"RESULTS, NOT FEATURES"
USER TESTING OF THE NSDL SEARCH RESULTS PAGE: PRELIMINARY REPORT

Mick Khoo • Evaluator, NSDL Core Integration-Boulder • mjkhoo@ucar.edu
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This report outlines preliminary recommendations for the redesign of the nsdl.org search results page. The recommendations were derived from paper prototyping tests with 8 users (one elementary teacher, one middle school teacher, two high school teachers, and four university graduate teaching assistants).

Among the findings were that test subjects:

- focused on the search results, rather than on the page's features
- rated the *resource title* and *resource description* as being the most useful cues as to whether or not a resource would be useful for them
- liked being able to configure their search by audience/grade level, format and subject
- disliked sites requiring logins and/or subscriptions
- often ignored or found confusing search features such as links to subject browsing, collection icons, 'search within these results,' the catalog record, etc.

Principle recommendations include:

- increase the length of descriptions on the search results page
- increase the 'real estate' of the search results page to accommodate longer descriptions (by freeing up the width of the layout table, removing the left navigation, reducing the size of the top banner, etc.).
- remove, or reduce the visibility of, search page features that are confusing and/or distracting
- allow users to exclude resources requiring signon and/or login from their search
- develop the advanced search page to address some of the and to support search and filtering across a range of criteria

In addition, a number of differences were found in the search behaviours of the K-12 teachers, and the student TAs, indicating the need for some kind of customizable search results pages.
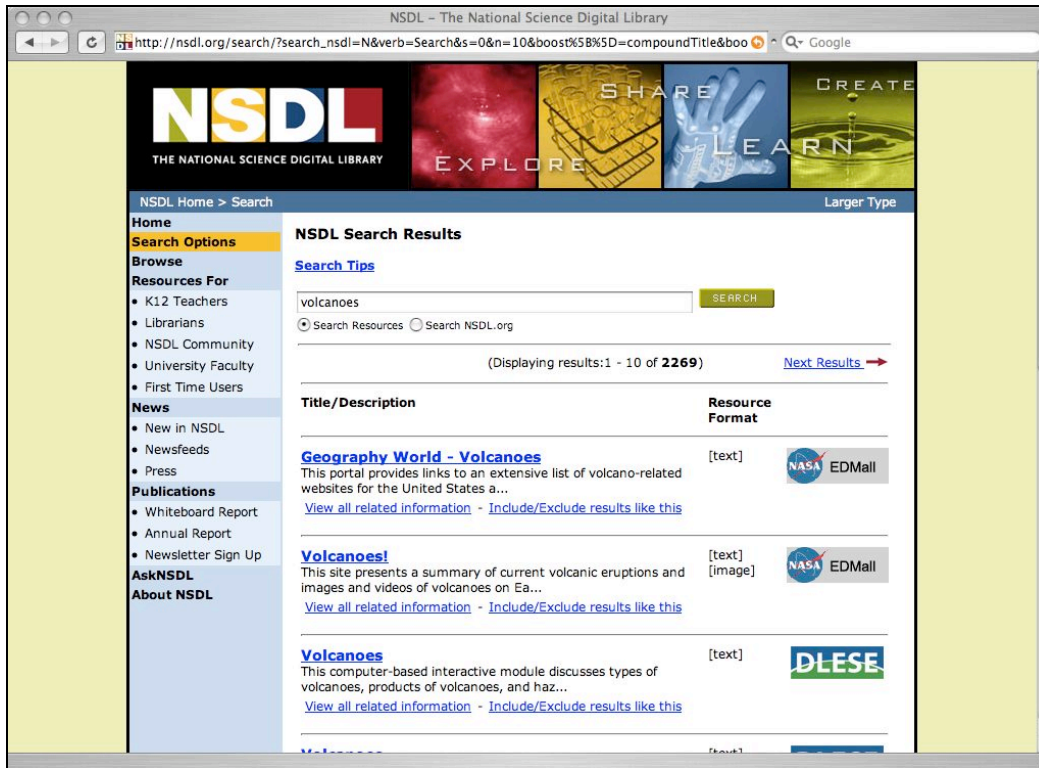
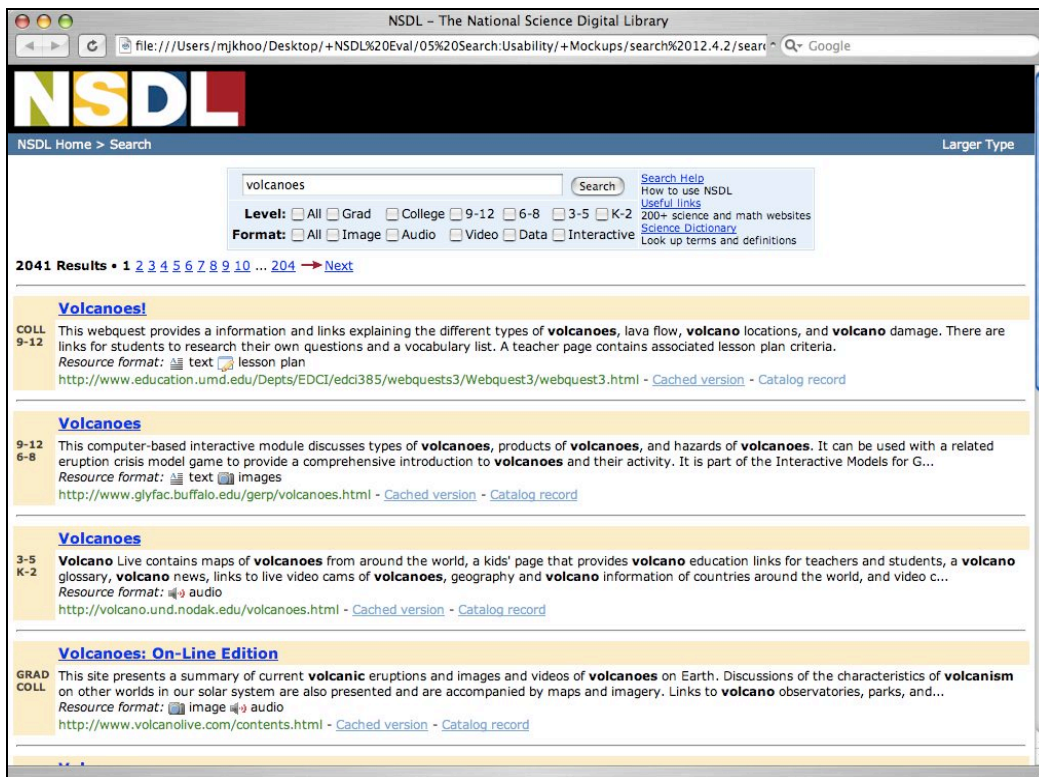**Figure 1: Existing nsdl.org search results page**

