Web Usability Applied: Evaluation, Design, and Implementation for the SLIS Internship Blog

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Abstract

The School of Library & Information Science (SLIS) internship blog is the subject of this web usability analysis. The process of evaluation, design, and implementation is used to determine and apply appropriate changes. Evaluation, based on heuristics derived from research studies, provides the means to identify problems. Successful design patterns enable the designer to craft a functional and customized solution. Finally, the user perspective gained through prototype testing is absolutely vital to the designer as it both confirms usability and highlights additional problem areas. Ultimately the process helps the designer understand that his/her goal is *not* the design itself, but users' ability to interact with that design to effectively and efficiently address their needs

Keywords: web usability, website evaluation, website design, design patterns, website prototypes, user testing, UX design, user interface design, SLIS internship blog

Web Usability Applied: Evaluation, Design, and Implementation for the SLIS Internship Blog

The School of Library & Information Science (SLIS) internship blog is the subject of this web usability analysis. The process of evaluation, design, and implementation is used to determine what changes need to be made and how best to make them. The overriding goal is to create a usable site. A site whose design fulfills user needs so well that it recedes pleasantly to the background and is perceived as a facilitator not an encumbrance.

Evaluation

The SLIS internship blog was evaluated against usability heuristics and principles of interaction design defined by Jakob Nielsen (1995; 2005) and Bruce Tognazzini (2003). The homepage of the site was the exclusive focus as it is assumed current and prospective interns would most frequently visit this page. Per Nielsen, "the homepage is the *most important page on most websites*, and gets more page views than any other page" (2002, para. 2).

Include a One-Sentence Tagline

As shown in Figure 1A, there is no summary sentence to describe the content of the blog. Why would students visit? What will they learn? "Tell users what they'll gain from visiting the site" (Nielsen, 2002, para. 4). This is Nielsen's first principle for designing usable homepages, and the lack of its fulfillment is felt on the internship blog.

Anticipation and Efficiency of Use

The homepage includes the last 10 complete posts. While understandably the desire is to share content with the visitor, this many full posts makes for a very long page which might be frustrating or possibly overwhelming for visitors. Instead of anticipating user needs by showing the first one or two posts and providing thumbnail or summary views of earlier posts, the site tries to show too many. If it is assumed that the blog has a regular audience, then showing this many posts is simply unnecessary as visitors will have already seen earlier posts during previous visits. Insisting that users scroll down through such a very long page (see Figure 1B) results in inefficient use of their time.

Fitts's Law

"Clickable objects . . . need to be a reasonable size" (Saffer, 2010, pp. 134-135). The primary navigation by way of the calendar in the sidebar necessitates the use of text links that are relatively small and potentially difficult for some users to click on (see Figure 1C).

Recognition Rather Than Recall

While alternative navigation options are available, they are buried in the footer at the bottom of the too-long page (see Figure 1D). Nielsen attests that "instructions for use of the system should be visible" (1995, para. 6), and here these navigation options are not. It is unlikely that most users will even know of these alternatives or, having discovered them, actually remember their location the next time they visit.

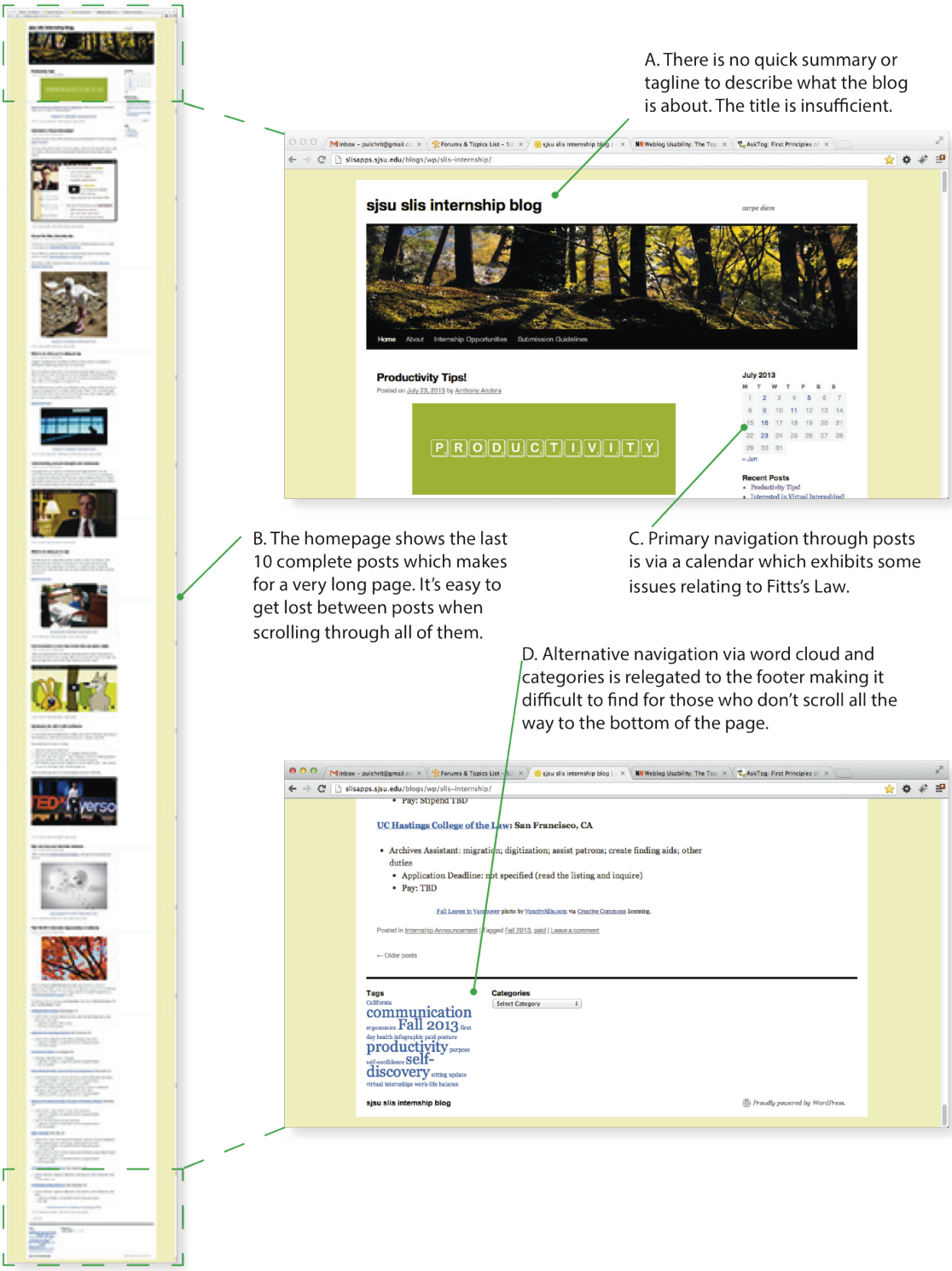

Figure 1. Evaluation

Consistency and Standards, Colorblindness

Links to blog posts aren't obviously recognizable as such. That is, no affordances (Saffer, 2010, pp. 131-132) are provided that indicate how a user can interact with the page. It is only when the user hovers over the links that they turn red to indicate interactivity. Yet, this red text is an issue for those with red/green colorblindness. Other, more standard, visual cues, like underlines, should be utilized to ensure all users are able to recognize links. (See Appendix A, Figure 1A and B).

