

Reinventing and Evaluating a Redesigned Occupational Outlook Handbook September 2013

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Abstract

The Occupational Outlook Handbook (OOH) is the U.S. government's premier source of career guidance and features hundreds of occupations. For years, both print and online versions existed, but the original online version of the OOH was not designed specifically for the Web and retained many of the same features as the printed document. As use of the OOH has increasingly shifted to the Web version in recent years, an effort was undertaken to improve the online OOH and to optimize its presentation on the Web. In March 2012, the Bureau of Labor Statistics implemented a new online OOH specifically redesigned for the Web. This paper will describe the process used to "reinvent" the OOH. It will review the steps taken to assess stakeholder requirements and describe evaluation strategies. Findings show that the redesign has been highly effective and was well received by both career experts as well as the general audience that uses the online OOH.

Key Words: Career information; website design; website evaluation

1. Background

The Occupational Outlook (OOH) has been in existence since 1949, features hundreds of occupations, and is the U.S. government's premier source of career guidance. When the OOH was first put online, it was not designed specifically for the Web and therefore retained many of the same features as the printed document. Although printed versions of the OOH continue to be popular with some audiences, the online version has clearly become the preferred option, especially with students.

To ensure the OOH met the needs of its users, the redesign effort involved three phases: research, design, and evaluation. A preliminary research phase employed focus groups with high school career specialists and college career counselors to obtain their feedback about the strengths and weaknesses of the existing OOH (both paper and online versions). In addition, in-depth, individual interviews were conducted with technical users of the OOH for the same purpose. Finally, to obtain more quantitative information about experiences actually using the OOH, usability testing was conducted with high school students, college students, employed workers, and job seekers to determine how effectively and efficiently these groups could find information in the online OOH and to obtain baseline performance data on the current document. In addition, usability experts in the Behavioral Science Research Center of BLS conducted an expert review of the online OOH, and then pulled together feedback from all the stakeholders to identify ways in which the OOH could be improved including improvements in navigation, formatting, and content.

An internal BLS team also reviewed 12 career-related and two non-career websites to identify desirable design features that could improve the attractiveness and effectiveness

of the online OOH. In addition, a previous BLS team that had gone through a similar redesign effort of the BLS public website shared best practices and lessons that they learned in their redesign process.

The research phase produced a long list of customer requirements prioritized as “must have,” “nice to have,” and “won’t/can’t do” at this time. Some of the “must have” findings regarding customer requirements included the following:

- Keep the current coverage of occupations and level of detail about each occupation.
- Provide printable summaries of occupations.
- Provide overviews of topics with links to additional, more detailed content.
- Segment the information by covering different topics on different pages.
- Liven up the site and make it more interactive and attractive through the use of improved formatting, icons, graphs, tables, and photos.
- Use more easily understood labels and headings to help readers know where they were, and where they might want to go. Avoid jargon whenever possible.
- Improve navigation on the site (make it easier to find information).
- Use plain language to simplify the writing style (write for the Web), and make the information easier to understand.

Once the preceding requirements were identified, a different team then focused on developing and testing prototypes of key sections of the online OOH. For example, the home page, landing pages (i.e., pages with an abbreviated, descriptive list of occupations in a particular career field), search functions, and presentations of search results. As part of this process, additional stakeholder feedback was obtained from college career counselors, students at various grade levels, and employed and unemployed workers using focus groups, usability testing, and card sorting. Feedback was also sought from BLS staff and key customers in other federal agencies (for example, O*Net, OneStopCareer staff, etc.). In addition to simplifying the writing, some of the key redesign features that were implemented included the changes listed below (see Attachment A for illustrations of the pre- vs. post-redesign home page and occupational descriptions):

- Use of multiple navigation methods (for example, tabs, links, improved search function)
- Presentation of an overview summary (called “Quick Facts”) on the first page of an occupational description
- Use of formatting that simplified scanning
- Widespread use of photos
- Alternative formats and use of color to improve the attractiveness of the overall visual design

2. Evaluation Methods

A variety of evaluation approaches, including the use of quantitative and qualitative methods, were used to assess the success of the redesign effort.

Usability Testing. Heavy reliance was placed on usability testing, which was used on an iterative basis as new prototypes were developed. Usability testing involved small samples (10-15) of high school and college students, as well as employed and unemployed adult workers. Key performance indicators included task success when

searching for occupational information, time to complete tasks, and satisfaction ratings with the site.

Focus Groups. Qualitative assessments relied on focus groups conducted with high school and career counselors (some of whom were involved from the beginning of the redesign and saw the pre- and post-redesign versions of the website), as well as assessments by career experts within BLS and other agencies.

Survey Feedback. Once the redesigned OOH was placed online, a larger audience was tapped for reactions. A link to an online survey was placed on the OOH Web pages, inviting visitors to give feedback (2,213 visitors responded). In addition, a similar survey was sent directly to members of the National Association of Colleges and Employers (NACE), which is a professional organization for campus recruiters and career services professionals (357 people completed the survey). The results for some of the key survey questions are covered below.

