

A Usability Test of FedStats, Gateway to Federal Statistics

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Abstract

Under the aegis of the Office of Management and Budget, the leading Federal statistical agencies created the FedStats Website in 1997 as a gateway for citizen access to statistics of more than 100 Federal agencies that disseminate statistics via the Web. The interagency taskforce managing FedStats retained Human Factors International to test the site's usability and recommend changes, preparatory to a major marketing campaign. This paper reports major test findings that led to extensive FedStats home page redesign. Several of the subpages are also being restructured. The revised site will be opened to the public in September 2000.

Background of the Study

FedStats is a Website that was created to serve as a gateway to a wide range of federal statistical and related information. The broad purpose of FedStats is to help members of the public find federal statistical information and supporting documentation without requiring users to have detailed knowledge of the many federal agencies that collect and publish such information. The Interagency Council for Statistical Policy, composed of the heads of the major federal statistical agencies and chaired by the Chief Statistician of the Office of Management and Budget sponsors the site. The U.S. Census Bureau hosts FedStats and Census staff maintains the site.

Federal statistics are an invaluable public resource. They provide citizens with measures of important characteristics of conditions in their local communities, as well conditions as at the state, regional and national level. Such citizen awareness supports more informed, and therefore more effective civic action. Statistical information obtained from federal sources also plays a vital role in sustaining American business and commercial affairs.

Before the Internet and World Wide Web revolutionized communications technology, only a small segment of the national population knew how to obtain and effectively use federal statistical resources unassisted by such experts as reference librarians. As recently a decade ago, ordinary citizens and most business establishments depended specialized knowledge workers to find relevant federal statistics and show them how these should be interpreted. Federal (and other) statistical information was pre-processed and distributed in products such as the (printed) Statistical Abstract of the United States.

The Internet and World Wide Web have fundamentally and permanently changed the way citizens get federal statistics. In recent years, more and more federal organizations have made their data directly accessible on the Web. Much of this information is (relatively) unprocessed. Anyone with access to the Web can get the most recent data a federal agency has collected as soon as the agency is authorized to release it to the public. For the most part, data on the Web are free. With relatively low-cost hardware and software, end users can download huge federal datasets and then can perform customized analyses and generate value-added products for their own use or for further distribution in a variety of media.

As in the proverbial recipe for rabbit stew, where the first step instructs the cook to first catch the rabbit, federal statistical data users need to know where to find the appropriate data before any sort of analysis or interpretation will be possible. As the proverb implies, this first step is not only vitally important, it is not easy to carry out. Similarly, finding the federal data to meet a particular need is a necessity, and can be a difficult task for members of the lay public.

A few basic facts about the extent of federal statistics make it easy to see why an untrained individual might have difficulty locating needed information. The fifteen key agencies that are ICSP members each have huge data repositories. In addition, there are nearly ninety other agencies or departments linked to FedStats as important providers of federal statistics. In other words, any of over 100 agencies might own the particular data a user wants. Even if that user had the time and motivation to acquire some broad basic knowledge about the kinds of statistics associated with all of the agencies, additional subtleties add difficulties to a search for data. Suppose the data pertains to physical health. Here are just a few of the possible agency sources for this kind of: National Center for Health Statistics; Center for Disease Control and Prevention; and the National

Institutes of Health (and within NIH, several specialized institutes.) Clearly some kind of navigational aid is needed for the average educated citizen to make effective use of the broad range of federal data sources on the Web.

FedStats was conceived of and designed to be such a navigational aid. It is a “one-stop” or “gateway” Website with features to help an inexperienced data user find her way around the universe of federal statistics.

Figure 1 below shows the FedStats home page at the time of the study. This version of FedStats is based on a wide variety of suggestions, proposals, and other inputs from the members of a Task Force overseeing FedStats. As additional ideas were generated, they were added to FedStats piecemeal. Figure 1 shows that the result is a fairly complex site with a bewildering variety of functions.

Figure 1. FedStats Home Page, November 1999



In Figure 1 the three areas circled in red contain clickable links. Each link is intended to indicate what aspect of federal statistical information it is a “doorway” into. Secondary pages behind these top-level links provide guidance to help the user further narrow and focus a search for relevant information. Ultimately, links at deeper levels on the FedStats site will lead users to a place on a site maintained by one of the participating statistical agencies that is “near” their ultimate search objective.