Consistency with User Expectations

The search box appears below the fold and is mixed in with other sidebar elements (see Appendix A, Figure 2A). To be consistent with user expectations, it should appear closer to the top right of the page.

Match Between System and the Real World

The sidebar includes a section called "Meta" that contains links to RSS feeds, a login to WordPress, and a link to WordPress.org (see Appendix A, Figure 2B). Besides being a rather odd collection of links, the title Meta does not coincide with user vocabulary. It seems unlikely that the average visitor would immediately understand what this section offered.

Aesthetic and Minimalist Design, Anticipation of User Needs

While the blog is produced by SJSU, there is no SJSU branding (see Appendix A, Figure 3A). At minimum a logo should be included. The banner photo appears dark and forbidding instead of welcoming and full of promise, which is what an internship should ideally be (see Appendix A, Figure 3B). Besides being lost in the thick black border of the banner, the top navigation links (save "Home" and "About") don't seem to anticipate users' needs (see Appendix A, Figure 3C). "Internship Opportunities" links to a description instead of to a listing of internship opportunities. And "Submission Guidelines" should be more of a call to action, for example, "We want to hear from you" or "Submit your topic".

Descriptive Links for Feedforward

Many links don't provide any feedforward (Saffer, 2010, p. 133), as such users won't know where they will go when they click (see Appendix A, Figure 4). Links should "provide predictive information" (Nielsen, 2005, para. 20).

Design

User Population

The users of the SLIS internship blog are SJSU students generally and current and prospective interns specifically. Unfortunately, the school does not currently provide analytics and usage data for the blogs. However, given that 72% of Fall 2012 graduates participated in internships (San Jose State University [SJSU] School of Library and Information Science [SLIS], 2012, para. 3), it seems logical to assume that a majority of students would view the blog on occasion. While SLIS students are predominantly women

(80% of Fall 2012 graduates, SJSU SLIS, 2012, para. 9), they are otherwise quite varied. SLIS students hail from across the globe and from a variety of ethnic backgrounds, with most ranging in age from 26 to 45 years old (SJSU SLIS, 2012, para. 10-12). It is safe to assume that the computer skills of the students are equally varied, but this should not be too great a concern, as the blog format does not require a high degree of computer literacy.

Design Solution

With this user population in mind, the design solution outlined below and in Figure 2 is intended to increase the ability of users to find recent, popular, and archived content and to share that content. Design patterns referenced are from Jenifer Tidwell's *Designing Interfaces* (2011).

Feature, Search, and Browse. One of the most common information architecture patterns, feature, search, and browse (Tidwell, 2011, p. 30), is utilized to organize the long list of articles that comprise the blog. As the feature, the most recent post will "engage incoming users immediately by giving them something interesting to read" (Tidwell, 2011, p. 31). The search box is now part of the navigation bar and appears in a more expected location at the top right. The main navigation appears above the banner. Browsing by post category has been moved from the footer to the main navigation bar and renamed "Browse Posts". The word cloud replaces the banner image providing another avenue to browsing posts while replacing the rather ominous photo of the forest. An alternate banner photo and word cloud location is suggested in Appendix B, Figure 1. While the tones are still somber in this alternate image, the symbolism is perhaps better. Ultimately, the image should be chosen to complement the overall look/feel of the site, which is beyond the scope of this effort.

Visual Frameworks, Fully Connected Navigation. The top navigation, banner, and right sidebar are the visual framework (Tidwell, 2011, p. 141) that will be repeated across all pages. The navigation uses the fully connected pattern (Tidwell, 2011, p. 81), meaning all pages are accessible through the global navigation bar.

List Inlay, News Stream, Row Striping. The very long home page is abbreviated through the use of a news stream (Tidwell, 2011, p. 34) with list inlay (Tidwell, 2011, p. 206). Row striping (Tidwell, 2011, p. 220) is used to visually differentiate the list of posts. With this new format, showing 10 posts on the homepage is no longer overwhelming. Further, users have two options for viewing posts from the stream: they can click the "More…" link to view the full post in a new window, or they can expand an individual post while still on the homepage by clicking the plus sign at the top left.

Social Links, Sharing Widget, Button Group. Social links (Tidwell, 2011, p. 423) now appear at the very top right of the screen as recognizable icons instead of in the sidebar under the potentially confusing heading "Meta". A sharing widget (Tidwell, 2011, p. 426) has been added to each post to facilitate content sharing with minimal effort. Both of these patterns in turn utilize the button group pattern (Tidwell, 2011, p. 246) to organize the several available actions into groups of like actions.