As shown in Figure 1, one key difference between the two populations is that the NACE members were more likely to be familiar with the previous version of the OOH (94%) than the general population (61%), ($z = 20.894, p < 0.001$). This outcome is consistent with past assessments of the OOH, which have found that about 30-40 percent of monthly online visitors are first-time users.

Although both groups (general audience and NACE members) were positive toward the redesigned OOH, more of the NACE respondents selected the “*much improved*” option ($z = 7.746, p < 0.001$), which probably reflects the NACE membership’s greater familiarity with the previous version of the OOH. For example, about 50 percent of the NACE respondents said the OOH was much improved versus about 29 percent of the general respondents. In both groups, very small percentages (under 4 percent) said the OOH was *somewhat* or *much worse* after the redesign, with significantly fewer of the NACE group selecting a negative rating ($z = 2.565, p < 0.01$).

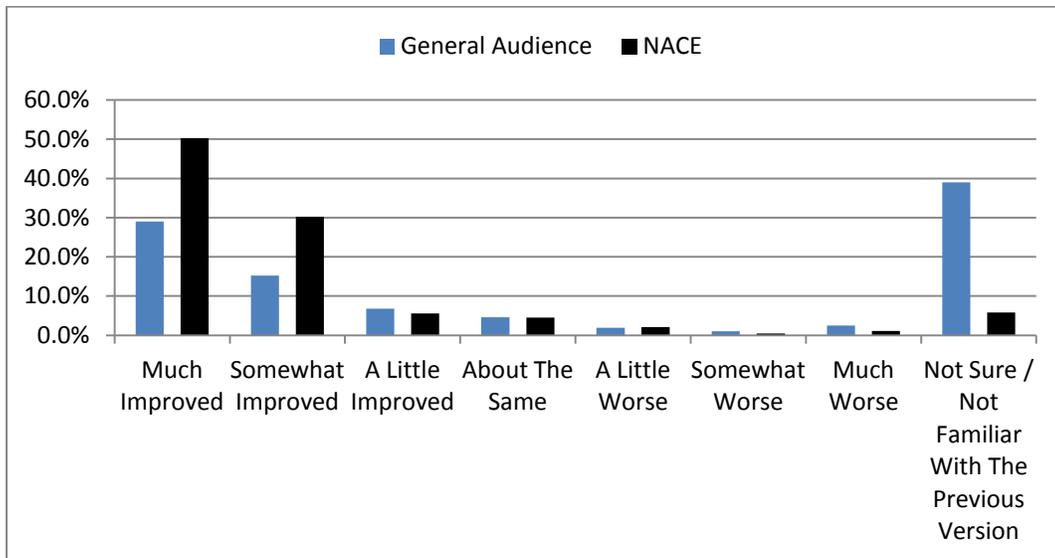


Figure 1: How does the redesigned Occupational Outlook Handbook compare to the previous version?

As mentioned previously, a key objective in the redesign of the OOH was to keep the same level of detail as in the original version, as well as the same coverage of occupations. As shown in Figure 2, about 87 percent of all the NACE respondents selected either *successful* or *very successful* when asked if this objective was achieved versus 68 percent of the general respondents. Only a very small percentage of respondents in each group thought the effort was unsuccessful.

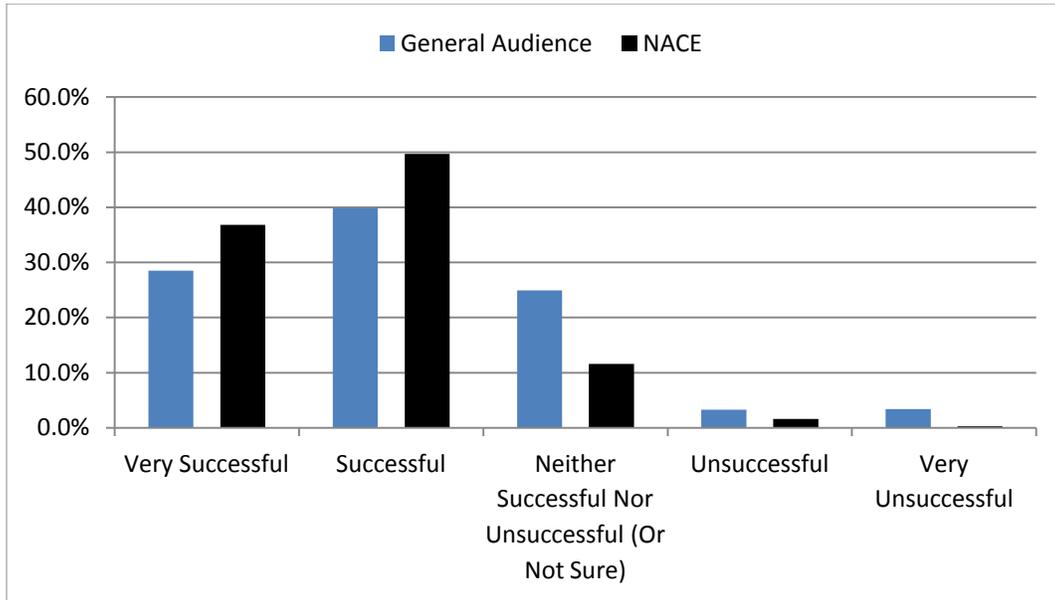


Figure 2: An attempt was made to retain important career information in the redesigned Handbook. How successful was this effort?

