

U S C E N S U S B U R E A U

Statistical Research Division
Usability Laboratory
Washington, D.C. 20233

Date: Monday, December 07, 2009

To: Systems Support Division (SSD) Census Software Process Improvement (CSPI) Team

From: Lawrence Malakhoff, Jennifer Romano, Temika Holland, & Jennifer Chen,
Usability and Accessibility Labs, Statistical Research Division (SRD)

Subject: Usability and Accessibility Expert Review for the CSPI Process Asset Library (PAL)
Internal Web site

1. Introduction

The user interface is an important element to the design of a Web site. For a Web site to be usable, the user interface must be able to meet the needs of the user in an efficient, effective, and satisfying way. For a Web site to be accessible it must be usable and be able to provide equivalent access through assistive technology. It is the job of the user interface to provide directions and cues so users can get started quickly and find what they are looking for easily.

The Usability and Accessibility Labs (henceforth referred to as the Usability Team) conducted an expert review of the internal CSPI PAL Web site (http://cww2.census.gov/cspi_pal1/). For the purpose of this review, members of the Usability Team examined the Web pages associated with the CSPI PAL Web site. Pages included: the main page, View All Roles, View All Processes, View All Topics, Help, About the PAL, and the Site Map. On each page, the Usability Team drilled down several levels. Many of the findings (e.g., link issues and issues with grammar) are applicable to the entire Web site.

2. Background

The CSPI PAL Web site serves as a location for Census Bureau employees to find information about Census software and guidance on improving processes. The site is in production and is expected to be released in January 2010.

This expert review identifies the strengths and usability and accessibility issues with the current Web site, and it provides suggestions on how to remedy the identified issues.

The Usability Team grouped the potential usability and accessibility issues according to the following ranking system:

- **High Priority** - These items are likely to prevent users from accomplishing their tasks.
- **Medium Priority** - These items are likely to cause frustration and performance issues, resulting in additional time required for users to complete tasks and decreased satisfaction with using the Web site.
- **Low Priority** - These items are likely to cause frustration but should not interfere with task completion.

3. Positive Findings

- (a) Web site uses a Sans Serif font.
- (b) Links on the Web site are blue and underlined.
- (c) Acronyms are defined.
- (d) On the drop-down menus on the main page, roles, processes and topics are in alphabetical order, aiding users in finding their desired information quickly.
- (e) On the drop-down menus on the main page, users can hit a letter to get to their selections faster.
- (f) The tab order on the Web site was correct, thus screen-reader software will vocalize links in the same order that persons with normal vision will read them.

4. Usability and Accessibility Issues

This section documents the potential usability and accessibility issues on the CSPI PAL Web site, by detailing findings from each page of the site. Issues on each page are categorized as high, medium, or low priority.