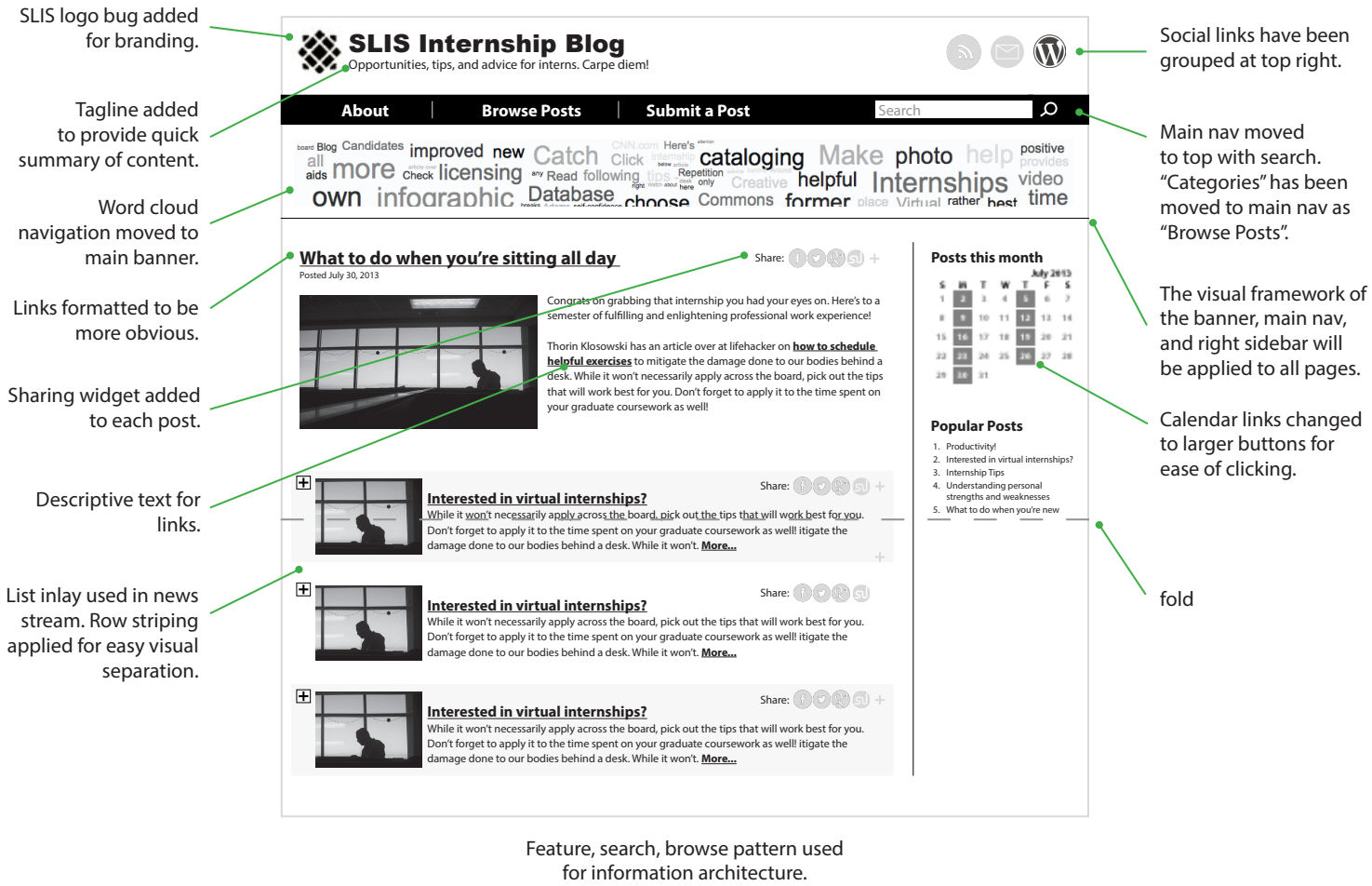

Figure 2. Design

Branding, Links. Other issues have been solved by following usability principles rather than applying specific design patterns. The lack of branding is addressed by the addition of the SJSU logo bug. Other branding considerations, like color, will be handled when the look/feel is designed. A tagline appears below the title to quickly summarize site content. Links are formatted in a more standard manner with bold and underlined text. Colorblindness problems with the hover state of links will be resolved via the look/feel design; safe colors will be utilized. Descriptive text has been used for links, especially those within posts, instead of text like "click here" which lacks feedforward. Finally, the calendar links have been made more obvious and the entire day block is a button/link instead of just the number within it. While these are still small buttons, the main issues highlighted through Fitts's Law have been addressed.

Implementation

Testers

As the user population is so varied in terms of demographics and computer literacy, and as the blog format and tasks performed require little expertise, testers chosen were neither computer experts nor SLIS students. However, each of the two testers did meet the general parameters of the user population. One male, aged 33 living in Portland, OR and one female, aged 40 living in Ketchikan, AK were selected. Both have previous experience with the web generally and with blogs in particular.

Task and Questions

The task assigned was simple and intended to mimic the behavior of a blog user. Testers were asked to pretend that they were a SLIS student interested in internships who had seen a post earlier this month on communication; this post included a cartoon video. The task was to find this post, view it, and share it. Along with this task, several other questions were asked to determine how well the interface communicated functionality and content to the user, including:

- Which is the most recent post? How can you tell? How would you view it?
- On which days are new posts published? How would you view them?
- How do you enable the RSS feed?
- How do you know what the most popular content is? How would you view it?
- Do the main navigation menu options make sense? What will you find in each section?
- Do the categories under "Browse Posts" make sense? What types of posts will you find in each?
- Are there any other changes you would make to the interface? Anything that is difficult to understand?

Finally, an A/B comparison was presented to determine if a photo or the word cloud was preferred in the header.

Prototypes and Feedback

The first prototype is shown in Figure 3. This prototype was delivered via PowerPoint presentation to both testers and so included minimal navigation functionality. Feedback was plentiful and actionable and resulted in the changes described below. Prototype two incorporates these changes and is shown in Figure 4. (Additional images of prototypes one and two can be found in Appendix C.)

- The utility menu at the top right was a bit difficult to find and the individual icons were not always easily understandable.
    - Text has been added to each icon to describe its function (i.e., the text is an affordance, Saffer, 2010, p. 130). Also, a conventional orange was used for the RSS feed icon to make it more recognizable.
- The main navigation was a bit confusing and not in keeping with expectations.
    - "Browse Posts" was changed to "Browse by Category". "About" was expanded to "About this Blog". An option for "Contact" was added. The main navigation buttons were re-ordered to "Browse by Category", "Submit a Post", "About this Blog", and "Contact", as testers felt this was a more logical order of use.
- The sharing widget was difficult to see and there was a question about what each icon represented.
    - The share buttons were made slightly larger and conventional brand colors were applied. An email icon was also added.
- The photo was generally preferred, though the one utilized in prototype one was not reading as an aspirational image.
    - The layout was changed to include the photo in the header. The word cloud was moved near the top of the right sidebar as both testers felt this was one of the easiest ways to navigate to content. Other images—including office panoramas and other adventure/aspirational landscapes—were included in prototype two. It would perhaps make sense to alternate the images from week to week, or perhaps even ask users to submit photos as a type of contest. More research is required and should be done in concert with the look/feel design implementation.
- A link to the internship database was overlooked in prototype one.
    - This link was added to the top of the right sidebar in prototype two.
- The sub-categories under "Browse Posts" were not considered descriptive of content potentially included in each.
    - New sub-categories were suggested in prototype two. However, follow-up card sort testing should be performed to discern optimal sub-categories based on post content.

Other changes (see below) were also requested that would be implemented but are not illustrated in the second prototype.

- When clicked on, each row of the list inlay should open a new window of that single post.
- Keyboard interaction would be enabled for the entire page, especially the search box.

- The header and sidebar would be fixed in position such that the center content (i.e., the list of posts or individual post content) would scroll with the browser window while the header and sidebar remained static.
- Tool tips would be added to all icons and links.

