

Planning for Effective Re-Design of the COEP Website

The COEP website's main purpose is to serve as an outreach tool to K-12 teachers about environmental health sciences and toxicology issues. COEP also does outreach for the public and environmental health professionals, but the primary focus is on K-12 teachers. Content on the COEP site is geared toward needs of educators through lessons and events pertaining to booking workshops for the classroom, using prepared lesson plans and curriculum, and professional development opportunities. The main problems with the current design are that it is not clear that the site is mainly intended for instructors and it is busily organized with inconsistent navigation. Web designers must understand how people use the web to create sites that will hold attention and allow for intuitive browsing and efficient searching without much thought. Users tend to scan the pages they view and often navigate in a manner contrary to the way the pages were designed to be read. Through learning to effectively work with Dreamweaver and understand tenets of web usability, successful overhaul and redesign of the COEP website has been possible to make it more user-friendly and visually appealing. This paper will explain my methodology and rationale behind redesign based on principles pertaining to user needs, navigation, and aesthetics.

A main point to consider for the COEP website is the needs of the intended user population: K-12 teachers. Classrooms for these grade levels are often lacking in advanced technology, including internet speed. This site needed to remain consistent in simple code to not overwhelm possibly outdated computer systems. Therefore, using HTML rather than other code languages was essential. Keeping design simple also would mean eliminating the numerous drop-down menus throughout the site. Not only are these harder on the computers, but also harder on the user by preventing easy scanning. Although usability testing has not yet been conducted for this website, understanding user needs can apply across the board by looking at how most individuals use web sites. Krug explains that most site visitors use websites in the same manner, so that usability testing does not always necessarily need to be on the target population (2006). He also delineates that people tend to scan pages, and not in the order the web designer intended. This means it is imperative to make pages clean and easy to quickly absorb. The current design has too much information, especially on the home page. There are six highlights; a link to lesson plans and activities even though there is already one in the persistent navigation; information from the about section, even though there is already an about link with further details from there; and links to partners and sponsors, current events, and general links. The home page lacks focus and secondary navigation pages are not clear on where they lead or where a user came from to get there, which also means that all of this can create information overload. Users want to find what information they need quickly

and effortlessly, so maintaining persistent navigation, using prominent page headings, and inserting a search box on every page should help alleviate these issues. Krug mentions that there are a number of people who use the search box as the first thing they do when arriving at a new site; the current COEP site lacks a search box, so adding one to the revamped version should make finding information much easier for site visitors. Five things Krug notes to ensure the site is understood and used as much as possible include: creating a clear visual hierarchy, using conventions, organizing pages by clearly defined sections, making it obvious what is clickable, and minimizing noise (p. 31). Therefore, the main issues that needed to be considered when redesigning the COEP site based on user needs are making layout and coding simple, creating focus for easier scanning, making it possible to always search, and planning for more intuitive navigation. As Krug says, “if something requires a large investment of time – or looks like it will – it’s less likely to be used” (p. 6).

Taking the time to plan for good navigation is essential to creating a site that will get a lot of use and convey the necessary information in a manner where users will view it. Marti Lindsey, Director of COEP and my internship supervisor, created a list of pitfalls of website development where number one was not developing a plan. Before writing any code for the new COEP site, it was necessary for me to take the time to plan layout and navigation for easier use as well as long term sustainability (the latter being her seventh pitfall, by lacking to consider this issue). From going through every single page of the COEP site, I was able to discern what the navigation problems were and how to try to fix them. From primary navigation, page titles did not always match sidebar navigation link names. For a user to clearly understand where he or she is within the site, page titles need to match exactly so there is no confusion or additional thought necessary to navigate through pages. Links could also be consolidated: *About COEP*, *Questions?*, and the contact information listed at the bottom all serve the same purpose. Having the contact information at the bottom of every page is an excellent strategy, but having two pages with more contact information and that same text repeated is overkill and adds more noise to the site. Also considering primary navigation, some of the sidebar navigation links would make more sense as secondary navigation, specifically *Activities & Lessons*, *COEP Programs*, and *Events*. Because it is not clear that the site is intended for teachers from the home page, it becomes problematic when items are repeated in separate sections and listed as for multiple populations; in other words, in one location, a dropdown will list an event for teachers, and in another dropdown category, it will be listed as a workshop for students. Because the entire site is really for teachers, it would make more sense to list activities for students as still being for teachers because teachers would need to book workshops or use these materials to lead activities.