4.1 Main Page

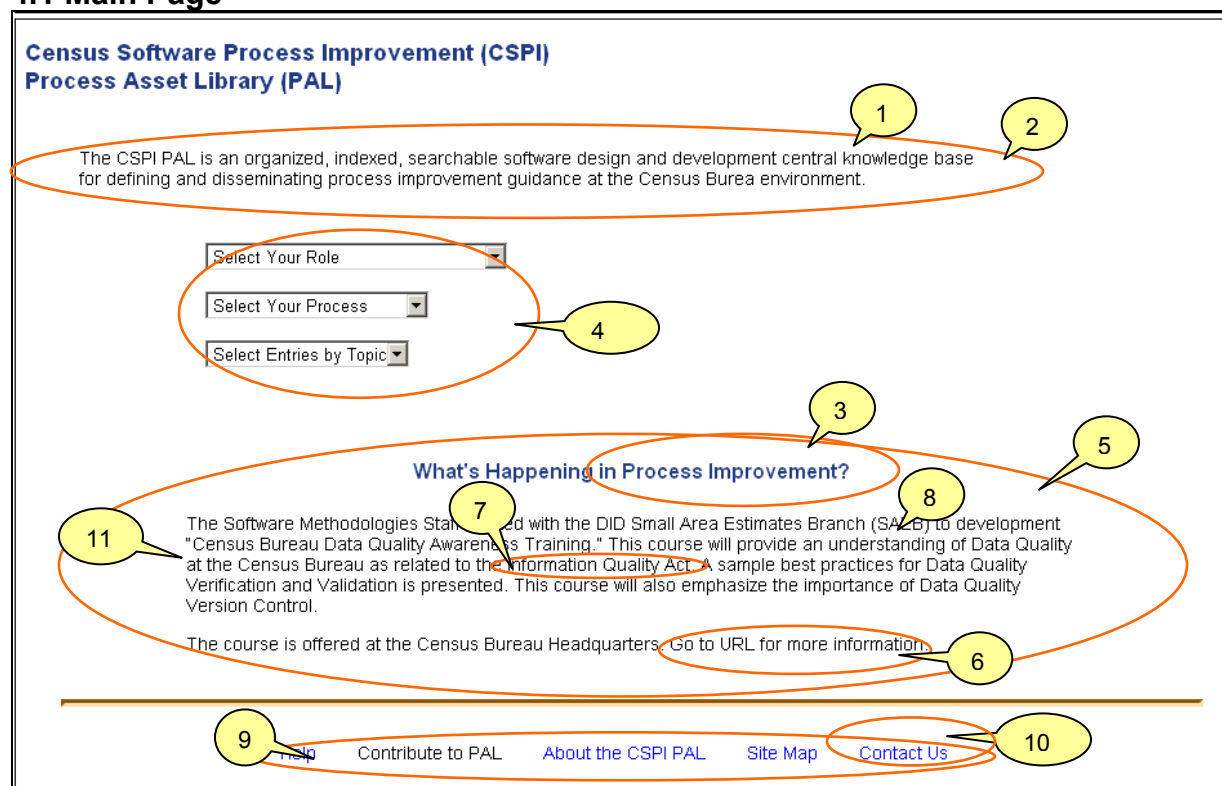


Figure 1. Main page of the CSPI PAL Web site with problem areas noted.

High-Priority Issues

1, 2, 3. The introductory sentence is awkward, long, and poorly worded, and Bureau is spelled incorrectly. There is jargon on the page that users will not understand. There is no direct guidance on what the user should do. (1) The description on the main page contains jargon, and users may not be familiar with the terminology. The sentence is long, and users likely will not read the entire thing as they will be scanning the page. The description provided may not be very useful to most users if they do not understand what is being

presented. (2) 'Process Improvement' is also jargon, and many users will not know what it means. Often, a user who does not understand the meaning will skip over the information it can provide (Nielsen and Loranger, 2006). (3) There is no guidance on how to navigate the site. A user may not understand the functionality of the drop-down menus provided on the main page. The purpose of using this function (i.e., drop down menu) on the site is not clearly defined and it is not stated that a user must only select from one of the available menus. Users have no way of knowing which menu would be most beneficial for their needs.

Recommendations: (1, 2) Provide a brief description that will be easier for users to understand by limiting the use of jargon and shortening the length of the sentence. It is important to use the natural language of users (Pearrow, 2000). The writing should be simple and concise taking into account your user's time and reading abilities (Nielsen & Loranger, 2006). The description of CSPI PAL under the heading "About the CSPI PAL" provides a much clearer description of the system. Consider replacing the existing text using this sentence as the introductory sentence instead. We suggest revising the sentence as follows: "CSPI is an organized database for improving software design and development at the Census Bureau." Correct the spelling error. (3) Provide guidance to the user on the functionality of the features presented. A simple sentence should be added to the introduction that explains what the user needs to do.

4. The initial values "Select Your Process," "Select your Role," and "Select Entries by Topic" for the three combo boxes do not persist after a selection is made. When a screen-reader user navigates back to these controls, they lack labels as to their function. This deficiency is a violation of Section 508 1194.21 Paragraph L. **Recommendation:** Label the three combo boxes "Roles," "Processes," and "Topics," respectively. It is possible that users might select the wrong option by mistake before hearing the rest of the options, so we recommend using this instruction as title text for the combo boxes: "Press ALT + down-arrow to open the list, use arrows to select, then press enter." Title text does not appear on the screen.

