

Pathways Meeting Summary
August 3-4, 2006
Hotel Boulderado
Boulder, Colorado

The meeting opened with comments by National Science Foundation program officer, **Dave McArthur**. This is the third annual Pathway projects meeting and the largest to date. Dave noted that due to limitations on the 2006 NSF budget, only one project was awarded. Excellent proposals were received, and it was difficult to select a single proposal. NSDL is a well-regarded program within NSF, yet because of its unique cross-disciplinary approach and breadth, is not illustrative of the traditional model of funding for NSF. The encouraging news is that the NSF budget for 2007 is likely to be increased over current levels. There will be a Pathways competition next year.

NSDL Executive Director **Kaye Howe** introduced Eileen McIlvain as the new liaison to the Pathways projects, and summarized the primary activities of the meeting agenda. One of those is to review the Memorandum of Understanding for applicable revisions—the primary instrument for collaboration between NSDL Core Integration and the Pathways. Another goal is to come away from this meeting with perhaps three to five working groups formulated around major points of collaboration. Tools and services are one area that offers great possibilities for collaborative work; marketing and outreach via strategic partnerships and accessibility issues are others. It is essential that we work together to understand and coordinate our activities, more solidly define our collaborative structure, and demonstrate organizational discipline while advancing our individual and collective vitality. There is a group of Pathways evaluators working offsite today in a separate workshop, exploring Omniture implementation, and they will join us tomorrow to discuss their results.

Some members of the NSDL Policy Committee (PC) are in attendance at this meeting. NSDL is clearly in a period of transition, and this applies as well to the PC and the National Visiting Committee (NVC). Understanding the ways that these valuable committees contribute to NSDL development into the future are evolving issues.

Kaye noted that Cornell's John Saylor (Collections Development) will be leaving that position with CI and returning to his Librarian position at Cornell as of September 1. Discussions in CI have resulted in a transfer/modification of this position from Cornell to Columbia, as an Editor-in-Chief position—the locus of responsibility for collections development for NSDL, with a possible supporting position as well.

An additional Pathways meeting at the NSDL Annual Meeting in Washington DC (Oct. 18-20) is planned for Wednesday, October 18. The Annual Meeting opens on Wednesday evening with the poster session, so that day is available for a Pathways/CI meeting. More information will be forthcoming on these plans.

Susan Jesuroga presented her findings from individual interviews with Pathways PIs regarding taking NSDL forward into the future, working on a business model, and identifying common issues and goals that NSDL might be able to help resolve. She thanked PIs for their willingness to discuss these issues and their candid comments and prompt responses.

Common goals:

- Building out portfolios – resources, workshops, service

- Building strategic alliances
- Better defining audience/needs
- Watching/considering Web 2.0 technologies

Key issues:

- Identify/cataloging quality content
- Increase usage
- Technology changes:
 - meeting user needs
 - keep things running
- Competitors – turning into opportunities
- Sustainability

Challenges:

- Change is slow – it is hard to identify impact in STEM education; adoption rates are slow
- Narrowing the boundaries of NSDL – it may be an appropriate time to narrow the limits, in terms of audiences, i.e. don't assume we have to be all things to all people
- Funding climate - limitations on what is possible
- Being an operational entity - bringing things to an operational state; we should err on the side of hardening services

Improvements Needed:

- Clarify governance—how can the Policy Committee and NVC be helpful
- Focus and agreement on quality vs. quantity of resources
- Better leveraging our work
- Better project and process management, emphasizing and demonstrating dependability

NSDL Going Forward:

- Provision of:
 - infrastructure
 - connections/collaboration
 - marketing/market development – including publisher interactions
 - consulting/expertise
 - positioning/advocacy for NSDL - with NSF, with other funders and users

Possible Priorities:

- Outreach/advocacy:
 - Combined campaign
 - Set an evaluation agenda – what can we realistically say about assessment
 - Bundle tools/services to get information into the library (helps feed marketing)
 - Create an NSF plan – NSDL as a key component of STEM education
 - Partnership plan – cohesiveness or organizational mission, move away from silo effect
- Shared development:
 - Improve user experience – the driver of our decisions about development; ask ourselves how each service, tool, or other development improves the user experience