Much thought is needed when navigating the COEP site because there is too much information in secondary navigation to be able to be certain all needed materials have been found. This problem is exacerbated through having dropdown menus for each secondary navigation page. Krug says,

Pulldowns are most effective for alphabetized lists of items with known names... but they are much less effective for lists where I don't know the name of the thing I'm looking for, especially if the list isn't alphabetized or is long enough to require scrolling (p. 110).

These menus on COEP do tend to be alphabetized, but because it is not intuitive what the list will contain (for example, a list of states), it makes navigation more time consuming and frustrating because scanning is impossible with this layout. Proper navigation should tell users "implicitly where to begin and what [the] options are" (Krug, p. 60). These sorts of pulldown menus also create uncertainty in regards to making the correct choice for subsequent page visits. Krug uses the phrasing of how "hard" each click is to reference how much a user needs to think about where they are going next, rather than how many clicks it takes to get there (p. 41). These pulldowns force users to surmise correct clicks because instead of being able to see all options at once, it would be necessary to view each dropdown separately to check for what one is seeking.

Overhauling the primary and secondary navigation and ensuring link names and page titles match exactly are the main focus for redesign of the COEP site regarding navigation. As Krug points out, "Clear, well-thought-out navigation is one of the best opportunities a site has to create a good impression" (p. 60). Ease of exploration within a website, as well as first impressions made through aesthetics, are how the site presents its identity, and essentially brand, to the user.

Aesthetically, the COEP site is inconsistent due to not having access to design with templates; the color scheme is rough and jarring; and overall, the site does not have a clean feel to it: there is a lot of noise. Templates ensure persistent navigation as well as consistent visuals to make visual design more uniform. Clearly, uniformity helps make navigation more intuitive, but it is also more pleasing visually. Although, generally, each page has persistent navigation, secondary navigation pages do not all look the same; footers seem to be positioned awkwardly and seep into areas that should not have an overlay of text on some pages, where on others, they are located in different areas. Clearly, having access to creation of templates would have helped with this problem. Likewise with uniformity, images representing pulldown menu categories are not intuitive to a new visitor to the site and do not necessarily fully describe all contained within these related categories.

The home page is fairly noisy with six highlights and much more separate information following, as noted previously. Too much is attempted to be included on the home page, potentially overwhelming the user. Cleaner home pages are less visually stressful and much easier to navigate. Some of the photographs in the highlights section also are not very clear, adding further to noise. Adjusting clarity, size, or contrast might help alleviate this issue, but since the images are not uniform with a color scheme coinciding with that chosen for the layout, it adds additional cacophony to the user's experience. Information repeated in multiple site locations adds to visual noise by not making page length succinct. Cutting out all unnecessary words helps to make pages

more aesthetically pleasing because they appear cleaner and are easier to scan and quicker to read. If necessary to list information more than once, possibly using a well-placed link would be useful in cutting down on noise. Sites that are too overwhelming or with color schemes painful to look at might lose users before they are able to get to the information trying to be conveyed. Web design and all aesthetic considerations are instrumental in attracting and building relationships with users. Web sites are the face of an organization, company, or individual, so making them visually appealing is crucial.

To conclude, the COEP website needed to be redesigned to better serve user needs, incorporate more intuitively-organized primary and secondary navigation, and be more aesthetically-pleasing. By making the site cleaner and clearer, users would be better able to scan for needed information and understand user location by more appropriately sorting navigation. My specific process and procedure follows.