5, 6, 7. The paragraph on the bottom of the page is wordy and unclear. (5) The first sentence does not make sense because it is poorly worded and has grammatical errors. It is not clear what the user should know, so it is unlikely it will be read. (6) "Go to URL for more information" is extraneous, and it is not clear what URL the sentence refers to. (7) The Information Quality Act is not explained in this paragraph. **Recommendations:** Write this paragraph so that it speaks to the user's motivations and goals, and explains why this site would be helpful. (5) Consider this revision: "The [Census Bureau Data Quality Awareness Training](#) course provides an understanding of data quality at the Census Bureau as related to the [Information Quality Act](#), including best practices for data quality verification and validation. The course was developed by the DID Small Area Estimates Branch (SAEB) and is offered at the Census Bureau Headquarters." Correct spelling errors: 'development' should be 'develop.' (6) Reword and embed the link into the sentence. Note: this occurs throughout the Web site, so embed links throughout. (7) Explain why it is important for the users to know and understand the Information Quality Act. Embed a link that directs to a page with a description of what the Information Quality Act is or link the phrase to the Web site's definitions.

Medium-Priority Issues

8. Not all acronyms are clearly defined. Although most acronyms on the page are defined, not all are accompanied with a description. The acronym DID is not defined on the main page. Although some users may be familiar with the acronym, it is important to spell out the acronym on the first use to accompany a wider range of users. **Recommendation:** The use of acronyms should be avoided, or written out on first use, with the written-out form used again when it appears for the first time on a new segment of the page.

9. Important links are below the fold of the page and are not consistent on every page of the site. Links that users may look for are below the fold of the page (i.e., a user cannot see that area unless they scroll down). Users may not scroll down and thus will not see the links. Important links, for example 'About the CSPI PAL,' should be in a more prominent place on the page because users will likely be interested in that information. Usually the bottom footer of the page is reserved for privacy and confidentiality links. Furthermore, these links do not appear on every page of the Web site. This is inconsistent and will confuse users who will look for them while working on the site as they will expect them to be on other pages. **Recommendation:** Move these important links to a more prominent area on the page, such as the top, so that they are easily accessible. Include them on all pages of the Web site.

10. The "Contact Us" link opens a new window in an email browser. Users may believe the Contact Us link will direct them to a HTML page with different ways of contacting the creators of the CSPI PAL site. **Recommendation:** Replace the link text "Contact Us" with "Email Us." This simple language conveys the action of the link more clearly. Alternatively, add a page with additional contact information, such as phone numbers and addresses.

Low-Priority Issues

11. There are multiple alignments on the main page of CSPI PAL. The first heading is left-aligned while the second heading is center-aligned. The second paragraph has a wider left margin than the first paragraph. **Recommendation:** Keep a "straight" left-edge to the content on the page. This will make the page easier to scan. Be consistent, and use one alignment throughout the Web site.

12. All roles are singular, except one. See Figure 2. **Recommendation:** To maintain consistency, change 'IT Security Officers' in the Select Your Role drop-down menu to 'IT Security Officer.'

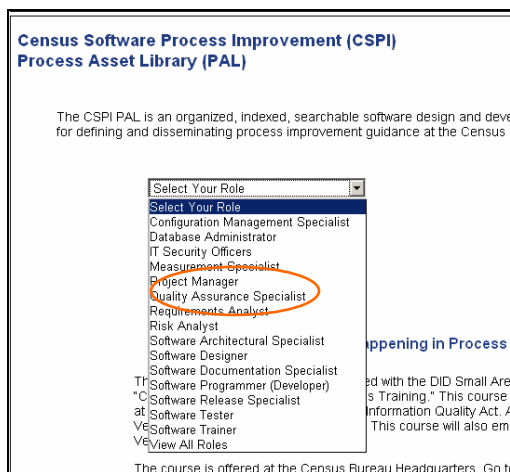


Figure 2. Select Your Role drop-down menu on CSPI PAL main page.