Another key objective was to make it easier to find, or navigate, to information. As shown in Figure 3, both audiences again found that the redesign achieved this objective, with over 86 percent of the NACE respondents and 74 percent of the general audience respondents saying that this effort was *successful* or *very successful*.

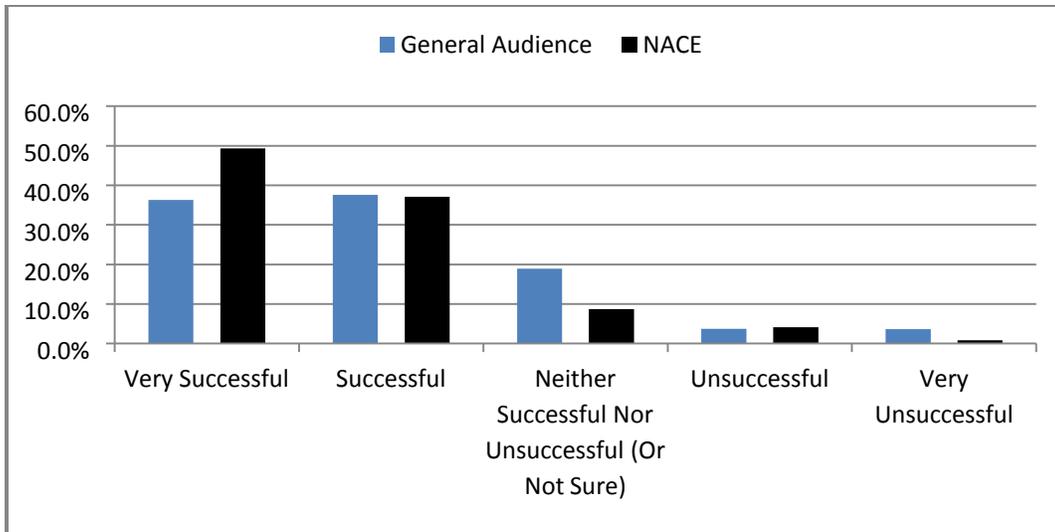


Figure 3: The formatting and layout of the Handbook were changed to improve navigation, or the ease of finding information about a career. How successful was this effort?

In early user testing with the original online Handbook, students frequently told us that if they did not find a website to be attractive and easy to use, they would quickly go elsewhere. Both groups of respondents found that the effort to improve the attractiveness of the OOH had been successful.

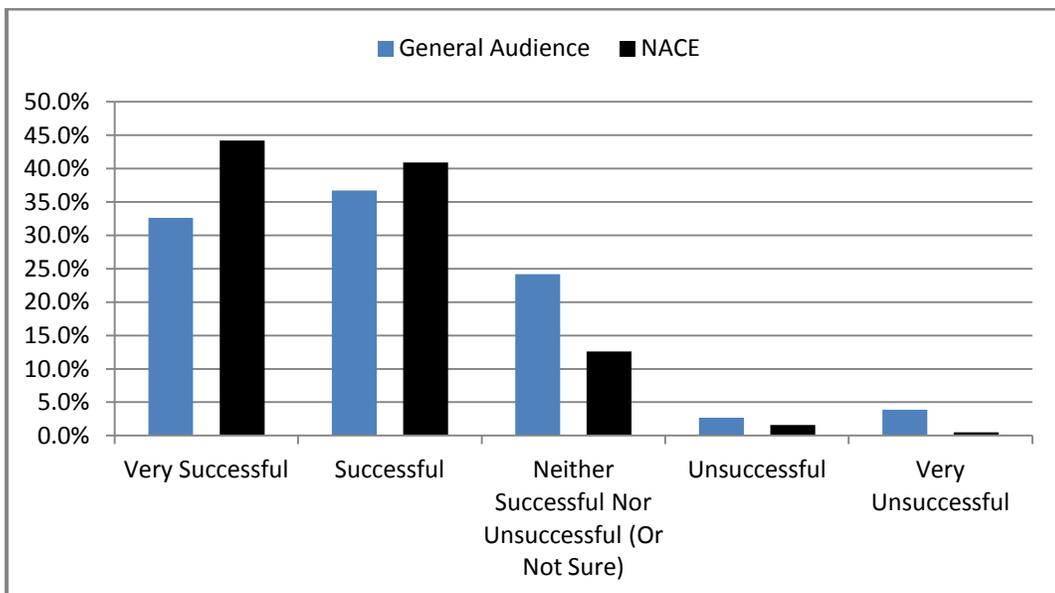


Figure 4: The formatting and layout were changed to improve the attractiveness of the Handbook so that a wider audience would be more likely to use it. How successful was this effort?

Since high school students are one of the primary audiences of the OOH, a key objective was to improve the readability of the content so that information would be more accessible and understandable to a wider audience. As shown in the next figure, this effort was also judged to be successful by both audiences.

