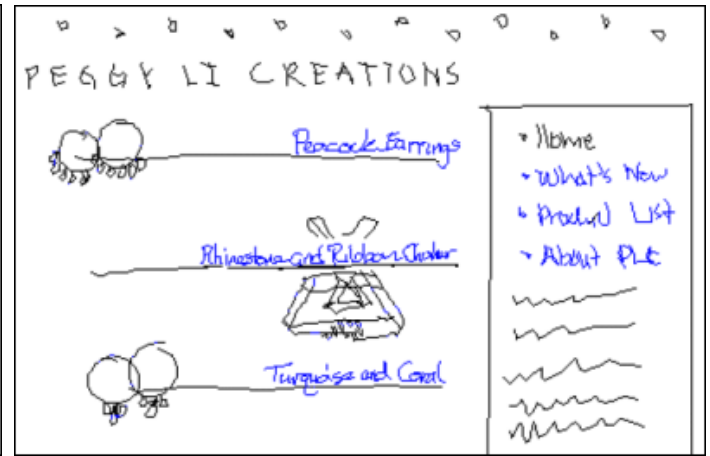


Figure 2 – An informal representation of the same web site.

similarly functional. These results confirm the anecdotal evidence that formal representations are perceived as less likely to change and are more complete.

However, when we reviewed the suggestions made by the participants to improve the websites, the results did not confirm our expectations. We separated the prioritized suggestions into the top 3, middle 4, and bottom 3 suggestions. Most people's top 3 suggestions for the formal representations were structural and navigational, whereas for the informal representations they were visual. We believe that conveying informal representations using an electronic medium raises the end-user's expectations of the design. Despite our explanations that the designs were at the early stages, participants expected details at the formal level.

FUTURE WORK

The results of this experiment show that there are indeed differences in end-user perception of formal and informal representations of web site design. However, it is unclear what affects the type of suggestions generated by the end-users. Comparing the medium used to communicate informal representations may be insightful in this regard—electronic sketches, electronic scanned paper sketches, paper sketches, and printouts of electronic sketches.

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