# Notes on the Philadelphia FIRST Website Redesign

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This month, I was given the opportunity to redesign the Philadelphia FIRST website (<u>http://www.philadelphiafirst.org/</u>). With the help of Phil Ross, I built the website over the past week. Although a number of changes are still in progress, the new site went online last night. I thought I'd share a non-technical summary of my design process, both for web designers and even for people who don't work on their team's website.

I had a limited time frame because of my classes and because competition season is already coming up. I did a "deep dive" last weekend and went through as much of the design as possible. Much as a team would do during the six-week build period, I did not skip any part of the brainstorming, planning, or refinement stages, because those are essential; I simply paced myself so that I had determined the scope, layout, information architecture, and backend structure after the second day.

The most important step is the first step: identifying the audience. I started with that.

### Step 1: Who are the users?

I could answer this quickly since I'm already involved in FIRST. (If I were designing a website for another organization or company, I'd start with a long conversation with the organization about user/customers, content, goals, etc.) My guess was that the primary users for the website are FIRST teams (students and mentors) who need to find out details about the Philly regional competition. Other visitors include:

- Parents and other individuals who were invited to the regional competition.
- Visitors who heard about the event because of some association with Drexel University.
- Members of the public who heard about the event (especially relevant considering Dean's homework assignment).
- Individuals who plan to volunteer for the regional competition, or those who might be persuaded to volunteer.
- Current sponsors of Philadelphia FIRST, potential sponsors, congresspersons, administrators at Drexel, and anyone else who FIRST or Philadelphia FIRST might plan to approach for support.

This list of users told me that the website would need to serve a range of people: those who know all about FIRST, and those who are hearing of it for the FIRST time; those who know exactly what they're looking for, and those who might not even know why they're on the website. The website must make it easy for FIRST members to find what they're looking for, but I can't assume that other users will know which sections to read, or that they even know what FIRST is.

#### **Step 2: Content Inventory and Information Architecture**

The first part of this was to gather a list of all the content that would appear on the website. Most of this was given to me before I started (otherwise, the content must be clearly understood and

planned out before moving to the next step), but I still needed to create a list in order to get a sense of the scope and to organize the content. A content inventory usually includes a list of pages that will be on the website, but since one doesn't necessarily know at this point how the content will actually be divided between pages, the inventory might also include a list of topics, subtopics, sections and subsections, and other informational elements. It also helps to be aware that the content may change in the future.

The second part was to organize the information. This means organizing the content into logical set of groups and a logical hierarchy. The important thing to realize is that the structure that makes sense to the designer is usually not a good structure. The structure must:

- Be consistent with the way visitors (e.g. FIRST students) think about the information.
- To new visitors, express a very clear structure that helps them navigate the website, understand what content is available, choose what to look at, and form a mental model of what is involved with the organization (e.g. how FIRST is organized, how the regional competition relates to FIRST, etc.)

Part of the information architecture is the naming or labeling for each group, menu, and item. For users who know what they're looking for, labels are the signposts that help them find is, so labels must be easy to understand. For users who are new to the website, the labeling and the structure produce the users' mental model for the website and the subject matter.

I realized that the content I had to organize fell into two broad categories:

One was information about FIRST and FIRST's programs—the *About FIRST* page, and for each of the four competitions, the *About*, *Resources*, *Contact*, and *The Challenge* pages, as well as a "Register Your Team" link.

The other was information about the FRC Regional: general info, schedule, date and location, directions to the venue, team list, volunteer information, and list of sponsors.

Two pages fell outside of those two categories: Home page, and the general Contact page.

This led me to organize the main menu into five broad categories (see the site for reference), which separated the top-level sections, as opposed to the main menu on the old website, which mixed together links from each category. I put *About FIRST* into its own category because I thought it pertained to the FRC Regional as well as the list of competitions; visitors looking at the regional competition pages should know that the *About FIRST* page is available, so it wouldn't make sense to isolate *About FIRST* by putting it inside the competitions category.

Within each of the first two sections mentioned above, there's a sub-menu for the contained pages. On the other three general pages, I took a different approach for navigation:

The pages for regional info and volunteer info are embedded within the hierarchy; however, I thought it was important that visitors see them right away. In order to give users an opportunity to jump directly to those pages from the home page, I added two big buttons, one to each of those pages. Generally, it's a bad idea to introduce inconsistency into the information

architecture because it prevents users from forming a strong mental model of the website structure. I avoided this by making the buttons look completely unlike a menu; they look more like announcements. There's still a small chance that new visitors would get confused, so I also took measures to make sure users understand exactly where they are once they arrive at the next page—I'll come back to that when I talk about the menus.

## **Step 3: Wireframing**

The idea behind wireframing is that communication is the primary function of a web page, so the content and structure must be understood before the visual design is produced.

Wireframes are sketches that express a) layout, and b) structure. Designers make wireframes of varying levels of detail and aesthetic quality depending on their preference and the stage of the design process. At this stage, wireframes would generally look like a bunch of plain boxes: a box for the header, a box for the main content, a box for the right-hand menu, etc.

The goal of wireframing is to consider the types and relative amounts of content on each page and to find a layout that will help communicate the right information effectively. Wireframes should not take into account visual design, shapes, colors, et cetera, because the visual design will follow from the communicative function of the page. In my wireframes, the most I did was to color different boxes based on relative importance, but that was to show which sections would have the weight and emphasis, not to indicate any aspect of the visual design.

