Introduction

The Web site referred to as the basis for this critique is an informational site for the Ranger Neutral Buoyancy Vehicle (NBV) Project used by NASA. The site, along with the project, is hosted by the Space Systems Laboratory (SSL) at the University of Maryland at College Park, Maryland. The SSL was founded at the Massachusetts Institute of Technology (MIT) in 1976 and moved to the University of Maryland in 1990.

The primary audiences for the site are researchers, graduate students, and scientists seeking to learn more about the SSL and the Ranger NBV Project in particular. This Web site was created in 1998 and has not benefited from initial design or revision to increase its instructional value.

Design Grid

Entering the URL, http://www.ssl.umd.edu/projects/RangerNBV/RangerNBV.html, reveals a standard three-frame Web page layout. The top frame is a title graphic and does not change. The left frame is a menu for primary navigation through the site. The right frame is the content frame.

The principal navigation links for the project are at the top of the left frame. The decision to center the text for these links results in a situation where users of some browsers (e.g., IE 5.2 in Mac OS X) may have to scroll horizontally to view the complete name of the link.

The title graphic in the top frame results in wasted space, that instead could have been used for global navigation (i.e., links to NASA, Space Systems Laboratory, NASA

Space Telerobotics Program), which is a level of information above the Ranger NBV Project. The dark blue background in the header also creates a perceptual distraction because all other frames have a white background. Ordinarily, the principle of perceptual relativity is used to accentuate differences in related objects (M.Fleming and W.H. Levie, 1978).

There is no consistency, other than the use of the frame set, in the way the content is displayed. The result is that the user is required to develop a frame of reference for viewing each incongruous section (i.e., Home, Background, Vehicle Overview, Operations Gallery, Team, Publicity, and History).

Interface

The user is easily discombobulated by the inconsistency of the navigation links. The navigation menu uses three different type styles for denoting hyperlinks. Icons are also used in the navigation menu, though they are not links.

Navigation is limited to the browser back button or by selecting one of the project links in the left navigation menu. The issue here is one of grouping different thoughts and ideas, and then losing the reference that provides the connection. Whereas this is frequently associated with different modal channels in perceptual relationships (M.Fleming and W.H. Levie, 1978), cognitive overload can occur in a single channel, when essential processing and incidental processing (keeping track of previous contextual reference) exceed available cognitive capacity (Mayer and Mareno, 2003).

Typographical Variables

Most of the pages on this site were created several years ago using Claris Home Page. The default browser font is used for copy, which is a serif face in approximately 12 point. The headers are in a sans serif bold, and are in red.

The biggest problem with the text appearing in the navigation frame is a lack of consistency. Some links are in all caps, using a sans serif font with white text on a black blackground. Others are in standard blue with underling to indicated hypertext links. As previously mentioned, the navigation links are all centered within the frame. Since the navigation frame is narrow (130 pt.) and on the left, left justified text would be easier to read. Underlining is used inconsistently throughout the content frame sometimes indicating a link, while at other times it is for emphasis.

Relationship between Text and Illustrations

Photos are used for decoration on a number of pages. The photos in most cases are thumbnail links to a larger version of the image. The issue here is that the image appears in the content frame and there is no back or close button to return the user to the referring content. Whereas some of the images offer a visually stunning depiction of the project, there is no direct connection to the text.

On the vehicle overview page there is an image (map) with labels called out using diagonal lines, that link the user to content. On the same page, there is a table of contents with links to the same content. The affect is split attention due to redundancy (Sweller, 1999).

Overall Analysis of Design

This Web site offers a great deal of information on the Ranger NBV project (and other projects under the SSL). There is little attention given to the design and presentation of the information to promote understandability by a broader audience. It forces the user to do much more pre-processing of the information, which fits if the overall intent is to provide a Web source for reference information.

Ways to Improve Design

Greater balance and symmetry (Mishanchuck 1992) could be obtained by setting up one or two page layouts, making it easier on the user to concentrate on the content.

Navigation can be greatly enhanced by moving the site level navigation links to the top frame. The project links should use icons or buttons for ease of readability and operability for a wider audience.

References

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