

The Design of Banking Websites: Lessons from Iterative Design

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ABSTRACT

Iterative design is usually considered in the context of prototyping, evaluating, and improving a single product. We had the interesting opportunity to work on three distinct products which had strong similarities, enabling us to carry many lessons over from one project to the next. This paper reveals our design experiences and discusses various design tradeoffs involved in the sequential development of the three banking websites. We discuss our design rationale, the elaboration of our design process, and the results of our evaluations. Our approach with these websites and others has been to try using new usability techniques with each project, and to incorporate successful techniques in every subsequent project. With this general approach, we improve the design of our websites, develop additional website design guidelines, and improve our design process. Through our experience with banking websites, we've developed guidelines for interactive graphic elements, navigation, and embedded multimedia. Our design process has also benefited primarily through: 1. providing usability training for our salespeople, 2. incorporating more effective mechanisms for customer feedback, and 3. conducting user testing.

Keywords

World Wide Web, internet, usability testing, multi-media, animation, prototyping

INTRODUCTION

We have been designing banking websites which focus primarily on providing customer service information for both new and current bank customers. Each website project was performed on a tight schedule and a tight budget, forcing us to be highly selective in the design processes we have applied (see [1],[3]). This paper discusses our design experiences under the constraints of rapid development and examines how we improved our designs and our processes across 3 bank websites developed in sequence.

Color figure 1 shows screendumps of each bank's home page and a representative subpage for each. We'll refer to these banks as Bank 1, 2, and 3. Our firm also developed various other websites concurrently with these, and that additional experience has shaped the progression shown

here, but we will not be focusing on those influences in this paper. These banking websites also have some striking similarities due to some general principles we apply to most website designs. For instance:

- We place text on a white background to maximize legibility.
- We raise the font size of body text one notch from the default.
- Each site is organized in a simple hierarchy.
- The bank logo is at the top-left of each subpage and links to the bank's homepage.
- The bottom of each page has text links which duplicate the graphic links at the top.
- The page width is set so that all graphics fit on a small monitor and print effectively on paper.

THE ITERATIVE PROCESS

For each project, it isn't practical to apply *every* design and evaluation technique that could potentially be useful. Our general approach is to incorporate a new technique for each project, evaluate its effectiveness, and repeat techniques in future projects that prove to be especially useful. By working on 3 websites with quite similar content and incorporating established principles in systems design [2,4], we were able to draw lessons in both design and process from our experiences.

User testing, process changes, and lessons derived from the development of each website drove the design of each subsequent website. The primary changes in procedure between the development of Bank 1's website and Bank 2's website were:

- usability training of our salespeople
- informal user testing
- creating early mockups for client feedback

The primary additional process added between Bank 2 and Bank 3 was a controlled user study.

BANK 1

Bank 1 was the first bank website we created. The original concept for the site was developed in a meeting between the bank, our salesperson, and one of our designers. This was a requirements meeting which established the tone and functionality of the website and developed an initial outline

of the website contents. The website was then constructed, a process involving numerous contacts with the clients to develop the text for the project and to gather appropriate materials for the graphics. When a first draft was available, the site was presented to the clients who offered a few required changes, the most significant being an improvement of the navigation bar.

The following are some characteristics of the website which we will be contrasting with our later designs.

Navigation

The pages of Bank 1 are organized in a hierarchy two levels below the home page. The navigation bar for Bank 1 consists of two rows of buttons: the top row representing the top level of choices in the hierarchy, and the bottom row representing 2nd-level options for the section selected in the top row (see figure 1). An initial version was confusing to our clients (the hierarchical relationship wasn't apparent), so we developed and tested several versions, and chose one with a shadow over the bottom row which clearly indicated the relationship.

figure 1 - Navigation System for Bank 1



Titles

The titles on each page are large banners with an image representing the topic and the title text. This is in a large rectangle that spans the width of the page and has a shadow below it. We carefully avoided any similarity of the titles to the buttons in the navigation bar which were beveled rectangles. Nevertheless, informal user testing later indicated that people were sometimes interpreting the title banners as buttons and clicking them. We avoided using shadow in future designs except to indicate clickable buttons.

Animation

Animation was popular with our clients. Bank 1 has a “slideshow” animation on the home page which slowly flips through a series of 6 images. On every page but the home page, their logo is animated with a sweeping spotlight. Our rule-of-thumb is that two animations should never appear on the same screen at once, so that each screen has no more than one focal point. Furthermore, animation is limited to aspects of the page which are directly linked to the goals of the website.