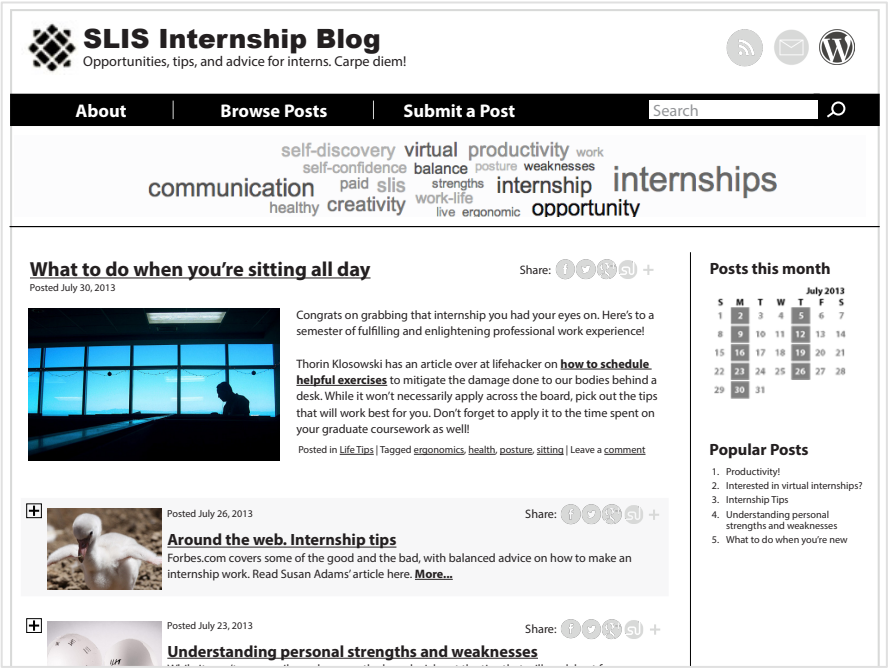

Figure 3. Prototype one

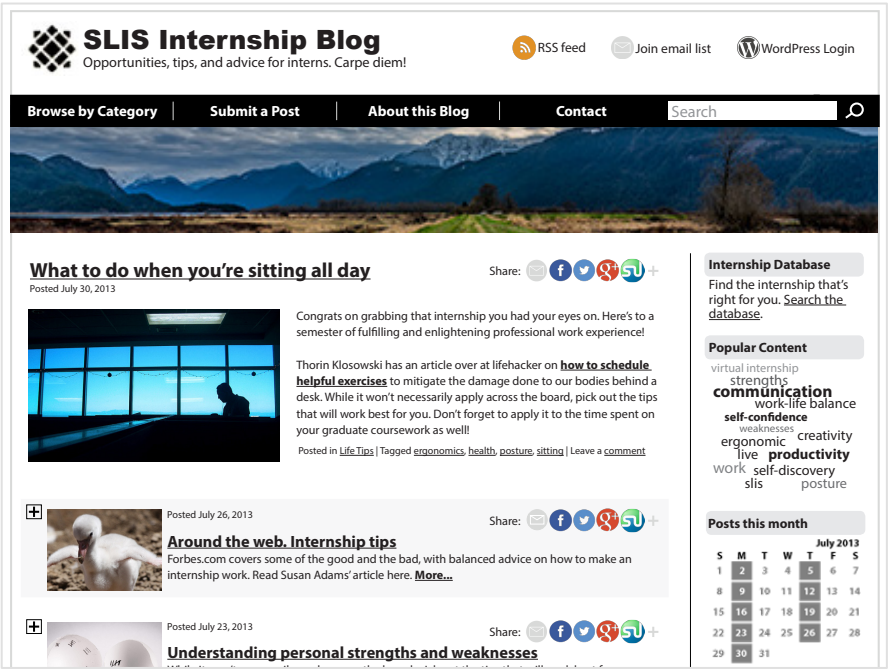

Figure 4. Prototype two

In the second round of testing, testers provided feedback on prototype two resulting in the following changes, which were incorporated into prototype three and are shown in Figure 5 and Appendix C.

- "Contact" was changed to "Contact Us" for disambiguation and because it better fit the cadence established in the other menu options.
- The utility menu text was reduced in size so that it was not so overwhelming.
- As the word cloud was actually the preferred method of navigation by both testers, it was moved to the top of the sidebar.
- The calendar was removed entirely, as it was considered the least important mode of navigation. The day of the week was added to the post date of each entry to relay the publication pattern to users.
- The "Advice" sub-category under "Browse by Category" was changed to "From the Advisors" as this sub-category is intended to include advice posts from the professors who act as internship advisors. "Advice" alone was confusing to testers.

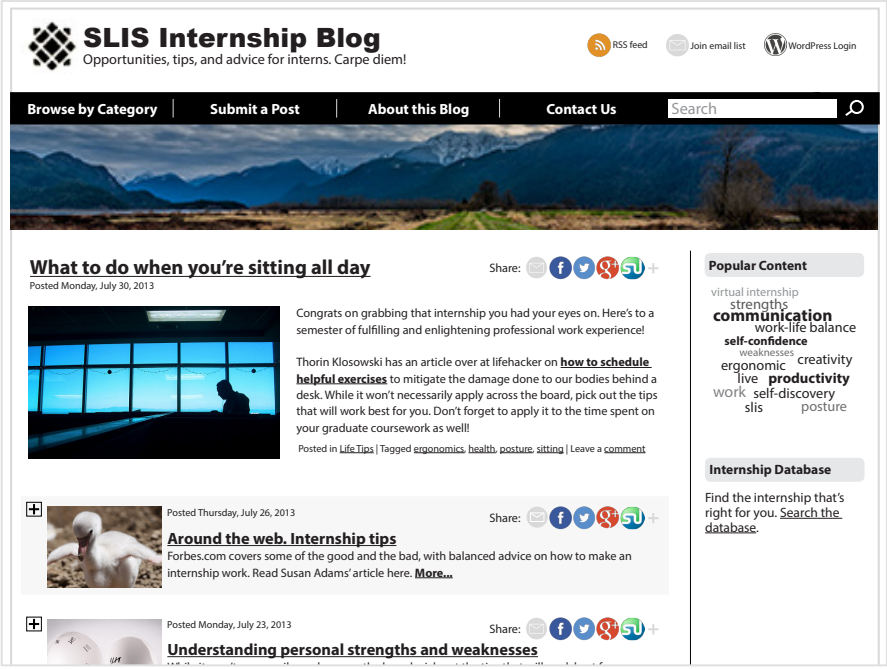

Figure 5. Prototype three

Conclusion

The process of evaluation, design, and implementation is valuable as a way to improve upon existing user interfaces, and the design and implementation phases are vital to the development of new user interfaces. Evaluation, based on heuristics derived from copious research, provides the framework to know what needs improving and the confidence that those improvements will positively impact users. Design patterns, proved functional by years of trial and success, enable the designer to pull together pieces into a

coherent and customized whole. Finally, the user perspective gained from testing is absolutely vital to the designer as it both confirms usable features, functionality, and content and highlights problem areas. Finding a balance between what users expect and a new design idea can be difficult, but according to Nielsen, "when you use standards, users can focus on content and their reasons for visiting your site. Deviate, and you reduce their feeling of environmental mastery"—perhaps to a point where they abandon a site or interface (Nielsen, 2000, Encourages Design Abuse, para. 4). Erring on the side of convention and standards seems the best option for most interfaces. Nielsen's remarks help the designer to understand that his/her goal is *not* the design itself, but users' ability to interact with that design to effectively and efficiently address their needs.

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Appendix A: Additional Evaluation Screen Shots

