

Non-specialist Users and their Information Needs: An exploratory study at the U.S. Bureau of Labor Statistics

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1. Background. Official statistical agencies are increasingly recognizing the key role that dissemination plays with regard to accomplishing their public missions, and invest in ways to improve the public's access to and understanding of statistical information products. Like other agencies, BLS focuses a significant portion of its output on the information needs of traditional core user groups, i.e., policy-makers, public officials and administrators, and the media. At the same time, BLS is gradually recognizing the needs of other user groups (Levy & Conrad, 2002). Key statistics released by BLS involve the consumer price index (CPI) and indicators regarding employment and unemployment, wages, and other areas. Data regarding changes in these indicators are of interest not only to core user groups but also to a variety of groups within the general public.

According to Marchionini (2001), these other user groups are steadily growing and include business users and academics, but also senior citizens, K-12 or college level students and teachers, and a variety of non-specialists and casual users. With an increasing usage of the Internet as a primary data retrieval tool (BLS had over 24 million entries into its website in 2003), users' expectations and demands are changing, both in terms of the scope, comprehensiveness and specificity of the data they expect to obtain, and in terms of the immediacy and accessibility of data. Yet, information products disseminated by statistics agencies are at times quite complex, and comprehending them requires varying levels of statistical literacy and other skills (Gal, 2002, 2003).

Studies conducted as part of the *GovStat* project (Hert, Denn, & Haas, 2004) have provided valuable information regarding ways to improve users' ability to retrieve and comprehend statistical information on the BLS website, especially data in tabular form. Relatively little, however, has been done to map all key user groups and their needs. According to Murray and Gal (2002), the design of solutions for information needs of non-specialist users should be based not only on understanding of their needs but also of their skills as they apply to specific tasks users have to perform.

This project was conducted to provide a basis for designing an on-line help system which can improve dissemination of BLS data to non-specialists. Such a system can enable users to better use and comprehend existing products, while at the same time reduce load on helpdesk personnel. We know (e.g., Marchionini, 2001) that non-specialists run into various difficulties, such as in finding the data they need, understanding how indicators are derived, or realizing the limitations on available data. This talk will present preliminary findings from an exploratory study of the questions or queries that non-specialists present to helpdesk personnel when they already reach a table or graph they need on the BLS website, and now face the specific task of having to make sense of the information they found, especially regarding core indicators such as the CPI.

2. Method. Questionnaires were circulated by e-mail to ten specialists from the BLS main office and several regional offices who routinely respond to queries of both specialists and non-specialists via phone or e-mail. Five additional specialists were later interviewed at the BLS Main office and one regional office. Questions focused on five overlapping areas: (1). Typical problems of non-

specialists that involve reading or interpreting information inside tables/graphs of CPI, unemployment, or other key indicators. (2). Computations that non-specialists ask for help with. (3). Purposes or tasks that non-specialists have regarding information in tables/graphs of key indicators (i.e., why they need it). (4). A "wish-list" regarding capabilities or skills that non-specialists could have or steps they could perform on their own. (5). A "wish-list" regarding capabilities of an online help facility on the BLS website that could further help non-specialists. The interviews were designed to collect further information about these areas, but also to better identify different types of non-specialist users or subgroups and their specific needs.

3. Findings. Analysis of results from this exploratory study is presently underway, but certain preliminary observations can be sketched. First, non-specialists include not only subgroups within the general public but also non-sophisticated users who are part of traditional core client groups, such as administrative staff of policy-makers. Second, the ability of non-specialist users to comprehend statistical information offered in tabular form, or to generate indicator data arranged according to their information needs, is limited by various design features of the BLS website. Third, many non-specialists have trouble with the same few key tasks, such as converting reported CPI values to percents (i.e., to know what was the percent change between two time points), comprehending the notion of a base year, and others. Finally, respondents also described several mathematical and statistical terms or ideas which are explicit or implicit in the tables, metadata, and supporting explanations on the BLS website, with which non-specialists have trouble.

4. Conclusions and implications. While preliminary, the findings point to several areas that can be addressed to increase usability and comprehensibility by non-specialist BLS users. These findings can serve as a basis for creating design specification for a contextualized educational tool that can be accessed when users reach certain locations on the BLS website. This help tool can provide context-sensitive assistance but also more principled information, depending on the level of users' needs and skills. The methodology used here can be adapted to the needs of other agencies.

Based on the findings, a more detailed follow-up study will collect information from helpdesk personnel to help in prioritizing the problem areas to be addressed. Helpdesk personnel and BLS specialists should be involved in the creation of such a tool as they routinely devise ways to help novices with navigating and making sense of complex data displays and with needed computations. Data should also be collected regarding statistical literacy or other relevant knowledge of non-specialist users which affects the interpretation of common tables and displays offered by BLS. The design of context-specific online help tools seems like a possible way to augment existing dissemination efforts: it can help users derive more value from existing statistical data displays and reports, while reducing need for helpdesk support.

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