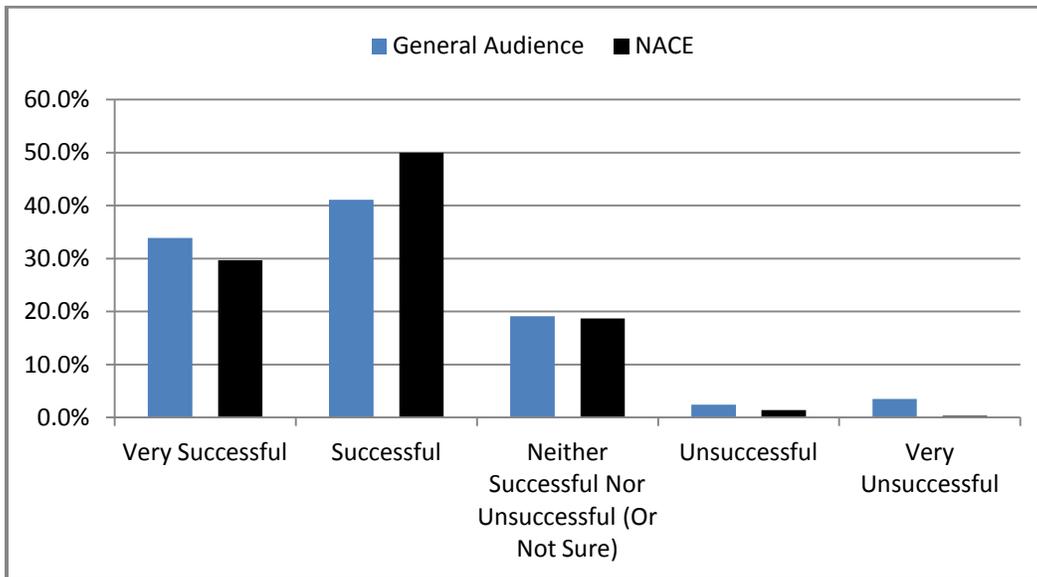


Figure 5: The writing style and formatting were changed to improve readability for a wider audience. How successful was this effort?

Since there are a lot of websites that provide career information, a key objective was ensuring that the OOH continued to uphold high standards of excellence and remains a primary source of career information. As shown in the following figure, both groups of respondents gave overwhelmingly positive ratings to the redesigned online OOH.

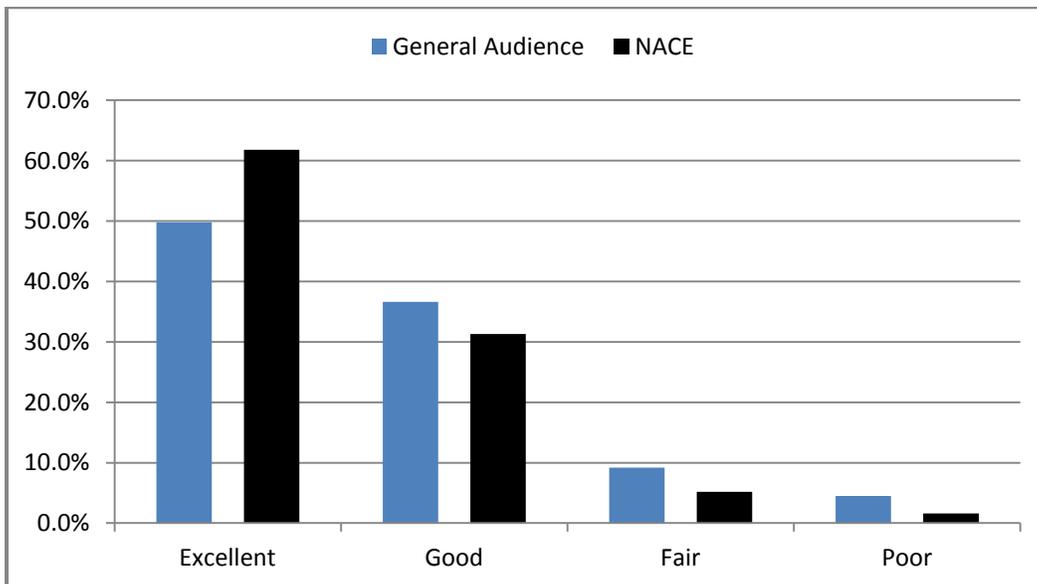


Figure 6: How would you rate the redesigned Handbook as a source of career information?

2.1 ACSI Measure

The Bureau of Labor Statistics has contracted with Foresee for many years to produce the American Customer Satisfaction Index (ACSI) for BLS public website on a monthly

basis. The ACSI index was developed by the National Quality Research Center at the University of Michigan (Fornell et al., 1996).

The ACSI model uses a series of econometric equations to define the relationships between elements of satisfaction and overall satisfaction, and between overall satisfaction and future behaviors (for example, likelihood of returning to the website or recommending the site to someone else). The ACSI provides a 100-point scale for measuring the satisfaction of visitors on an ongoing basis, and can be used to diagnose and prioritize areas for improvement by identifying the impact of change on satisfaction and customers' future behavior. According to the Foresee methodology, monthly sample sizes of at least 300 will detect a difference of two points (+ or -) at a 95 percent confidence level (sample sizes for the evaluation of the BLS website reported in this paper always exceeded 300).¹

Since the ACSI has been used continuously on the BLS public website for many years, we decided to analyze scores for the three months directly preceding and immediately following implementation of the redesigned OOH. The redesigned OOH was implemented on March 28, 2012, so the pre-redesign period was January 1, 2012 to March 28, 2012, and the post-redesign time frame was April 1, 2012 to August 31, 2012.