4.2 View All Roles Page

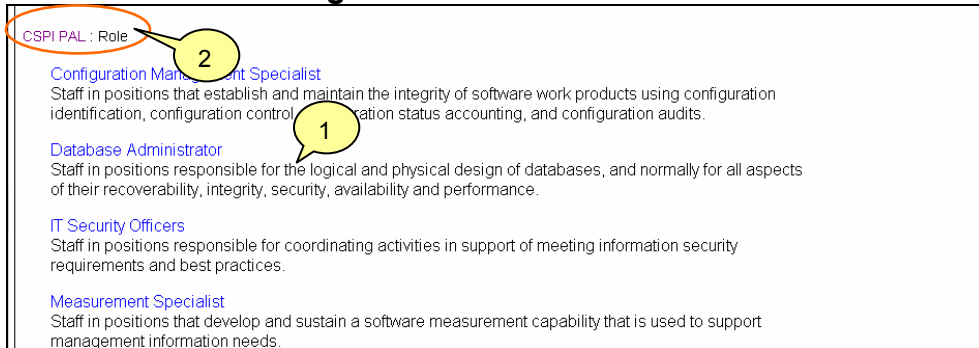


Figure 3. View All Roles page on the CSPI PAL Web site.

Medium-Priority Issues

1. There is too much text on the page. Typically, users scan Web pages for what they are looking for, and they do not read everything. Users tend to read the first few lines of a sentence before deciding if it will be useful for them to continue. As the page is now, there are a lot of wasted words, and the text can be shortened. **Recommendation:** Eliminate “staff in positions (that)” at the beginning of each phrase, as these words are not needed to clearly define the roles.

2. The breadcrumbs feature on the entire Web site has an unconventional format. The separator currently used between the links is a colon (:). Typically, the separator used for the breadcrumbs feature is a ‘>’ symbol (www.webdesignpractices.com). This symbol denotes the sequence of actions that a user has taken on the site. Most users are familiar with the conventional formatting of breadcrumbs (i.e., ‘>’ as a separator), and it is important that this function be consistent with users’ mental models so that they will use the feature on the site. Furthermore, many of the Census Bureau Web sites that are adopting the new “look and feel” are using ‘>’ for separators. **Recommendation:** Change the separator to the more conventional ‘>’ symbol that users are familiar with.

4.3 View All Processes Page

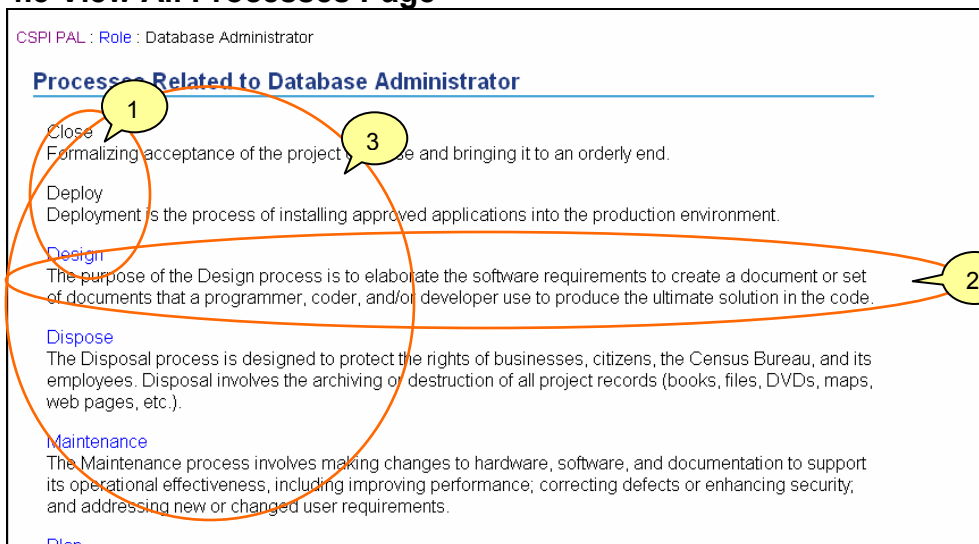


Figure 4. View All Processes page on the CSPI PAL Web site.