Audio

Bank 1 has a “welcome” message play out in audio automatically whenever the home page is visited. We avoided auto-play in future audio design because our own experience quickly indicated that:

- since the audio is usually unexpected, it can be quite loud and disruptive, especially for users in office settings.
- since users often revisit the home page while browsing the site, repeating the audio message becomes tiresome.

BANK 2

Usability Training

In the process of making bids and making sales, our salespeople need to develop requirements with clients and flesh out many details of website content and structure even before a sale is finalized and the designers become involved. This is necessary because website requirements are critical in deciding the scope and therefore the pricing of a website. Originally, this was problematic since design decisions were being made without the designers and it was difficult to backpedal from some decisions once the client had made a commitment.

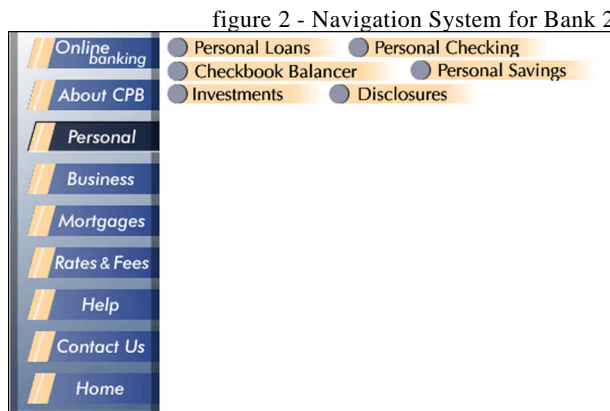
Our solution, soon after the Bank 1 website was completed, was to train our salespeople in usability — in the process of user-interface design and user testing, in various website design guidelines, and in the philosophy and vocabulary they need to communicate with the designers about usability concerns. This was very successful. The websites for both Bank 2 and 3 were begun with an improved set of requirements that the salespeople had worked out with the clients, and they successfully persuaded clients to avoid problematic designs. As a result, we now give every employee in the company usability training when they begin work.

Comps

One goal of the Bank 2 project was to minimize the expense of making changes late in the project by preparing mockups early and getting feedback. We had been successful at obtaining early client buy-in by presenting rapidly-drawn marker comps. These are quick but relatively high-quality paper sketches which indicate approximate colors, layout, and style. For the Bank 2 project, we chose to do computer comps with Adobe Photoshop® which we made available for clients to review with their web browser. We gave them two options to choose from, and they gave us their comments and selected their preferred design. Comps are a very useful technique for getting client feedback early, empowering clients by involving them in the design, and ensuring that major design issues are settled early in the development process.

Navigation

Like all three banks, Bank 2 is organized into a simple hierarchy with two levels below the home page (though a few additional pages exist at a third level down). Bank 2 has a primary navigation bar which runs vertically along the top left side of each page, and a secondary navigation bar which runs horizontally (in rows) below the main title of each page (see figure 2). This organization can be confusing since the two levels of the hierarchy are not connected visually, so it's difficult to see which is primary, and one set of buttons can be easily overlooked. On the other hand, this layout of the navigation bars allows us to readily add new sections and new pages to the structure of the website, whereas the layout of Bank 1 in single rows of buttons doesn't easily permit the addition of new pages.



Informal User Testing

As the project neared completion, our customer liaison conducted informal user testing among bank employees and personal friends. The informal testing consisted of asking them to browse the site, find various kinds of information, and give comments on their experiences. This testing helped us spot a few functional problems with the website, but it also caught a significant usability problem that had slipped by the designers — users could not figure out how to get back to the home page!

We had developed a convention of putting a company's logo at the top-left of every web page and using that logo as a shortcut to return to the home page. This convention is reasonably common on other websites. Since a "Home" link is among the text links at the bottom of every page, we felt we had covered our bases such that nobody could miss finding their way home. Unfortunately, users seemed to not be able to find a link to the home page, probably because the links at the top of the page (along the left-hand side in the case of Bank 2) were so dominant. As a result, we patched the problem on Bank 2's website by providing an additional button in the graphic navigation bar which is labeled "Home". Since then, we have always included an

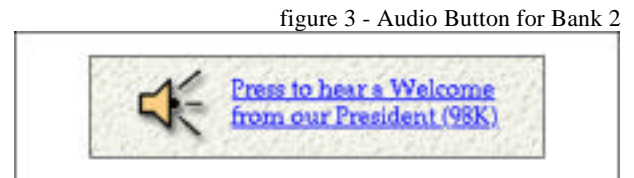
explicit navigation button labeled "Home", generally by placing it below the company logo to reinforce our convention.