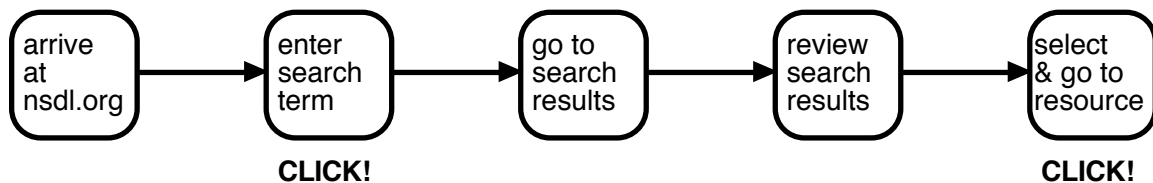**Figure 2: Proposed nsdl.org search results page**

1 Summary

This section summarizes the findings from the user testing of the nsdl.org search results page. The overall aim of the testing was to understand users' interaction with the search results page. The testing involved a mixture of interviews, paper prototyping, surveys, and audio/video recording and analysis. The findings are described in more detail in sections 4 and 5. The recommended design changes are shown in Figure 2.

Finding 1: Users liked a '2-click path' through nsdl.org

Perhaps the most significant finding was that the test subjects expected the search results page to provide enough contextual information about a resource to enable them to make a judgement about the resource, *without* having to click through to the resource itself. In other words, the test subjects expected to achieve their goals on the search results page with just one click. If we take into account that the user has also clicked entered a search term or terms into the search box on the front page, and then clicked on the search button, then it appears that most users expect to be able to search for and retrieve NSDL resources with 2 clicks (of course, this number of clicks will increase if search filters are used).