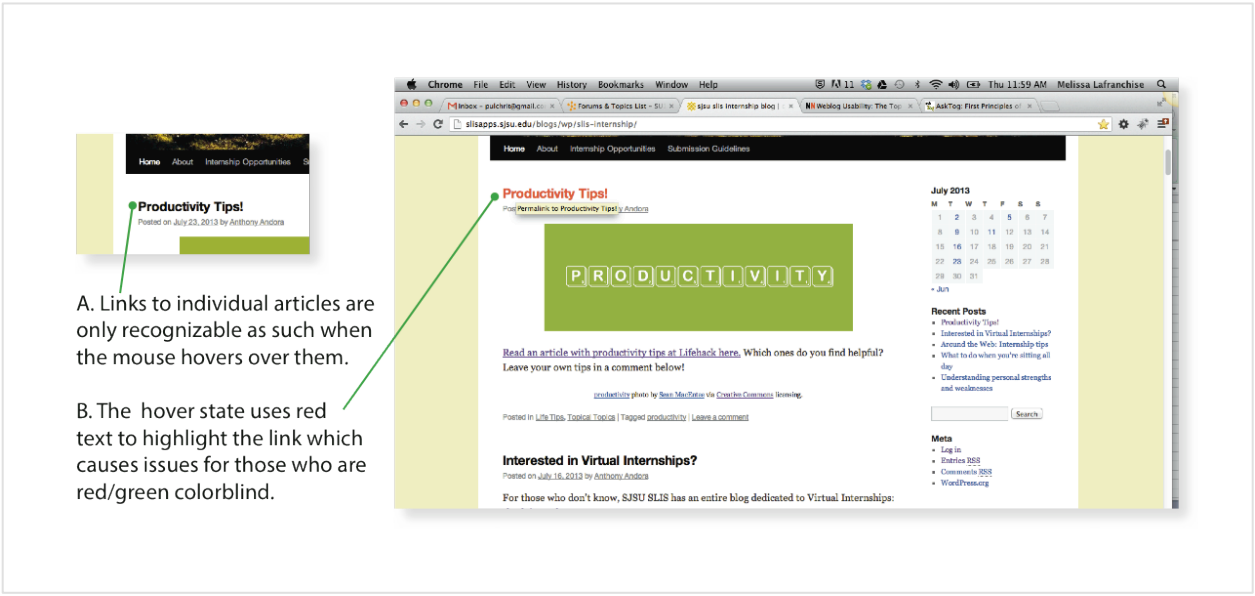
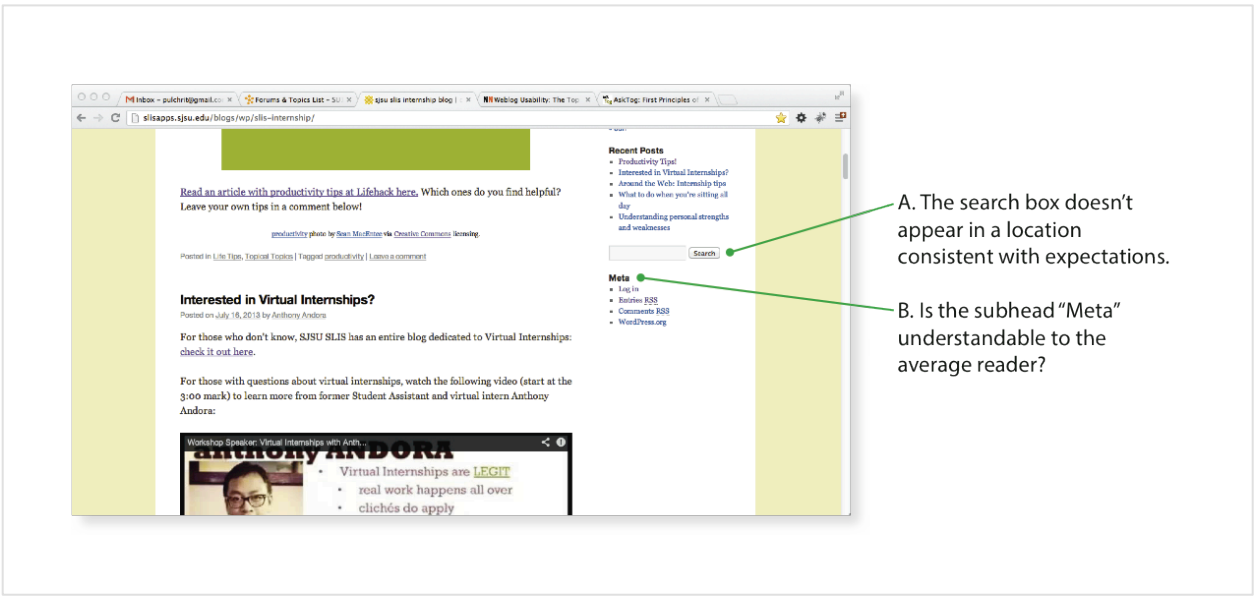


Figure 1.



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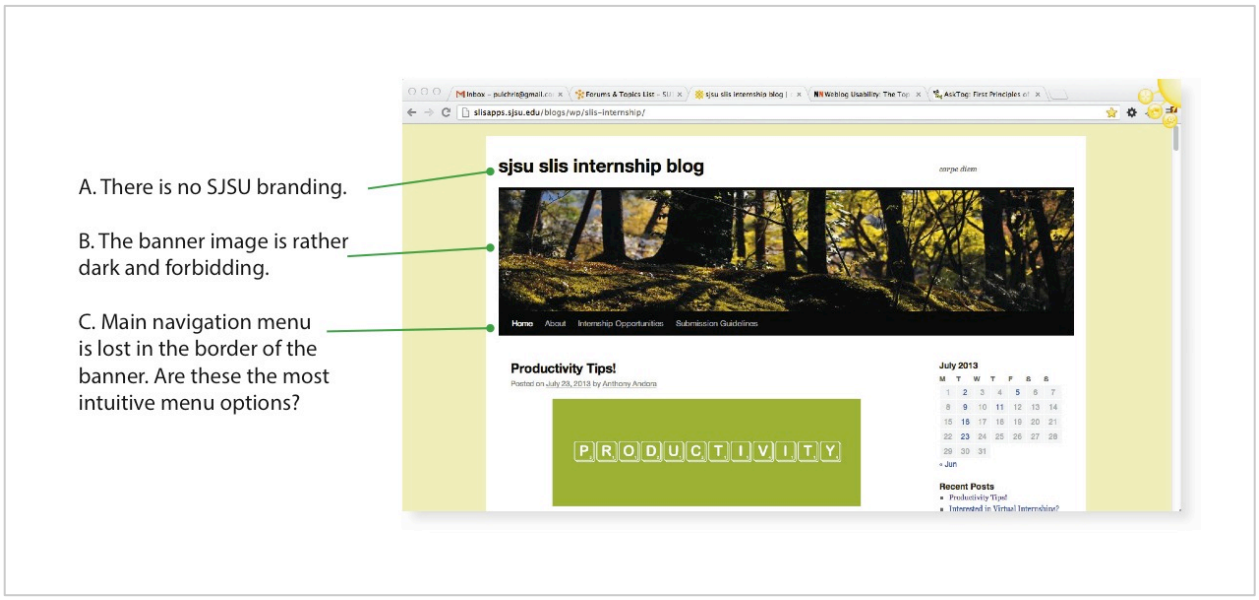

Figure 3.