Animation

Bank 2 also asked for an animated logo on their website and a slideshow on the home page. To design a distinctive slideshow, we chose to use a dissolve instead of a straight cut between the slides. To keep the file size down, the slideshow has fewer pictures overall, but the dissolve creates a smoother and more subtle transition.

Audio

Bank 1 has audio which plays automatically when the home page loads, which was disruptive. Bank 2 also has audio available on the homepage, but this time we made it optional. Users only hear audio when they click on speaker icons which are labeled with a clear text description of their message (see figure 3).



BANK 3 Comps

In a continuing attempt to minimize the expense of making changes late in a project, the comp stage was slightly modified from Bank 2. For the Bank 3 project we returned to paper comps. We provided the client with four paper comps to choose from. After they had made their decision we produced an on-line version and received more client feedback. In addition, screen shots were shown to the client for approval of last minute design changes before going into production.

While both computer and paper comps help to effectively envision the design space, recognize important issues early, and explore possible alternatives, there are important trade-offs that must be weighed when choosing between the two styles (similarly, see [5]). Computer comps allow for greater flexibility in rearranging elements and making color changes. They also convey a higher degree of finish and are readily available for display on the web. Paper comps are fast, can be duplicated easily, allow for quick turnaround and reiteration, facilitate more fluid illustrations, and retain a "sketchy" feel that helps convey to the client that this is indeed a mockup and not the finished product.

figure 4 - Computer Comp

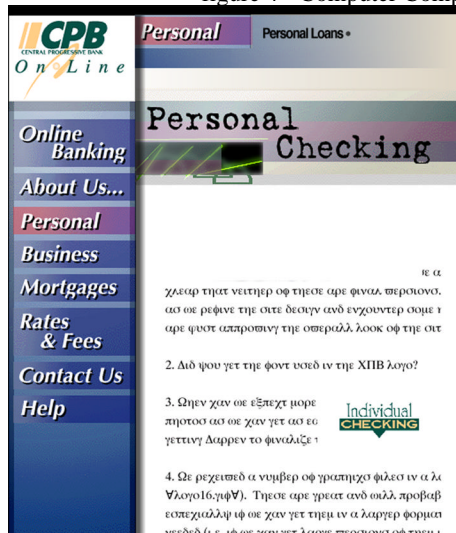
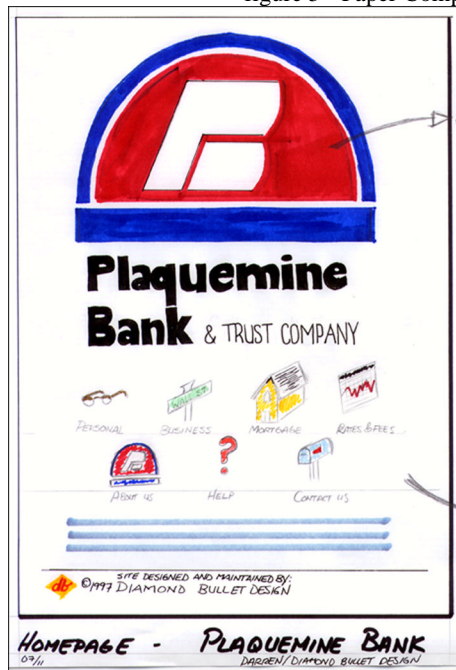


figure 5 - Paper Comp



Navigation

For Bank 3 we started out by designing the navigation structure. Two options were prepared in comps for the client, and the version was chosen which laid out the primary navigation bar as a horizontal row with the selected section in a style similar to a folder tab (see figure 6). Each tab includes an icon and title and is in a shape that emulates the bank's logo. The selected section is highlighted in a black arch with a strong black line below it extending across the page. Secondary pages are listed horizontally in a line below the primary bar. This design presents a strong sense of hierarchy between the primary and secondary navigation bars and gives a strong indication of the user's

current location within the website. In addition, the navigation bar for Bank 3 animates the buttons by highlighting them as the user passes the mouse over them, thus enhancing the perception that these are active sections that can be clicked. When users hover their mouse over the top level sections a light gray arch appears behind the icon (see figure 7). When they hover over the sub level sections the text changes from white to red. By passing the mouse over the navigation bar, the animation creates a visual feedback that the user can use to determine sections that are available. Like the design for Bank 1, this design remains fairly inflexible for adding new pages or sections, especially at the top level of the website.