Once I planned out the information architecture, I drew thirty, forty, maybe fifty wireframes. These were about the sloppiest things I ever put onto paper. I did some with pencil and some with crayon. The point is to explore many, many possible page layouts. I tried different menu arrangements, including different combinations of horizontal and vertical menus; proportions between menus and content blocks; element orders. Towards the end, I may have drawn ten or more wireframes that only differed in small details because, once I settled on the general layout, there were still subtleties to consider. If I have time, I'll scan some of the wireframes so you can see what I mean.

Note that not every page has to follow the same wireframe. On this site, there is very little variation from page to page, but that's because every page is based on a single block of textual content. On many sites, the content calls for multiple layouts (especially on the home page).

#### Step 4: Content and Visual Design

The visual design depends on the content, and the way the content is actually formatted is based on the visual design, so these steps were done in parallel.

#### Content

Most of the content was provided to me beforehand. However, I reformatted it in HTML. That meant adding semantic markup where appropriate:

• for every paragraph

- <h1> through <h6> for headings, reflecting the logical structure and hierarchy of the content itself (note: only one <h1> per page because <h1> should represent the entire page)
- , , and for unordered and ordered lists
- <strong>, <em>, <blockquote> where appropriate

It also included adding entities where needed:

- – and for different types of dashes. In English, hyphens, en dashes, and em dashes all mean different things.
- & amp; for any ampersands

And so on.

As with information architecture, breaking a page down into sections and sub-sections (with headings and sub-headings) helps users assess the content, understand what's available, and find what they're looking for. On the "Directions" and "Volunteers" pages, for example, headings help make the content digestible, especially since people will pick and choose sections to read.

#### Visual Design

Two requirements were given to me before I started: use Drexel University's colors, blue and yellow; include the FIRST logo and the Drexel logo in the website header.

Aesthetics are my weak point as a designer, so I did not try to be ambitious. I chose to use blue as the main color and yellow as an accent color, since blue is calmer and feels more professional, while yellow is louder. (It would have been possible do well with yellow as a main color, but it would have been more difficult.)

I tried different shades of blue for the header, both blue and yellow for the right-hand menu. I settled on a rich, dark blue for the header, to contrast with a white background for the rest of the page. I chose a softer, less saturated blue for the side menu and footer, and other shades of blue for other elements. I used yellow for nothing other than accents: thin borders under major headings, highlighting for menu links on hover.

I originally planned on putting the FIRST logo to the left of "Philadelphia FIRST," so chose Garamond for the header (as opposed to Helvetica/Arial) based on the FIRST logo guidelines. It turned out that the logo was too noisy and fought with the left end of the main menu, so I moved it to the right side of the header. For the rest of the page, I used Helvetica/Arial—they might be typical and boring, but they're readable.

For body text, the need for readability trumps the desire for a flashy design. Black text on a white background is generally more readable than it is with a colored background. In most cases, I consider light body text on a dark background to be out of the question. I made an exception for the header because the header only holds blocks of one to two words, and the text-to-background contrast is high.

# Compatibility

If you know a bit about CSS, you'll notice that I used a fair amount of CSS3 and browserspecific properties. The rounded corners, gradients, and subtle text shadow are not supported consistently in older browsers, in Internet Explorer, or Opera. Although the design does not look the same in every browser, I was careful to make sure that the website itself is still supported in those browsers: the code itself is 100% compatible with browsers since IE6 (although I still have to make some tweaks for IE), and older browsers display what they know how to display. The special CSS properties are applied on top of the compatible code. In browsers that don't support the special CSS, those properties simply don't affect anything. This strategy is called *progressive enhancement*. A visitor using Opera, for example, won't even know they're missing something unless they actually compare the site in another browser.

I also used a small amount of HTML5. For the most part, browsers that don't understand HTML5 will simply ignore it but and render the content. A little CSS is needed to make sure this happens correctly, and in IE, some JavaScript is needed as well. Nevertheless, the site is prepared for the new decade.

#### Links and Menus

The "universal" convention for links is blue, underlined text. Unless it really clashes with the rest of the design, it's better to choose blue. In this case, it was not a problem.

The menus already look like menus, so they didn't need to use blue text. I like menus that feel responsive, so I had the menu lights highlight on hover. (The highlighting also appears on focus. Tab through the page with your keyboard, and you'll see that it's helpful when the links appear on a dark background.)

On any page, it's important to indicate to users where they are located within the structure of the site. Although the page title does that, it's difficult to compare the title to the menus and deduce which link corresponds to the current page. So, I solved that problem by highlighting the corresponding links within the menus. In the main menu, the secondary menu on the right, and the tertiary menu on the competition pages, links are highlighted to reflect the current location.

Breadcrumbs are another great way to do this. However, since the menus are always visible within their respective areas of the site, the link highlighting was enough to indicate the current location at every level of the hierarchy. So, I decided not to use breadcrumbs.

#### **Other Notes on Code and Backend**

The site is driven by PHP. Every page you see on the front end is actually processed by one page: index.php. Index of using URLs like index.php?page=1 and index.php?page=2, every URL reflects the hierarchy and name of each page—helpful both to users and to search engines. The requested URL is processed in order to look up the page by name; index.php starts with a basic template, decides which submenus to display, pulls page metadata (title, description, keywords) from a JSON database, and finally pulls the page content from a file.