First, I sorted through the entire COEP website and created an organized list of how pages were broken down into sections and where those sections linked out to (breakdown at end of paper). Being able to more holistically see the layout of the website helped me to understand where repeated navigation occurred, why it happened, and how to better situate subsections. Next, I actively annotated this list by hand with divisions of “for teachers,” “for students,” and “for the community.” After discussing with Marti the larger purpose and intended breakdown of the site, I realized that it is truly meant as a resource for teachers, and that should be the focus. Re-approaching the breakdown, I instead noted items based on teacher lesson plans and curriculum, workshops teachers could book for the classroom, and teacher professional development opportunities. Instead of clustering all of these items together repeatedly in multiple sections, I chose to break the structure down of having a main entry link of “Lessons & Events,” which lead to an informational page about why the site is for teachers and what teachers could find, including the aforementioned subsections. Other top-level navigation links include Home, Resources, Collaborators, and About. Instead of having an About page as well as contact information in the template footer and a link to where to direct questions, I made general contact information persistent in the sidebar and included all contact information on the About page, then linking out to specific individuals (or, for now, just information about Marti). Resources was another section that needed re-thinking, and I chose to include as subsections outside links, pathfinders, previous workshop handouts and presentations, and other information for students and the public. This then separated dated resources not currently connected with materials for teachers, information for other user populations, and general items again separate from current offerings.

After determining how to layout the entire site, I needed to consider how to layout each page. Being able to use a template made seamless design possible, which was easier on me than the previous designer, who did not have access to the use of a template. The color scheme was the first visual aspect I chose to change, from a rusty red, white, and turquoise theme to light gray, white, and moss (the gray and moss both official UA colors). I cut down on primary navigation links, as mentioned, and made the font larger and bolder. This made the pages look cleaner, but also promotes quick scanning for

information. Breadcrumbs could have potentially been useful for such a large website with many sub-level pages, but due to issues of accessibility, this tool was not desirable because it requires Javascript, which would impede many target users (K-12 teachers in Arizona) by creating a burden on their computers and/or internet connection. To work with this situation, every page will have a bold, easy-to-find title, with a smaller sub-title if necessary. Dropdown menus have been entirely eliminated and replaced with easy-to-scan menus pertaining directly and specifically to the related page topic or sub-topic. The homepage has been diminished to cut down on noise, specifically subtracting so many highlights and features, and replacing the original six with three, organized so there is an obvious page focus; an archive has been created for items more outdated that will no longer appear on the homepage. All additional information found towards the bottom of the original page has been cut and placed only in respective page categories, also to cut down on noise. Using CSS has greatly helped in making pages uniform, aside from using templates. Links, headings, and text have all been styled to be consistent and match the color theme. Consistency in styling also improves navigation because the user can better comprehend heading size and location to determine higher or lower-level navigation and visually ascertain where a web page fits into the greater website.

With all of this thought, there are still a few issues that I will need to consider. A search box still should be added to persistent navigation on the side or top bar. Likewise, to still improve navigation and user comprehension of site organization, creation and posting of a site map could prove very useful. Finally, to make the site even more accessible to users with disabilities or those using a different device to view pages, tenets of web accessibility should be applied where applicable. For example, inserting code so a JAWS reader can skip reading the persistent navigation on each page, being sure there are accurate alt tags for all images, and creating sections in an order a reader or a user with other disabilities can easily navigate from section to section accurately within a single page. Color is an additional concern with individuals who may be color blind; considering this when placing UA logos with red on a moss green background for the sidebar, I was sure to create a background color within the table of gray because moss green and red look as exactly the same color for those who are colorblind. Creating notes and a detailed sitemap for an intern who might take over this project I have started should continue the seamless design and considerable thought put into navigation.

Krug, S. (2005). *Don't make me think! A common sense approach to web usability*. (2nd ed.). Berkeley, CA: New Riders.

*Site breakdown list contributing to methodology, screenshot of site design, and sitemap follow.