During this time period, 4,030 visitors completed surveys. The sample was chosen by randomly offering the survey to four percent of visitors who viewed two or more pages of the OOH website. When visitors accepted the invitation, they received the survey when they left the site.

2.1.1 Overall Satisfaction

The key finding was that overall satisfaction significantly increased by three points for OOH visitors after the redesign was implemented in March 2012. Gains in the "drivers" (elements) of satisfaction included improvement in ratings of *Search* (+4), *Functionality* (+3), *Look & Feel* (+3), and *Navigation* (+4.5). In addition, ratings of *Likelihood to Return* increased, along with the *Likelihood of Recommending* the website to others. The overall satisfaction scores for the OOH between January and August 2012 are shown in Figure 7. As a comparison, the overall satisfaction scores for the entire BLS public website shown are in Figure 8 (Note: These include the OOH satisfaction scores).

¹ See www.ForeSeeResults.com.

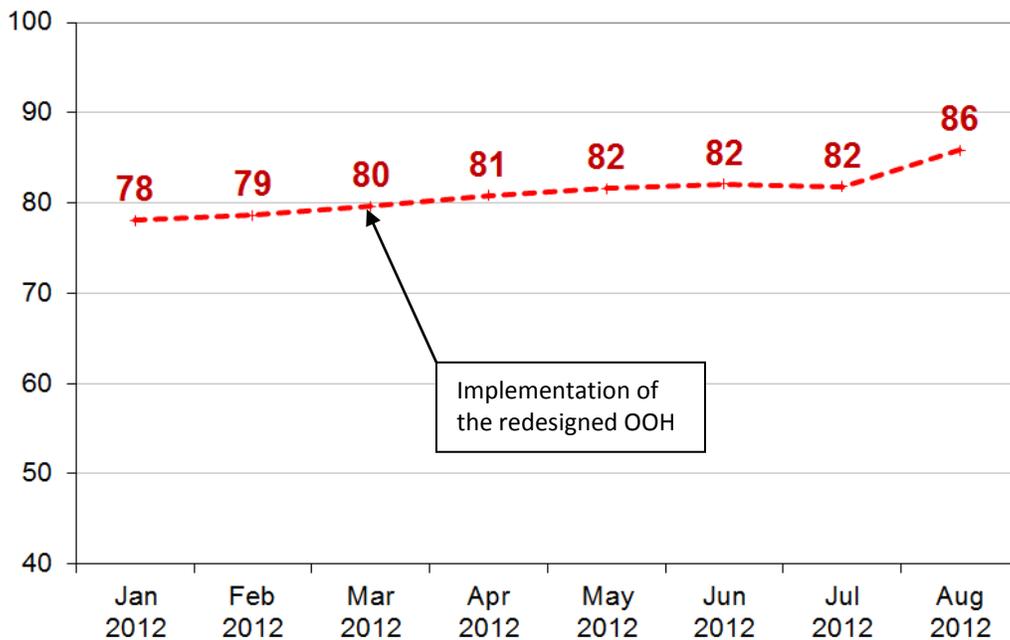


Figure 7: Overall Satisfaction Score by Month for the OOH

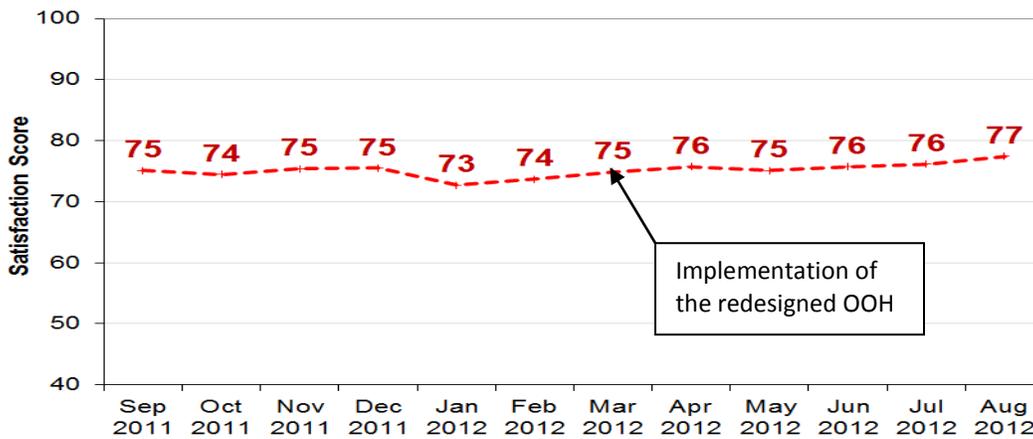


Figure 8: Overall Satisfaction Score by Month for the Entire BLS Public Website

As shown in the preceding figures, satisfaction ratings for the online OOH trend higher than satisfaction ratings for the overall BLS website. Responses to separate elements of the Foresee survey were summarized for the January 1, 2012, to August 31, 2012, timeframe (12,116 respondents). As shown in Table 1, OOH visitors have higher satisfaction scores than other visitors to the BLS public website on separate rating elements, as well as on overall satisfaction.