Last year the FedStats Task Force, a group consisting of staff from the major statistical agencies concerned with information dissemination along with the site maintenance team that is responsible for hand-so site management, became concerned that the site had grown considerably since its creation without any formal usability testing. They decided that a methodical and comprehensive usability evaluation was needed to develop objective, empirical evidence to demonstrate that the site was serving its intended purpose effectively. This paper describes how the test was conducted, summarizes major findings, and finally displays a home page redesign based on the test findings that will replace the current home page once further testing empirically confirms that it is more usable.

Methodology

Three FedStats Task Force agencies, the Energy Information Administration (EIA), Bureau of Justice Statistics (BJS) and Bureau of Labor Statistics (BLS) collaborated with a usability consultant from Human Factors International (HFI) to plan and conduct the FedStats usability test. EIA generously provided the funding for HFI’s consultant services. BLS recruited test participants and provided the usability laboratory facility for the test. Staff from all three agencies worked with HFI to define the goals for FedStats usability testing and to brief the consultant on areas of importance, FedStats user goals and common use models as a basis for the usability test design.

Based on these preparatory discussions, the HFI consultant drafted a document that detailed the testing process including a set of realistic user tasks. Key usability metrics were included in this document. The agency representatives reviewed the plan and worked with HFI to refine and finalize it.

BLS recruited and scheduled test sessions with 16 people, drawn from a pool representing a variety of professions where federal statistics are commonly used, such as journalism, policy research, or association work. The sessions were held during normal working hours in BLS' usability test facility. Participants were given cash honoraria for their assistance.

Only eleven of the 16 recruited participants actually took part in the test due to a variety of events that prevented the other five from keeping their appointments. All test sessions were completed in two working days. The HFI consultant conducted the test sessions, while FedStats team members watched the sessions on a television monitor in another room of the usability laboratory. These team members were responsible for recording test results, allowing the consultant to focus on session management. These notes were delivered to the consultant for use in preparing her report.

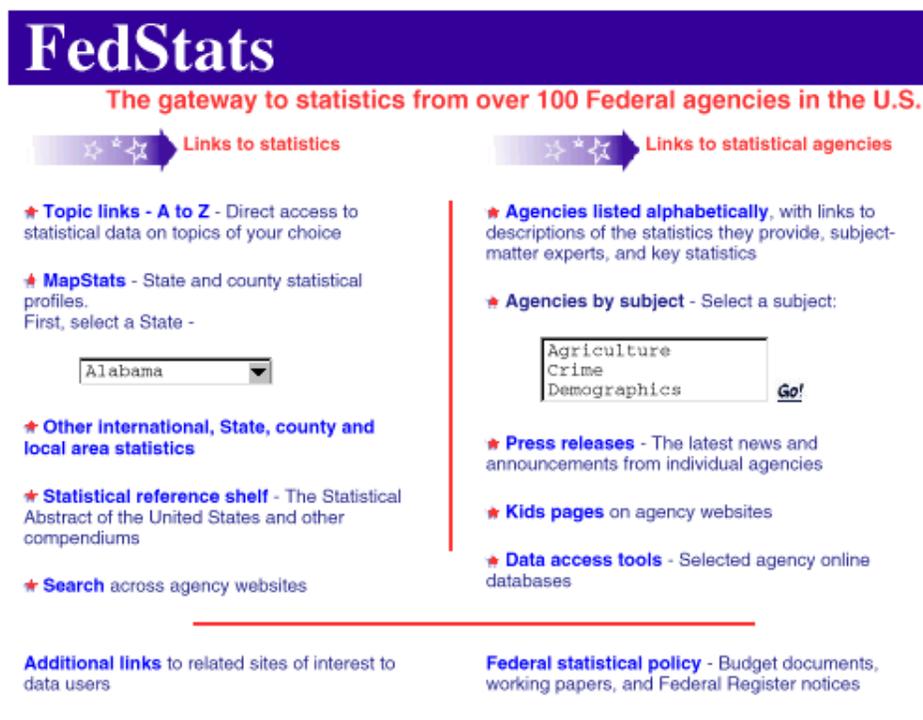
The HFI consultant applied the defined metrics to session descriptions to quantify usability problems to the extent possible, and combined these quantitative findings with more qualitative analyses to prepare a report. This report took the form of a briefing package that showed usability problems with the current Website, and presented potential solutions to resolve problems. The briefing also highlighted those features on the Website that generated positive feedback. The report used screenshots to draw attention to specific areas of concern.