High-Priority Issues

1. Links change to black once they have been used on the entire Web site. Once a link has been selected, the color changes from blue to black. This makes it difficult to distinguish between operational links and other text on the page. Links should appear as links and be easily identified on the site. A user may assume that the link is not functional and will be less likely to select it. According to IT Standard 15.0.2, unvisited links should be blue, and visited links should be colored purple (magenta). **Recommendation:** In compliance with IT Standard 15.0.2, visited links should be colored purple. This change is consistent with users' expectations of operational links on a site. It will allow users to easily identify links on the page that they have already visited.

2. There are grammatical errors. This statement does not make sense. **Recommendation:** Reword the sentence, and check all grammar throughout the site.

Low-Priority Issue

3. The definition formats are not consistent. Some are incomplete sentences that clearly explain what the process is; some begin with 'The purpose;' some begin with reiterating the process (such as, deployment). **Recommendation:** Maintain consistency. The first definition is the best model as it is clear, succinct, and uses the least amount of words to convey the entire meaning to the user.

4.4 Definitions pages

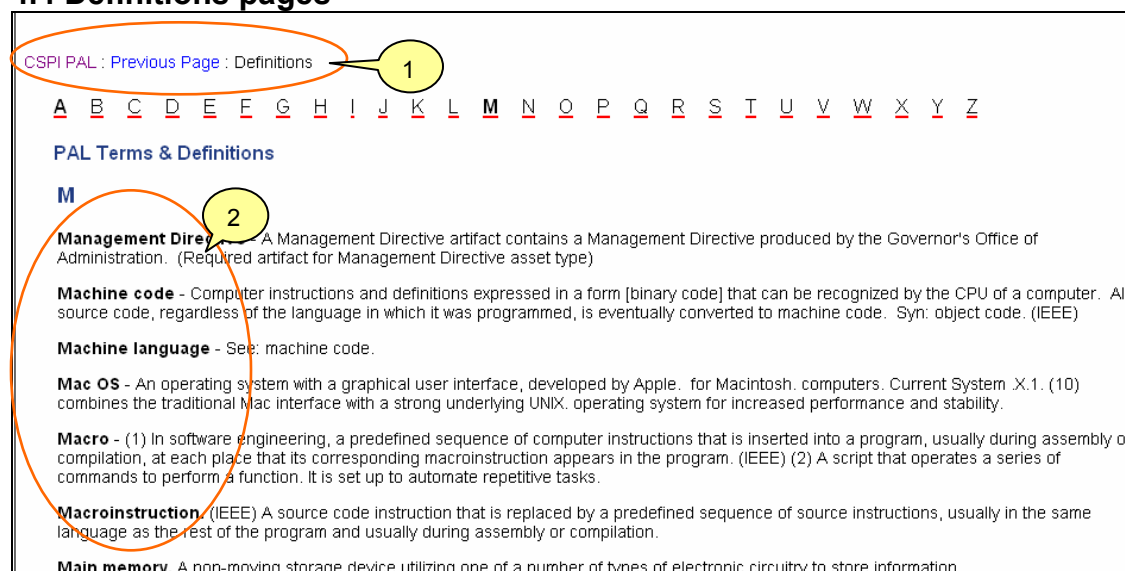


Figure 5. Definitions page for M words on the CSPI PAL Web site.

Medium-Priority Issues

1. The breadcrumbs are unconventional. 'Previous Page' appears in the breadcrumbs and is uninformative. Not all pages can be navigated to using the breadcrumbs. **Recommendation:** Revise the wording in the breadcrumbs to reflect the page users were on.