figure 6 - Navigation System for Bank 3



figure 7- Animated Navigation for Bank 3



Animation

Bank 3 also asked for a slideshow on their homepage, and an animated logo on their website. To keep the idea of having a slideshow on the homepage unique, the slideshow was integrated into Bank 3's logo on the homepage. We chose to use the red background of the logo as a screen for displaying the animation. The result was to have a duotone slideshow playing in the background arch of the logo. The transition between frames is similar to Bank 2 in that each image dissolves into the next, but the duotone colors allowed for a smaller color palette making the overall file size even smaller. The slideshow was also integrated into the logo, eliminating the rectangular slideshow that is often used on websites. This allowed for greater freedom in designing the layout of the homepage.

User Study

We designed a controlled user study of Banks 1 and 2 to help guide our design for Bank 3. In this study we tested 8 users with a set of tasks that were carefully selected to exercise the websites' functionality. These tasks were phrased in terms of actual questions users might have while visiting. Example goals were to find the nearest ATM machine or to compute a mortgage payment. Users were tested with both Banks 1 and 2, in a randomly determined

order, and the order of tasks was randomized for each bank. During the tasks, users were encouraged to think aloud, and an evaluator sat behind them taking notes on their path through the websites and any problems they were having. After each task, users were given a response sheet where they indicated their answers and comments on features of the websites.

These are some of the key observations we made and the implications for the design of Bank 3's website:

Audio

Auto-play of audio on Bank 1 was confirmed to be inappropriate as 4 users complained about it repeating each time they visited the home page.

Printable forms

Bank 2 has pages with printable forms that are intended to be printed, filled out, and faxed to the bank. Because the bank wants these forms on paper and in a standard format, an interactive on-line form is not provided, but one of the subjects nevertheless tried (and failed) to fill out the form on-line. Thus, these forms need to be even more explicit about being for printing only, perhaps with a stronger message at the top of the page.

Help

All 8 users used the Help pages to find information when nothing else worked (the tasks were mostly search tasks). We hadn't expected Help to be used frequently, so this experience encouraged us to devote more effort to the Help page. The Help page needs to include more information about what the website contents are, and contain links to the appropriate sections.

Contacting the bank

When 3 users were not able to locate information, they suggested that they would just send email to the bank or phone them asking for the information. Thus we now emphasize links to the bank's Contact page by including more of them in Bank 3's website.

The bank logo

The lack of a "Home" label on the bank logo led to *nobody* using it as a home button in either website. This was consistent with our previous experience and indicates that the convention we use of linking the bank logo is much less useful than we'd ever hoped. For Bank 3 we therefore have a separate and very visible home button at the top of every page.

Bullets

Two users clicked on the standard flat round black bullets in standard bullet lists as if they were links. We had begun designing some attractive spherical bullets for Bank 3, but

these were put aside because they look even more like buttons. Instead we entirely avoid using bulleted lists for Bank 3.

CONCLUSION

Through a process of iterative design, we've improved the design of our banking websites and improved our process. To summarize the primary design changes:

- Navigation was improved in layout, graphic appeal, and clarity.
- Audio was made less intrusive, and animation flow and file size was improved.
- Buttons were made more distinctive from other graphics, and bullets were removed to avoid confusion with buttons.

Our primary process improvements included:

- Training salespeople in usability.
- Using comps more extensively to provide alternatives to clients early in the design process.
- Conducting user testing.

Our experience in building the Bank 3 website has led us to continue improving our process and design style, and much of our formal process is described in [1]. Some of the new procedures we've developed involve the following documentation:

- A set of forms which guide salespeople to gather useful design information from clients, to further reduce problematic design decisions being made during the sales process.
- Forms for client approval of comps to facilitate timely completion of projects and encourage clients to spend time clarifying design details.
- A quality checklist to ensure error-free websites, cross-platform compatibility, conformance to usability standards, and documentation of design decisions.

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