The HFI consultant, supported by the agency team members, presented the findings and recommendations to the entire FedStats Task Force, and later to the ICSP itself.

Major Findings and Consequent Design Recommendations

This section summarizes the major findings of the study, along with recommendations for redesign derived from these. The prime focus of this summary is the FedStats home page. Findings and recommendations for secondary pages are tentative and based on less data; their redesign will require more study. Before presenting a tabulation of major findings, here is a screen image of a redesigned FedStats home page that is based on those findings. Further usability testing of this redesign is planned for the near future.

Figure 2: Redesigned FedStats Home Page



Navigation Efficiency and Context

- Users were confused about whether to navigate from the left menu buttons or the right set of hyperlinks → · Used only text instead of buttons for hyperlinks with all of equal size. Did not repeat any links in left and right lists or in footer.
- Buttons/links did not appear to users to be ordered or grouped → · Organized or grouped links with some similarity together into four major groupings: Links to statistics, Links to agencies, Other materials (Additional links and Federal statistical policy), and links about this site in the footer. Added emphasis to the first two by placement.
- The order and descriptions on the site map appeared to make more sense to users → · We borrowed the Site Map feature of longer descriptions.

Long Paragraphs or Pages of Text

- Users do not like to read a lot of text, which was found throughout the FedStats site. → · Summarized the paragraph on the homepage into one phrase and added an "About FedStats" link in the footer where we plan to add a fuller description of FedStats for interested users. Additional editing of agency and program descriptions is planned.

Long Scrolling Pages of Links

- Users may not find what they want because it takes too long or they miss content → · The agency list has been segmented so users can link to the major agencies or within the listing of all agencies using alphabet links.

Search Engine Use and Effectiveness

- The home page should help most users find what they want without resorting to using the search engine. → · Since the search only searches agency sites we listed it under links to agencies and are not including a link to the search page on pages deeper into the site where the search scope may be misunderstood.

Use of Links and Features

- Most users did not know what the labels meant so that interpretations varied widely and were often incorrect. → · Many link labels were renamed to clarify what was on those pages and additional descriptive text was added to many links

Use of Links and Features—Details

- **A to Z** - Meaning unclear, many users thought it meant a list of agencies. Almost none thought it was topic links → · **Topic links - A to Z** Direct access to statistics on topics of your choice
- **Regional Statistics** - Users were looking for regions. Site map description was clearer. → · **Other international, State, county, and local area statistics** - Used site map description
- **Fast Facts** - Users expected to get numbers quickly not find compendiums of numbers → · **Statistical Reference Shelf** - The Statistical Abstract of the United States and other compendia (exactly what it is)
- **Programs** - Users did not know what to expect from the term but liked the concept when they explored it → · **Agencies by program** with drop down to give a scent of the subjects covered. We will need to revise the descriptions and add key words.

- **Kids pages** - Users knew where to go for information for a child but were looking for meaningful terms instead of agency names. FedStats doesn't really have its own Kids page →
 - **Data Access Tools** - No one knew what data access tools meant. The general consensus was that this linked to agency databases →
 - **Contacts** - Users were confused about the difference between contacts and feedback →
 - **Additional links** - The meaning of "Additional Links" was not clear, and the text link was not repeated elsewhere. □ →
 - **Policy** - No users looked for budget-related information under Policy. The meaning of "policy" was not clear →
 - **Privacy and Accessibility** - users were very confused about what the terms meant and the context they were in did not help →
- **Kids pages** - by placing it under the agency listings, we thought that the link was more likely to meet expectations. We also want to reorganize this page topically.
 - **Data Access Tools** - Selected agency online databases. We could not come up with another title so we expanded the description. May need to do additional work on this page and testing of the link.
 - Contacts were merged into the agency list and Feedback was placed in the footer with all of the other site specific materials
 - **Additional links** - To related sites of interest to data users. We looked at the list of links and felt that the additional words described it better. Also by not grouping it with agency links we thought it would be clearer.
 - **Federal statistical policy** - Budget documents, working papers, and Federal Register notices
 - By expanding the description we hope that users will know exactly what is there. Also reinforced the placement.
 - Both have been expanded and moved to the footer, so the context that these apply to the site it clearer.