2. Words are not in alphabetical order. The words under the PAL Terms & Definitions are not in alphabetical order. Typically, when looking for the definition of a term, users will navigate through the listing expecting the terms to be in alphabetical sequence. This ordering makes it easier for users to find the information that they are looking for. It also decreases the amount of

time needed to find the information. **Recommendation:** List the terms in alphabetical order so that it conforms to users expectations, making it easier for them to find the information they are looking for.

4.5 Acronyms pages

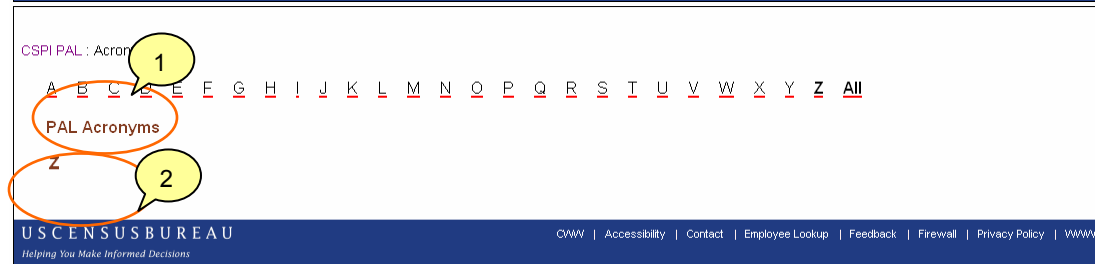


Figure 6. Acronyms page for Z words on the CSPI PAL Web site.

Low-Priority Issues

1. The heading “PAL Acronyms” is not the first item on the page but appears to be as it is the first thing that users see. What the heading “PAL Acronyms” applies to is confusing, especially when viewing all of the acronyms at once, which are displayed in two columns.

Recommendation: The heading “PAL Acronyms” should be moved above the A-Z list to show that it applies to *all* items displayed on the page, and not just a column or a section of the page. Alternatively, it can be removed, as users will know that these are PAL acronyms as that is the Web site they are on.

2. There are no acronyms that start with Z, yet the user can click on “Z” and be brought to a page with no content. **Recommendation:** If there are no acronyms that start with Z, do not include Z in the A-Z list as an active link. Instead, use gray-colored text to show that the “action” is inactive or unavailable.

4.6 Sub-pages: Once a Topic Has Been Selected

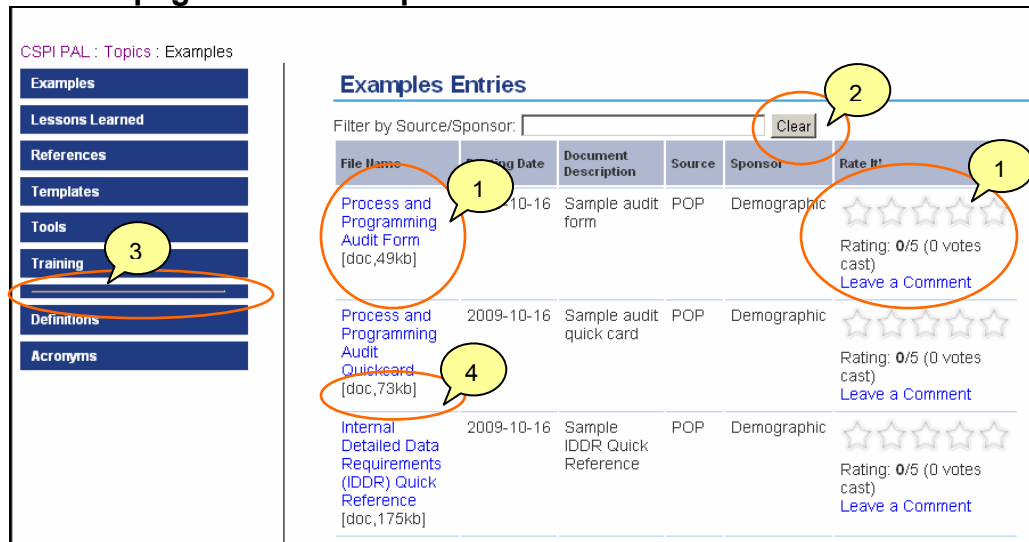


Figure 7. ‘Examples’ Topics page on the CSPI PAL Web site.