Table 1: Satisfaction Scores by Respondent Population

	Satisfaction	Recommend to others	Likelihood of returning in future	N
OOH visitors	81	88	86	5,998
All other visitors to the BLS public website (BLS.gov)	70	84	78	5,876

As shown in the next figure, once the enhancements to the OOH were implemented, the monthly scores for the top priority elements comprising the ACSI score for the OOH jumped to higher levels, leveled out for a few months, and then jumped again in August 2012.

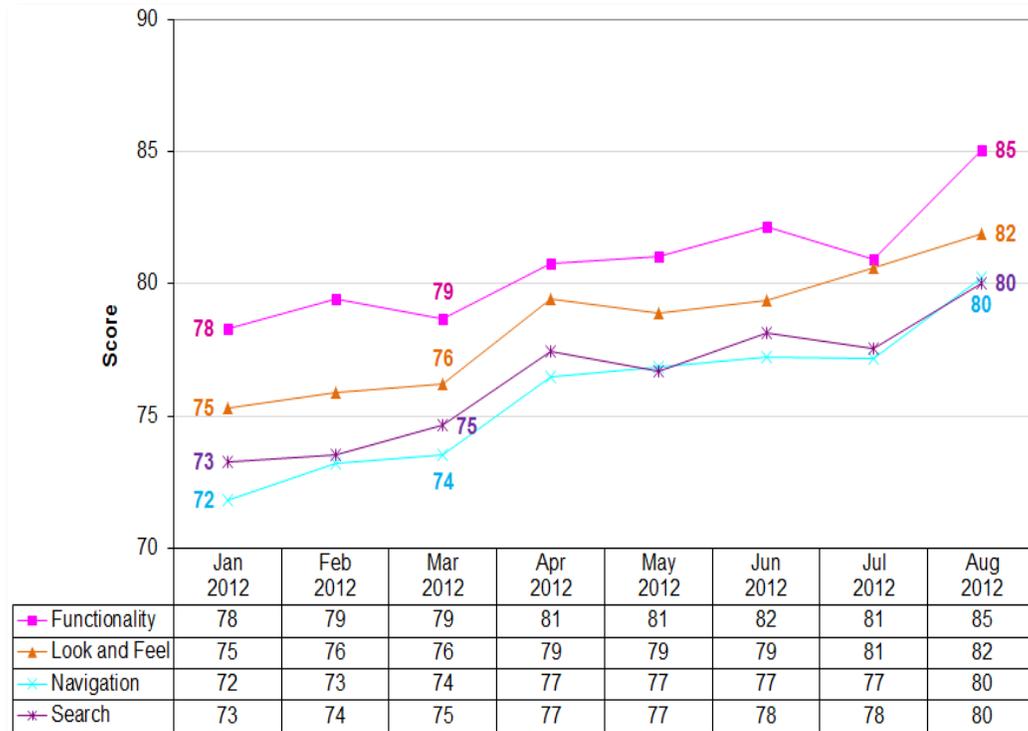


Figure 9: Pre- vs Post-Trends on Key Usability Elements for the OOH Site

Data over a longer time period for the OOH site are shown in Figure 10. Previous internal research with the ACSI score has shown that it tends to increase in the June through August timeframe (reflecting a decrease in the number of students using the OOH), and then drops to lower levels in the fall (September – November).