This '2 click' analysis is supported by NSDL webmetrics. The most common action of visitors to nsdl.org who do not immediately leave the site is to enter the site at the front page, then proceed to the search results page, and then leave the site (approximately 11.9% of all visits from January 1 to June 30 2006). While we do not know for sure from the webmetrics alone what visitors are doing when they follow this path we can infer, probably with reasonable certainty if we include the user testing analyses, that visitors wish to accomplish the following task:

- arrive at the front page
- enter a search term (possibly refining this by audience, format, etc.)
- go to the search results page
- scan/evaluate the search results page for useful resources
- click on a resource link and get taken to the resource in question

arrive at nsdl.org → enter search term → go to search results → review search results → select & go to resource

CLICK!   **CLICK!**

To repeat: this task is accomplished with just two clicks: the first click (on the front page) triggers the search, and the second click (on the search results page) takes the user to the resource. This 2-click path is the most common path through nsdl.org, and supporting this 2-click path should therefore be a primary objective of the nsdl.org search and search results.

Finding 2: Text versus icons: The description was rated as the most useful feature

The paper prototype of the search results page included a number of icons and text links (resource subject, resource format, audience level, URL, collection, etc.) which it was hoped would support test subjects to gain a richer understanding of their search results. When using the search results page however subjects generally turned first to the resource description, which they scanned/skimmed for keywords of interest to their immediate teaching needs. The resource description appears to provide a rich, semi-structured environment for contextualizing and selecting search results, and should be expanded/improved in future versions of NSDL.

Finding 3: 'Evaluate then click' versus 'click then evaluate'

Test subjects expressed a strong preference for evaluating the usefulness of a resource before clicking through to that resource (as opposed to clicking on a resource and then evaluating it). They preferred to evaluate resources on the search results page, rather than on the resource page itself. A click on a resource link that did not lead straight to a useful and usable resource was perceived as a waste of time and effort, particularly in the context of just-in-time teaching preparation. This makes it even more critical to have accurate descriptions on the search results page; and to make sure that once they click on the resource link, users are not led to login pages, subscription requests, catalog records, and so on (e.g. by allowing users to pre-filter to exclude login and subscription sites).

Finding 4: 'Digitized library' versus 'digital library'

The test subjects appeared to think of NSDL as a *digitized* rather than a *digital* library.[1] That is, when using NSDL, they expected to encounter a library that conformed to their existing expectations of a library: ideally, a more efficient version of their school library, which would allow them to download free resources at home. They generally did not expect to encounter a set of digital tools and services which, while they might embody library-like characteristics were, from the users point of view, often vaguely and ambiguously defined and presented. Allowing library-like tools and features to intrude too far upon users' expectations NSDL as an actual library, appears to confuse users and to make the site less usable for them.

It is important to recognise here that NSDL is a highly complex technological and sociological phenomenon. While our understandings of what NSDL is and does may appear natural and obvious to us, we have developed these understandings of NSDL incrementally, over time, and often as the result of prolonged conversations and debate. It is a mistake to expect users to come to the same nuanced understandings of NSDL as we have, in a single leap and as the result of a single visit to nsdl.org.

It follows therefore that NSDL has to be represented to users, at least partly, not in terms of what we think the users may be interested in or may want, but rather in terms of how users may understand NSDL, particularly in light of their existing experience with and understanding of information technologies such as school libraries, google, etc.

Finding 5: Users are confused by federated collections and federated search

Confusion between 'digitized' and 'digital' libraries seemed particularly present in test subjects' lack of understanding of features of the search results page that related to the concepts of federated collections and federated search. For example, they did not understand what 'collection' meant in the context of NSDL, and they did not understand that the collection icons on the search results page represented NSDL partners, projects, or Pathways. For the users, clicking on a collection icon implied 'leaving' NSDL, going somewhere unknown, and starting a new search on a new and unfamiliar site, with all the attendant problems of verification, trust, and so on, that these implied for the users. These problems not helped by the fact that some interpreted the collection icons as advertisements.

This suggests that when users arrive at NSDL, they want to feel that they are in NSDL, and they want to continue to stay in NSDL. This is not to say that NSDL abandon its federated collection and search approach; however, at the point where users interact with NSDL, NSDL should be presented as a single, coherent, library and organization.

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[1] See John Seely Brown and Paulo Duguid's *The Social life of Information*, Harvard Business School Press, 2002).

Conclusion: results, not features: Streamlining the search results page

The design of NSDL search tools and search results pages should primarily reflect and support a '2-click' path through the site. Supporting such a path will enable users more easily and quickly to search for, sort, and choose appropriate educational resources, particularly in just-in-time pedagogical contexts. Suggestions for how to achieve this, derived from the recent user testing, are outlined in the following sections.

Of course, NSDL's existing tools and features should not be abandoned. However, care should be taken as to how these are developed in ways that are relevant to users' tasks and requirements; how they integrate into users' task- and work-flows; and how they are presented on the NSDL website in such a way as they support rather than disrupt users' search experiences.