



I. Activities of the NSDL Biological Sciences Pathway (<http://www.biosciencednet.org>) August 2007

A. Digital Library (DL) Tools Development --- Isovera has developed a general purpose, open source collection management system, nicknamed 'Dewey' for use by BEN collaborators. This tool provides the flexibility to set up collection management capabilities to meet collaborators' unique needs, while ensuring that the core metadata structure, controlled vocabularies, and metadata records are consistent and comply with the Learning Objects Metadata (LOM) standard in use by the NSDL.

Currently, Isovera is completing an add-on to the Dewey Cataloging System to support management of peer review processes for learning resources. This system allows editors and reviewers to work collaboratively online via a Web-based interface. The system supports custom user roles, configurable workflows, review form management, group reviews, single-person reviews, assignment, feedback, and system monitoring. See <http://www.biosciencednet.org/portal/about/projectDocs.php> and <http://www.biosciencednet.org/portal/about/collaboratorMaterials.php> for more details.

A meeting for technical staff and education leaders from all BEN Collaborators was held in December 2006 at AAAS Headquarters. This meeting was conducted by staff from Isovera and the NSDL Core Integration (CI) team and focused on:

***Pilot testing of the Dewey collection and peer review tools.

***Omniture, Community SignOn, and Fedora capabilities, use cases, and implementation. More details about this meetings, including PowerPoints can be locate at

http://www.biosciencednet.org/project_site/ben_technical_meeting_dec06.php

B. Redesign of the BEN Portal -- The redesigned BEN portal was launched at the AAAS meeting in February 2007. The new BEN portal features easier-to-use advanced search functions enabling educators to sort through the reviewed resources and info of the BEN Scholars. In addition, the portal allows searchers to limit results to free resources.

C. Development and Implementation of the BEN Scholars Programs --- 21 biological sciences faculty members were selected to become the 1st cohort of BEN Scholars. With the mission of providing grassroots outreach for BEN, NSDL, and inquiry-based learning in higher education, the Scholars will promote the portal and DLs on their campuses and in their region and develop and contribute materials to the digital library. In December 2006, Scholars attended a 4-day Leadership Training Institute program at ASM Headquarters in Washington, DC. Also, 4 faculty mentors were identified as lead mentors. This Institute was developed with the NSDL CI team and more information, including PowerPoints can be located at:

<http://www.biosciencednet.org/portal/about/benScholars.php> and

<http://www.biosciencednet.org/portal/about/trainingMaterials.php>

D. Outreach Activities --- BEN collaborators participated in 38 biological sciences conferences, workshops, or meetings -- as presenters, exhibitors, or organizers.

II. Results to Date

***BEN collaborators include 24 biological sciences professional societies and coalitions. As of May 2007 the BEN Portal catalog contains 6,630 peer-reviewed records covering 77 biological sciences topics. Compared to the 3,676 peered review records in April 2005, this represents an increase of 3,254 new peer reviewed records.

*** The number of registered users for the BEN portal or DLs of collaborators is 150,748.

***Using full or partial data from 9 BEN collaborators who have DLs, the estimated number of unique visitors to the BEN portal and DLs of collaborators is 5,025,455. Of this number, we estimate that 3,411,817 are using education resources.

As indicated in Table 1, the objectives for the BEN Scholars Institute were met. Also, 14/21 Scholars have already submitted a learning resource to a DL and 11/21 have already presented on their campuses and at scientific or educational meetings in their region.

Table 1: Scholar Self-ratings of Targeted Knowledge and Skills, by Time Point

Skills/Knowledge Areas	Mean Scholar self-rating at time of survey*		
	Entry survey	Exit survey	Sig.
Teaching and Learning			
Student-centered teaching and learning	3.4	4.1	.0001
Inquiry-based teaching and learning	3.4	4.1	.0001
Interactive lecture methods	3.5	4.0	.004
Authentic assessment	2.9	3.4	.006
Problem-based learning	3.5	3.9	.008
Use of technology in teaching	3.7	4.1	.002
Integrating career information into lessons	3.0	3.3	.04
Integrating quantitative skills development into biological sciences curricula/lessons	3.2	3.5	.03
Using Digital Libraries			
Using a digital library to find resources for enhancing lecture materials	3.3	4.0	.004
Using a digital library to find new laboratory lessons.	2.9	3.8	.0007
Using a digital library to find materials for student use.	3.0	3.7	.003
Comparing digital libraries for quality of review and content.	2.8	3.6	.003
Submitting to a Digital Library			
Identifying materials of one's own that are appropriate for submission to a digital library	3.0	4.3	<.0001
Submitting a teaching resource of one's own to a digital library	2.4	4.0	<.0001
Leading Professional Development Activities			
Developing and implementing professional development activities for one's colleagues	2.9	3.9	.001
Total score for self-rated skills	47.2	61.5	<.0001

* On a scale where 5 = "Excellent" and 1 = "Very Weak." Significance levels are for a one-tailed t-test of means, without assumption of equal variances.

III. Challenges

1. Dispelling faculty misperceptions about the current state of searching for resources. In meetings with biological sciences education leaders and BEN Scholars, the perception is that they should be able to find what they need in 5 minutes or less.
2. Developing guidelines for a citation rating index for use in promotion and tenure. Best resources award is one step.
3. Designing an evaluation that will provide information on how the use of BEN resources is improving teaching and student learning in the biological sciences.

IV. Greatest Sense of Satisfaction

1. New collaborators are gaining a better understanding about digital library building from peer and group mentoring meetings and BEN Scholars are reaching regional audiences.
2. STKE research site added a new manuscript category. **STKE Journal Club** articles are short, lively overviews by graduate students or postdoctoral fellows that highlight recent exciting developments in cell signaling research (<http://stke.sciencemag.org/about/STKEJournalClub.pdf>). And *Science* magazine is ready to start cataloging and is more involved in developing online education resources.