Low-Priority Issues

1. Un-important content is emphasized more than important content. In this table, the Rate It! column stands out because of the graphics and its width compared to the other columns. The File Name column is narrow yet it contains important information.

Recommendation: Emphasize the File Name column by using a wider column width. De-emphasize the Rate It! column by shrinking the size of the stars and the column width.

2. The purpose of a clear button for the filter function is not apparent. The clear button next to the filter function appears out of place. Typically, a user will look for a button with the word Search or Go when using this type of function on a site. This gives them some idea of what to do once they have inserted text into the entry field and are ready to continue.

Recommendation: Instead of using a clear button, use a Search or Go button next to the Filter entry field. This will give the user some guidance on how to continue their search on the site using the filter feature. If an option to clear text is desired, place the option under the entry field box.

3. The left-navigation menu is unusual. The line separating the two “types” of left-navigation menu options appears to be link. This is unexpected and confusing and distracting.

Recommendation: Do not use the same formatting for links as non-links. Do not enclose the solid line in a blue box like the other left navigation menu options.

4. Doc files are not available in HTML format. The entire Web site provides many downloadable files but no HTML equivalents to these files. Users often do not like to open up new programs while browsing. It is slower to load than a new page and “breaks” the user’s linear process of browsing the site. **Recommendation:** Provide an HTML equivalent for all of these files on the entire Web site.

4.7 Sub-pages: Once a Process Has Been Selected

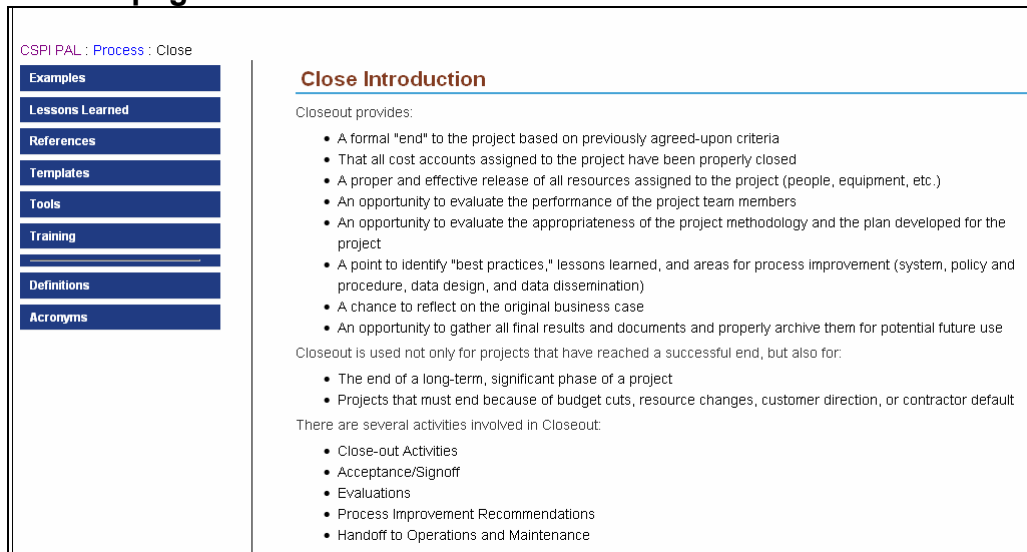


Figure 8. ‘Close’ Process page on the CSPI Web site.

Medium-Priority Issue

There is dense text on the page, and it is hard to scan. Users typically scan Web site pages to locate key words and phrases and do not read word-by-word. The page appears daunting to

read because it contains dense text. **Recommendation:** Make keywords and secondary page headings such as “Closeout provides:” bold. Use line breaks between paragraphs to provide visual relief.