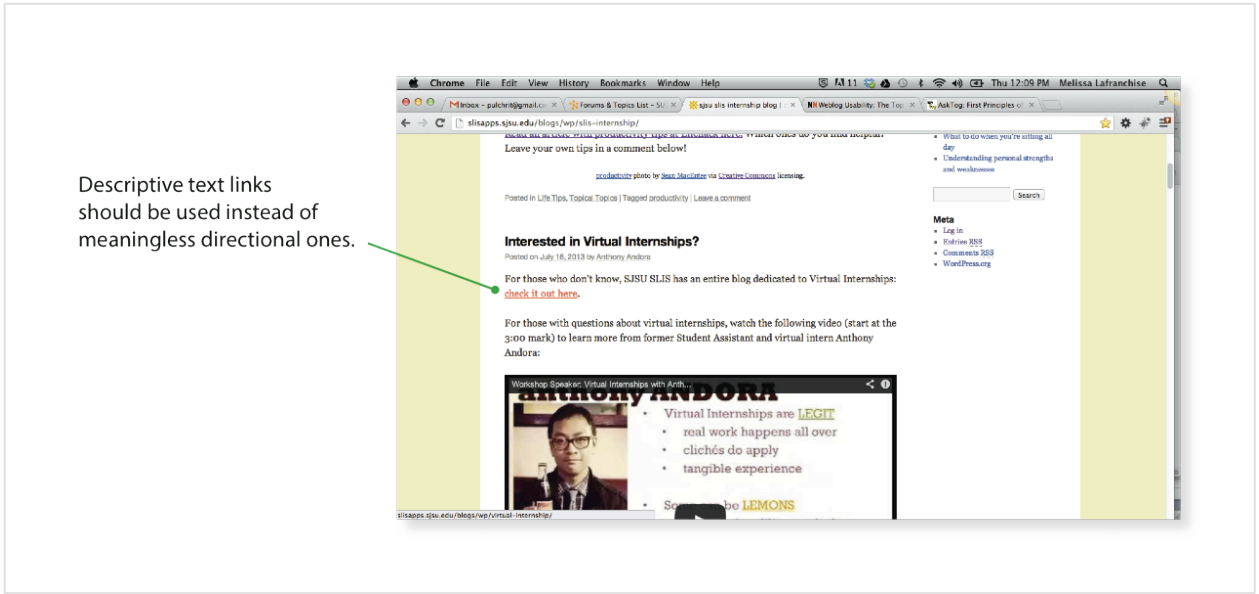

Figure 4.

Appendix B: Additional Design Solution

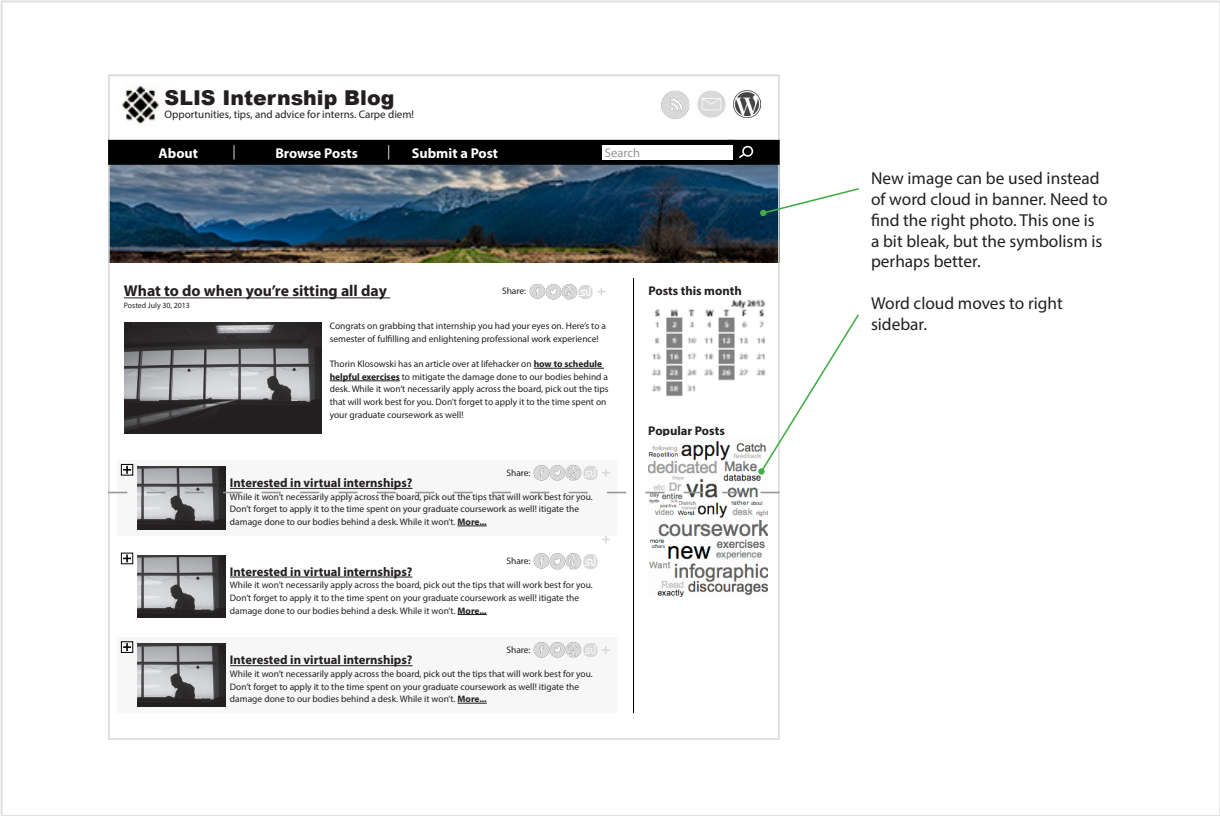

Figure 1.