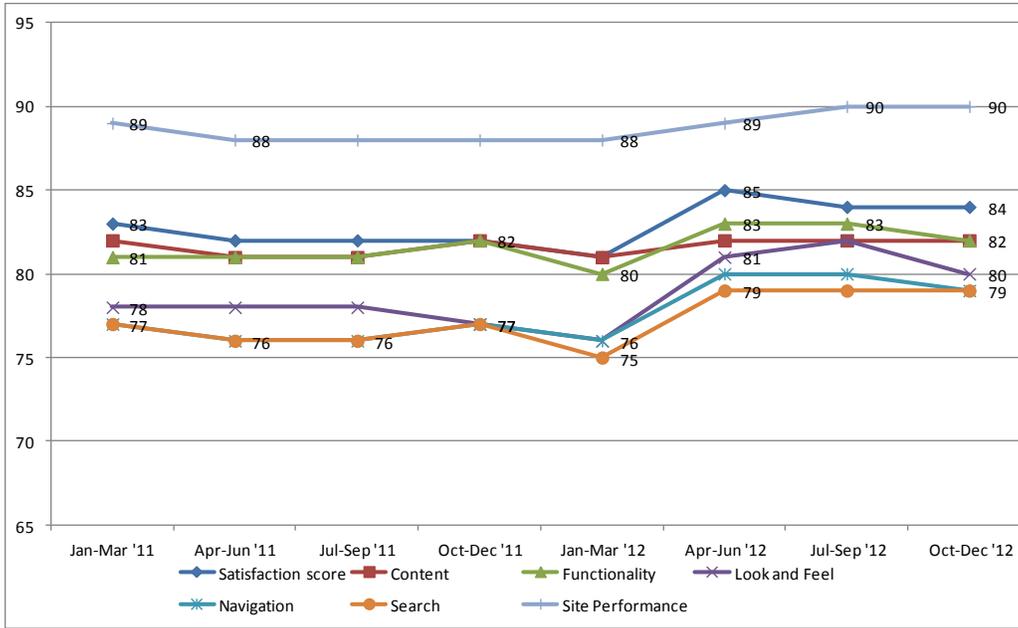


Figure 10: Ratings of Elements for the OOH Site Over A 1-Year Time Span

2.2 Other Measures: Satisfaction by Self-Identified Visitor Frequency and Roles

Greater satisfaction with the revised OOH was observed across all visitor frequency groups and nearly all self-identified role groups (students, teachers, researchers, etc.). As shown in Table 2, satisfaction varied little among the different visitor frequency groups.

Table 2: Overall Satisfaction Scores of Different Visitor Groups since the Redesign

	Pre-Redesign	Post-Redesign	Difference
First-time visitors	79	82	+3
Infrequent visitors	79	82	+3
Frequent visitors	80	84	+4

And, as shown in Table 3, the Educational Faculty, Adviser or Administrator group demonstrated the largest increase in satisfaction (7 points). This increase reflects the higher satisfaction ratings reported previously in the separate online survey completed by members of the National Association of Colleges and Employers (NACE), which comprises a similar membership.

Table 3: Overall Satisfaction Scores of Selected Visitors (Roles) Since the Redesign

	Percentage of Visitors	Pre-Redesign	Post-Redesign	Change
Elementary, middle or high school students	11%	80	81	+1
College or graduate	22%	81	85	+4
Educational Faculty, Adviser or Administrator	7%	78	85	+7

2.2.1 Success Finding Desired Information

Since the redesign was implemented, more OOH visitors report finding all the information they were seeking (44% post-redesign vs. 42% pre-redesign).

2.2.2 Other Measures: Web Metrics

Pre- and post- redesign Web usage statistics, based on page views², were evaluated for three different one-year reference frames, each coinciding with the release of a new set of employment projections. To simplify and create accurate comparisons, the reference frames begin with the first full month after a new OOH edition was published, typically in the month of December³. (See Table 4.) As a reminder, the redesigned OOH was implemented online in March 2012.

Table 4: Reference frames for the last three OOH editions

Employment Projection Set	OOH Edition	Reference frame
2006-16	2008-09	1/1/2008-12/31/2008
2008-18	2010-11	1/1/2010-12/31/2010
2010-20	2012-13	4/1/2012-3/31/2013

The 2008-09 OOH had more than 88 million page views during its 2008 reference frame, with its share of total BLS web traffic ranging from 22 to 33 percent each month. However, page views of the 2010-11 OOH lost pace with the rest of the BLS site, falling to just over 82 million in 2010. During this time, OOH usage declined by more than 7 percent while usage for the entire BLS site grew by over 28 percent. One possible reason for the decline in OOH usage was the move to a new search tool that enabled users to find information more easily, thus reducing the number of “clicks” (thus, page views) required to find the desired occupation.

With the release of the reinvented OOH in March 2012, page views rose to 117 million, an increase of 42 percent over the previous edition. Some of the increased usage is attributable to factors such as the addition of a mobile site and increases in the number of individual occupational profiles from 289 to 341. To determine more fully the impact of the redesigned profiles on usage, page views for the 289 profiles that had occupational

² One page view is a request from a visitor’s browser for a displayable Web page, generally an HTML file. In general, images and other imbedded content are not considered page views. Page views do not differentiate between one user who visits a page ten times and ten unique visitors.

³ The most recent edition was released in late March 2012.

coverage equivalent to the 2010-11 OOH were compared. Among this group of equivalent profiles, usage grew by 10.8 percent.

Table 5: Largest sources of increased OOH views

Description	2010-11 views	2012-13 views	Numeric change	Percent change
OOH website	82,167,134	117,047,028	34,879,894	42.4%
Mobile OOH	-	8,897,298	8,897,298	
Landing page total	4,488,013	9,649,733	5,161,720	115.0%
Comparable profiles	44,395,202	49,203,804	4,808,602	10.8%
New occupation finder	-	1,558,450	1,558,450	-
OOH index	2,479,497	3,675,920	1,196,423	48.3%

3. Discussion

The „reinvention“ of the Occupational Outlook Handbook followed a structured approach that spanned several years.

- Determine stakeholder needs, satisfaction, and suggested changes.
- Establish baseline measures for standard information-seeking tasks with different groups (for example, high school students, college students, adult workers).
- Develop and usability test prototypes for key components of the website (home page, occupational descriptions, landing pages, search functions) with representative groups of users.
- Implement the redesigned OOH.
- Evaluate satisfaction among different user groups based on the specific goals of the redesign (for example, maintain same level of detail and coverage of occupations, improve navigation and ease of finding information, improve writing and formatting).

The quantitative and qualitative sources of evaluation data strongly suggest that the redesign of the OOH was successful. Career specialists who were familiar with the pre-redesign version gave high scores to the redesigned online OOH when comparing the pre- and post-redesign versions.