A. “Curriculum, Lesson Plans and Activities”

[Linked from “Activities and Lessons”]

1. Activities

- Air info now
- California blackworms
- Chemicals and human health
- Cluster busters
- Lemons and onions
- Naturally occurring pesticides
- Race to find the cure
- Tobacco induced mutations
- Tox trivia
- Understanding garbage

2. Curriculum (for students)

- PULSE
- Chemicals and human health

3. Lesson plans (for teachers)

- Air info now
- Basic tox labs
- California blackworms
- Chemicals and human health
- Cluster busters
- From plants to drugs
- Good cells gone bad
- IMPACTT
- Lemons and onions
- Naturally occurring pesticides
- Nicotine and alcohol
- Race to find the cure
- Understanding garbage

4. PPT Presentations

- From plants to drugs
- Good cells gone bad
- Nicotine and alcohol
- Toxicology basics

5. Other Resources

- NIEHS program resource center
- Hydroville curriculum project
- Microscopy K-12 edu. Resources

- More resources
- Online plant resources
- Past handouts
- Garbage-related links
- Air info now
- Basic tox lab stations
- Chemicals and human health
- Cluster busters
- Nicotine and alcohol
- Tox trivia

6. Integrated curriculum projects

- PULSE
- Air info now
- Cluster busters
- Nicotine and alcohol
- IMPACTT

B. “Programs”

[Linked from “COEP Programs”]

1. NIEHS funded projects

- NIEHS resource center
- IMPACTT
- ToxRap network

2. Curriculum development projects

- Link to “Activities”
- PULSE
- IMPACTT

3. Student activities

- Pharm camp
- Med start
- Pima Community College
- Daughters on Campus
- Arbor Day

4. Teacher professional development

- Summer institute
- Curriculum development
- ToxRap lab stations
- Cluster busters
- Understanding garbage

5. EPA & UCAB Programs

- Air info now
- Tucson water collaboration
- UCAB

6. NCRN funded programs

- PULSE
- HOPE Partnership
- EH-STEP

C. “About Events”

[Not linked from sidebar menu]

1. Free workshop for teachers
2. Free workshop for students (Tox-Start)
3. Environmental health and toxicology literacy (for teachers)
4. ToxRap workshops (for students)
 - The case of the green feathers
 - What is wrong with the Johnson family?
 - Mystery illness strikes the Sanchez household

D. “Events”

[Linked from “Events”]

1. Teacher events
 - Link to about COEP events
 - Workshop (2000-2006)
 - Class for biology teachers
 - Web resources
 - Past handouts
2. Public events
 - Link to about COEP events
 - Ajo arsenic project
 - Science fair 2004
 - UMC presentation
3. Student events
 - Link to about COEP events
 - Med start
 - Pharm camp
 - Tox start
 - Web resources
 - Past handouts



Southwest Environmental Health Sciences Center

- Home
- Lessons & Events
- Resources
- Collaborators
- About

- SWEHSC
- PULSE
- KEYS

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About

Mission & Vision

Building bridges between the research community of the Southwest Environmental Health Sciences Center and the general public as well as the K-12 community is our goal. To this end we review, develop, and disseminate quality environmental health science K-12 curricula, plus develop and host K-12 teacher training workshops. We communicate with the community about local and common environmental health science concerns and share research results from SWEHSC investigators. To do this we also reach outside the University of Arizona and develop, maintain, and utilize partnerships with local, state, and federal agencies and organizations.



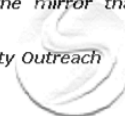
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Community Outreach Goals

- Review, develop, and disseminate quality environmental health science curricula.
- Develop and host K-12 teacher training workshops.
- Communicate with the general public about local and common environmental health science concerns.
- Share research results from SWEHSC investigators with the COEC target audiences.
- Develop, maintain, and utilize partnerships with local state, and federal agencies and organizations to further the COEC mission.

"There are two ways of spreading light - to be the candle or the mirror that reflects it."

--Community Outreach Quote



Sample page (About page) – copyright, link to Top, and other information at bottom of left navigation pane cut off, but design is consistent.

COEP - New Site Map