4.8 How is the CSPI PAL Structured? Page

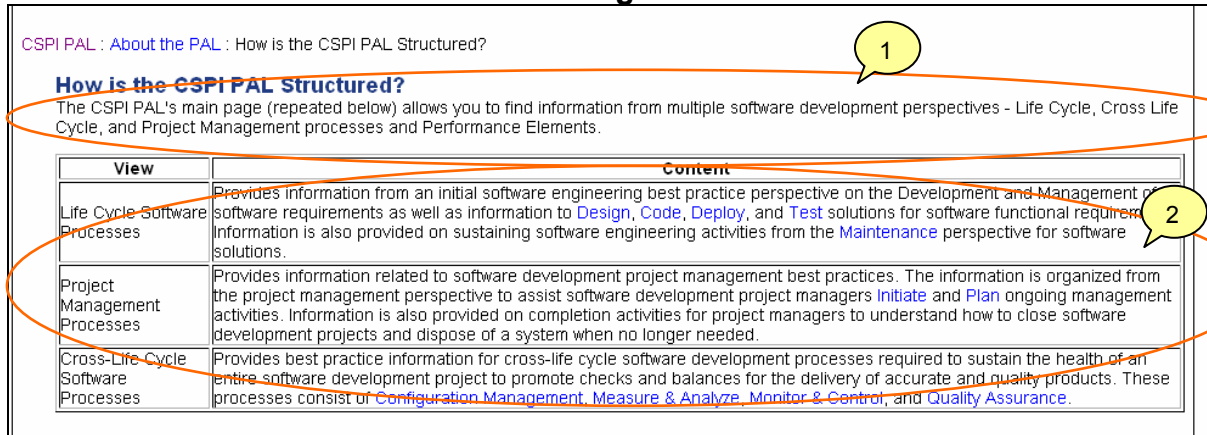


Figure 9. How is the CSPI PAL Structured? page on the CSPI PAL Web site.

Medium-Priority Issues

1. The text does not match the site. The text says that “the main page (repeated below)...” but the information that is displayed “below” is not the same that is on the main page.

Recommendation: Reword the statement to reflect what is on this page, and modify information so that it is consistent with the main page.

2. The text is hard to read. The text in this table is hard to read because the text in the cells bump up right next to the cell borders. **Recommendation:** Add cell padding to the table, or eliminate the table structure and display the content similar to content on other pages of the Web site.

4.9 How do I Navigate the CSPI PAL? Page



Figure 10. How do I Navigate the CSPI PAL? page on the CSPI PAL Web site.

Medium-Priority Issue

There is no content on the page. There is no content for the sections “How do I Navigate the CSPI PAL?” and “Mastering Process Improvement.” **Recommendation:** Remove links that do not direct users to content or add appropriate content on these pages.

5. Summary

This website will require a moderate level of effort to conform to Section 508 and become easier to use. High priority issues include lack of labels for the three combo boxes on the initial screen and links that do not turn purple after being visited throughout the web site. Grammatical and spelling errors interfere with a users understanding of the material and may cause them to require more time to accomplish their task. Medium priority issues include acronyms not being defined in their first usage and unconventional formatting for breadcrumb links. In some cases, text is difficult to read because it is closely packed together. There are two instances where a user encounters unexpected content by clicking on the "Contact Us" link and the page displaying information on how CSPI-PAL is structured. Low priority issues include web page formatting and consistent usage of terminology. The line separating the two types of left-navigation menu option appears to be a link. Some content is in MS-Word format, which forces users to wait while MS-Word is starting instead of being available immediately in HTML format. Since this expert review covers only content available at the time of testing, The Usability Team recommends another review to provide feedback for pages currently not available.

6. References

Prioritizing Web Usability, Nielsen and Loranger, 2006

Web Site Usability Handbook, Pearrow, 2000

Breadcrumb Navigation

<http://www.webdesignpractices.com/navigation/breadcrumb.html>

Section 508 (Section 508 Standards) Web site

<http://www.section508.gov/index.cfm?FuseAction=Content&ID=12#Software>

IT Standard 15.0.2

http://cww2.census.gov/icg/docs/boc_guide.html