Appendix C: Additional Images of Prototypes One, Two, and Three

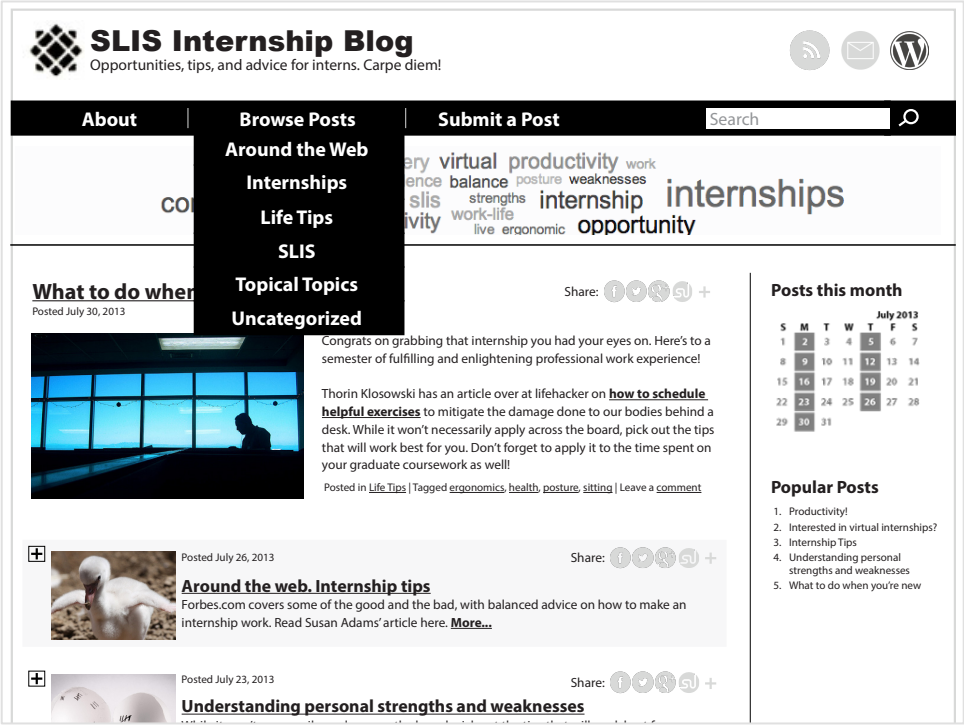

Figure 1. Prototype one: Browse posts drop-down

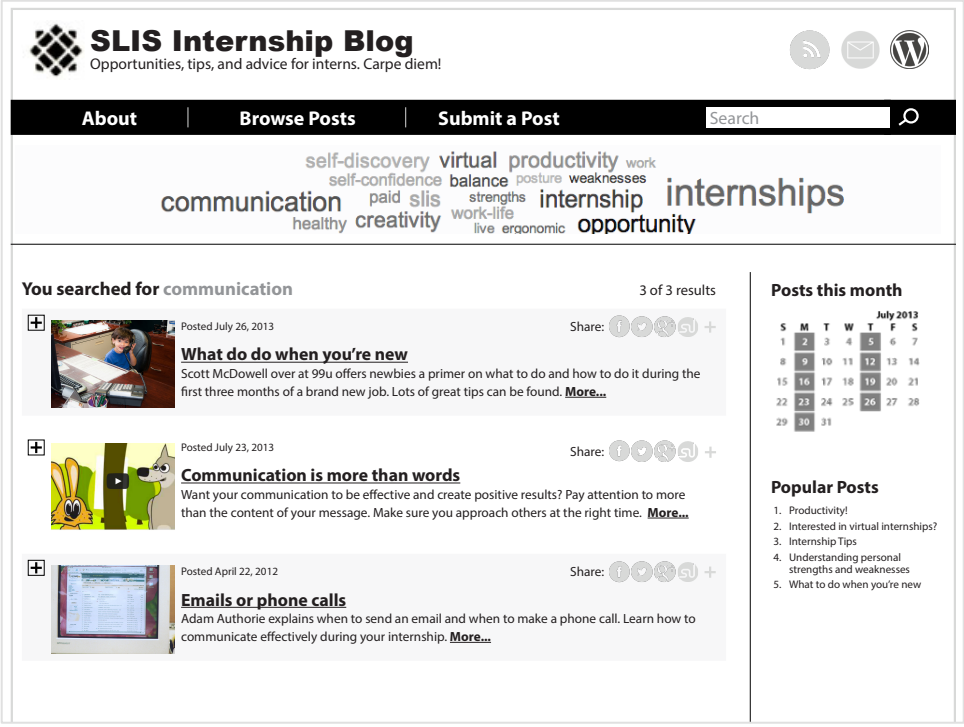

Figure 2. Prototype one: Search results

Figure 3. Prototype one: Single post in new window

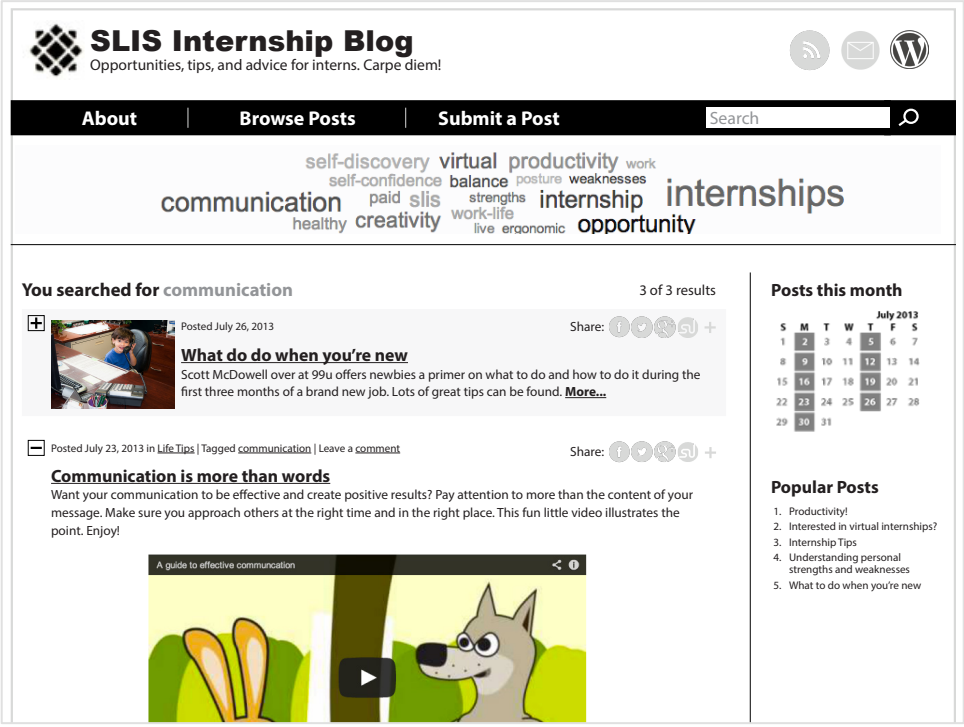

Figure 4. Prototype one: Expanded single post

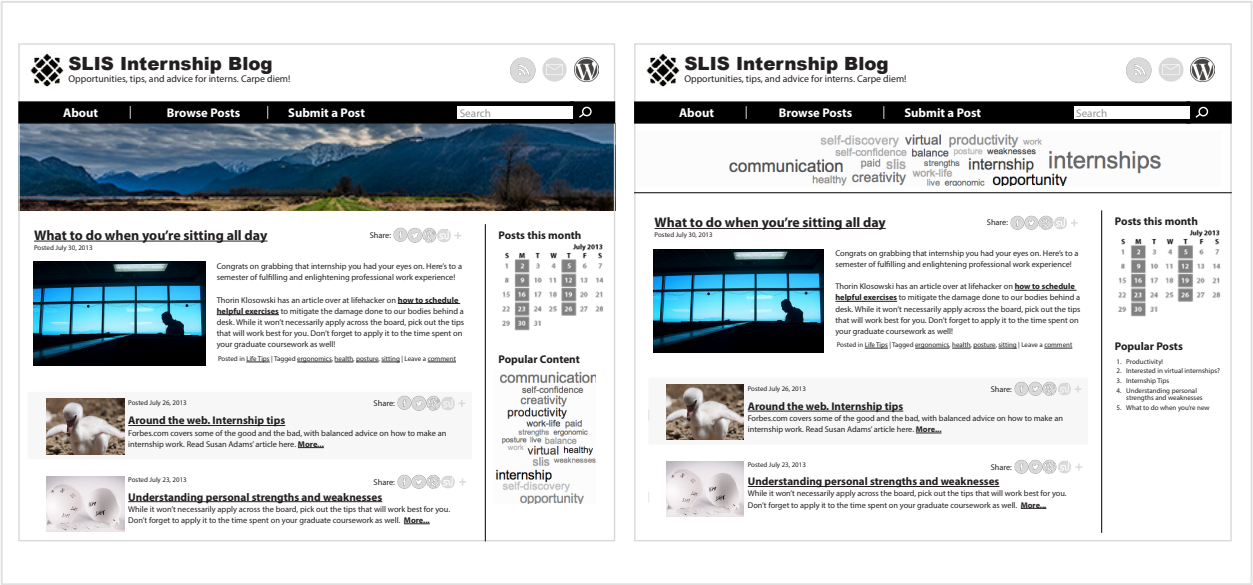