Moreover, the ACSI score showed a statistically significant increase on several components of satisfaction immediately after implementation of the redesigned OOH. Although the representativeness of the ACSI sample is unknown, it is relatively large, and time series data are available. The significant increase in satisfaction could possibly have been caused by other factors, but none appear able to explain the large increases. For example, it’s worth noting that satisfaction ratings for first-time visitors to the OOH were significantly higher after implementation of the redesign.

References

- Fornell, C; Johnson M. D.; Anderson, E. W.; Cha, J; and Bryant, B. E. (1996). The American Customer Satisfaction Index: Nature, Purpose, and Findings, *Journal of Marketing*, Vol. 60, No. 4 (Oct., 1996), pp. 7-18, Article Stable URL: <http://www.jstor.org/stable/1251898>

Attachment A – Illustrations

Original Home Page for the Occupational Outlook Handbook

The screenshot shows the original home page for the Occupational Outlook Handbook (OOH) from the 2008-09 edition. The page is part of the Bureau of Labor Statistics website, which is under the United States Department of Labor. The URL is www.bls.gov. The page features a search bar at the top with the text "All BLS.gov" and a search button. Below the search bar, there is a navigation menu with tabs for "Home", "Subject Areas", "Databases & Tables", "Publications", and "Economic Releases". The "Home" tab is selected. The main heading is "Occupational Outlook Handbook, 2008-09 Edition". Below this, there is a section titled "Occupational Outlook Handbook (OOH), 2008-09 Edition" with a sub-heading "For hundreds of different types of jobs—such as [teacher](#), [lawyer](#), and [nurse](#)—the *Occupational Outlook Handbook* tells you:". This section lists several key features: training and education needed, earnings, expected job prospects, what workers do on the job, and working conditions. There is also a section for "Ways to use the Occupational Outlook Handbook site:" with a numbered list starting with "1. To find out about a specific occupation or topic, use the [Search box](#) that is on every page—enter your search". A small image of the handbook cover is visible on the right side.

Redesigned Home Page for the Occupational Outlook Handbook

The screenshot shows the redesigned home page for the Occupational Outlook Handbook. The page has a more modern and user-friendly layout. At the top, there is a navigation bar with tabs for "Home", "Subject Areas", "Databases & Tools", "Publications", "Economic Releases", and "Beta". Below this, there is a search bar labeled "Search Handbook". The main heading is "OCCUPATIONAL OUTLOOK HANDBOOK". Below the heading, there is a section titled "Home" with a sub-heading "Occupational Outlook Handbook >". The page features a large QR code on the left side, which is linked to the mobile version of the site. To the right of the QR code, there is a text box that says "Now you can easily browse the Occupational Outlook Handbook on your mobile phone or tablet. Visit www.bls.gov/ooh/mobile". Below the QR code and text, there is a section titled "SELECT OCCUPATIONS BY" with several dropdown menus for filtering results: "2010 Median Pay", "Entry-Level Education", "On-the-job Training", "Number of New Jobs (Projected)", and "Growth Rate (Projected)". A "GO" button is located at the bottom right of this section.

Attachment B

Original Layout for Occupational Descriptions

The screenshot shows the original layout for the Occupational Outlook Handbook (OOH) for Registered Nurses. The page is titled "Occupational Outlook Handbook, 2010-11 Edition" and "Registered Nurses". The layout is somewhat cluttered with a large left-hand navigation menu. The main content area includes a "Significant Points" section with two bullet points: "Registered nurses (RNs) constitute the largest healthcare occupation, with 2.6 million jobs." and "About 60 percent of RN jobs are in hospitals."

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Occupational Outlook Handbook, 2010-11 Edition

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OOH HOME

Registered Nurses

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PROFESSIONAL

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FARMING

CONSTRUCTION

INSTALLATION

PRODUCTION

TRANSPORTATION

ARMED FORCES

SPECIAL FEATURES

Significant Points

- >> Registered nurses (RNs) constitute the largest healthcare occupation, with 2.6 million jobs.
- >> About 60 percent of RN jobs are in hospitals.

Redesigned Layout for Occupational Descriptions

(<http://www.bls.gov/ooh/Healthcare/Registered-nurses.htm>)

The screenshot shows the redesigned layout for the Occupational Outlook Handbook (OOH) for Registered Nurses. The page is titled "Occupational Outlook Handbook" and "Registered Nurses". The layout is cleaner and more modern, with a prominent search bar and a clear navigation menu. The main content area includes a "Summary" section with a table of "Quick Facts: Registered Nurses" and a photograph of two healthcare professionals.

Registered Nurses : Occupational Outlook Handbook : ...

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Healthcare >

Registered Nurses

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Summary What They Do Work Environment How to Become One Pay Job Outlook Similar Occupations Contacts for More Info

Summary

Quick Facts: Registered Nurses	
2010 Median Pay ?	\$64,690 per year \$31.10 per hour
Entry-Level Education ?	Associate's degree
Work Experience in a Related Occupation ?	None
On-the-job Training ?	None
Number of Jobs 2010 ?	2,323,400