Figure 5. Prototype one: Layout A/B comparison

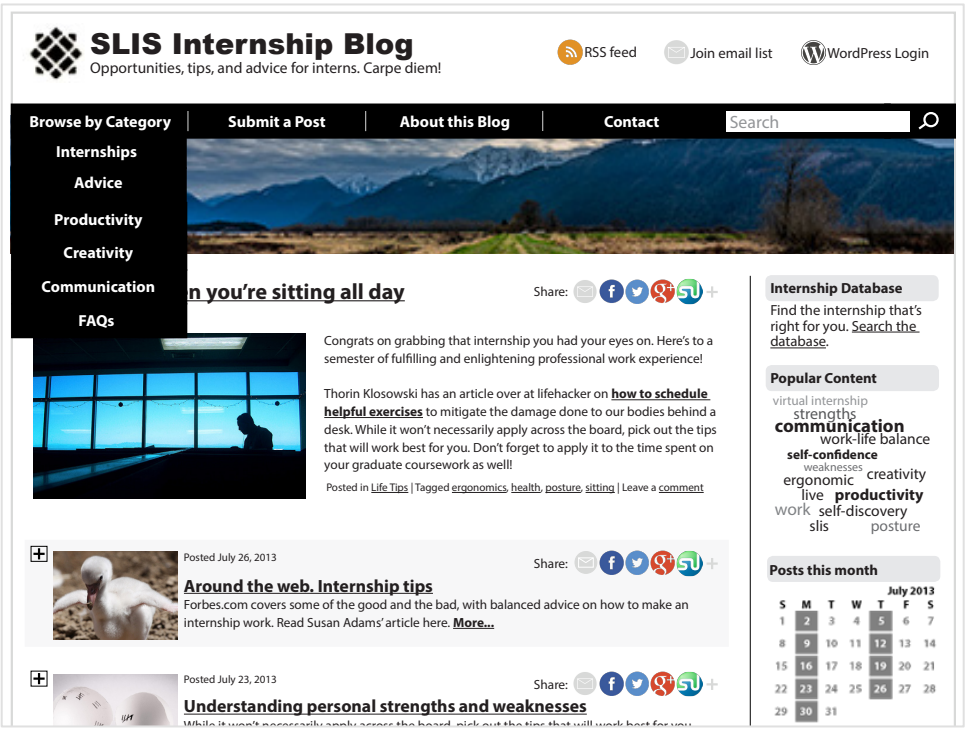

Figure 6. Prototype two: Browse by category drop-down

Figure 7. Prototype two: Search results

Figure 8. Prototype two: Single post in new window

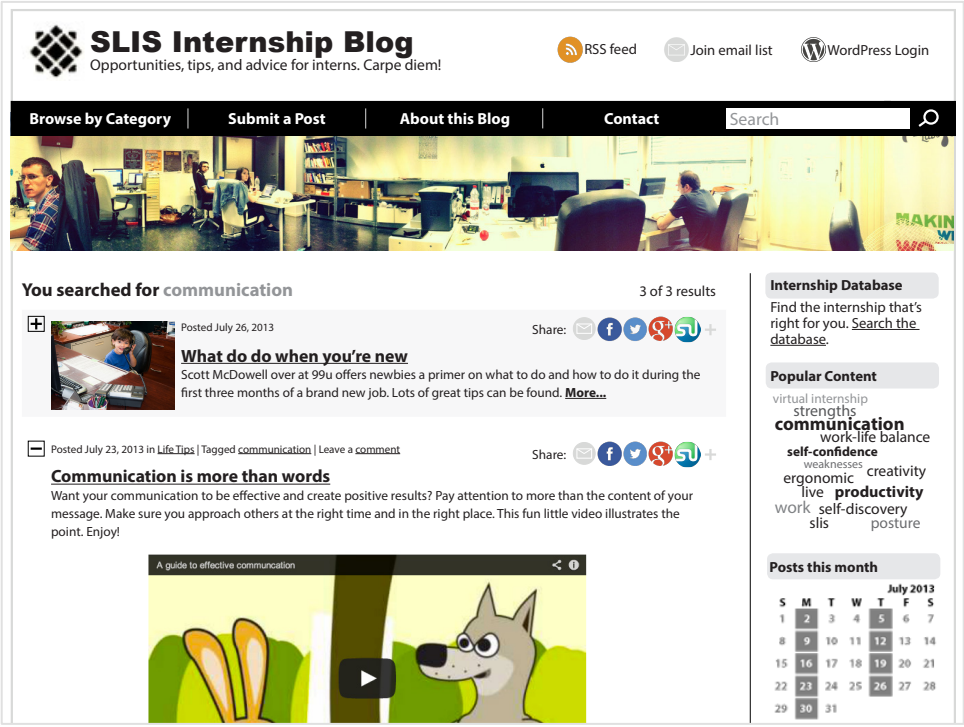

Figure 9. Prototype two: Expanded single post

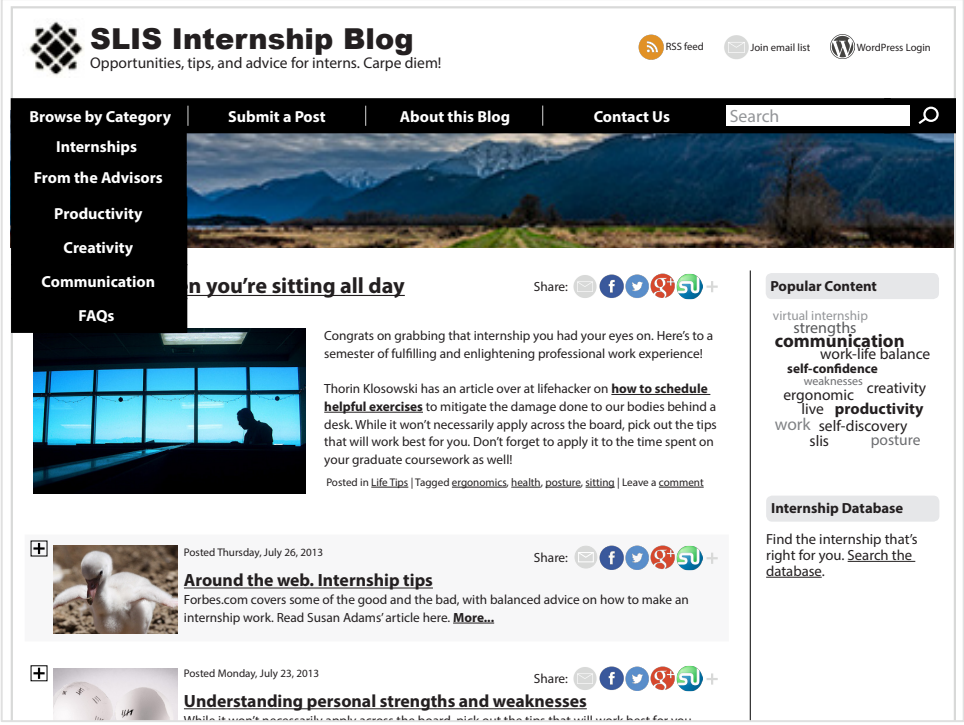

Figure 10. Prototype three: Alternate sub-category