- Improve project management and practice
 - Analyze current development for leverage points – we have short term goals for the some libraries. Let's look across the board on what everyone is facing and figure out what the leverage points are that we need to work on.
- Operations/standards:
 - Improve monitoring – what are the core services? CAT/ASN – what else?
 - Harden operations
 - Define burning issues:
 - Persistence
 - IP
 - Opportunities for setting a research agenda, secondary to core work and funding
- Process:
 - Improve collaboration
 - Develop criteria for making decisions
 - “Who is in charge?”

Pathways Presentations

(Note: New Pathway project information omitted until October 1, 2007, after formal grant announcement is made)

Common Issues among Pathways

Each of the Pathways gave a brief update of their projects. Profiles that detail unique features each Pathway are available on the Pathways wiki site:

(<http://pathways.comm.nsdsl.org/cgi-bin/wiki.pl>).

- Groups are interested in best practices
- Working together with the other Pathways
- Working to bring in new partners
- Nearly all the Pathways have recently released or are in the process of launching new portals
- Conference/meeting attendance/outreach to promote their projects and NSDL
- Several projects are using CWIS
- Most are using or in the process of using Omniture
- Most are in the process of organizing workshops with NSDL CI
- Working with iVia, Fedora, working with Shibboleth
- Several groups are working with DLESE
- Working on assigning educational standards to resources

Tammy Sumner gave a presentation on **DLESE as a use case for Fedora/NDR** integration, asking the question: how can we leverage the NDR data model and API to support Pathway type services? The presentation covered replication of targeted aspects of the DLESE data model in the NSDL Data Repository (NDR) and addressed the motivation for and value of the work, with the intent of using this use case as a springboard for Pathways discussion of common needs, issues, and concerns.

DLESE has been operational since 2001 (pre-dating NSDL by one year); it experiences about 1.5 million sessions per year by users, and approximately 60% of its users are from K-12. It offers high availability (99.7%), rich metadata and

annotations; strong support for educational standards; and utilizes an architectural approach that emphasizes 'contextualization services'. This work offers economies of scale: a way to operate with lower costs, while preserving high availability; it offers impact by enabling greater focus on education and outreach, and less energy on maintaining infrastructure. It will provide 'end to end' support for education standards integration (3rd party assignments, correlations with NSES, AAAS, and state standards). It will enable interdisciplinary views for resources, demonstrate improved NSDL integration, a way to share rich descriptions and annotations, and common approaches to critical core services. It is a 'next generation' service—moving from metadata-centric search to 'learning environments' (e.g., DLESE Teaching Boxes which mix concepts, metadata, services, and primary content), and offers the potential to more flexibly solve existing challenges. It will help develop a critical mass of users to support social tagging, recommender engines (social computing techniques), and test the readiness, expressiveness, and facility of the NDR API. The work will utilize the NSDL-funded Strand Map Service (SMS) project and will integrate the DLESE Collection System (DCS) into the NDR, making it a potential distributed service. Tammy ended the presentation by asking the following questions:

- What are the annotations, comments, reviews, etc. that Pathways are already supporting, or plan to support, to enrich your resources and collections?
- Are you associating standards with resources? What standards at what level? How are you making assignments?
- How are these annotations and standards information being exposed to your users?
- What sorts of contextualization services are you currently offering or considering offering?

Further discussion revealed common questions – how to make decisions about development paths: What are costs of implementation? What are ease-of-use implications? What are the ongoing technical maintenance costs for a particular element of work? What are required fields for discovery? Coming up with these types of questions that help to do analysis contributes to planning for the long-term. Building services across disciplinary silos is more than an API problem, it includes approaches and best practices. The idea was expressed that we have hit the boundaries of what we can do for services in a metadata world. Creating a richer user experience needs a richer information space. Think about discovery from the point of view of the educational needs being met. Also discussed was the importance of attribution/identification of source provider as an indicator of trusted source/trusted use.

Burning issues:

- Understanding educational standards assignment
- Understanding annotations/comments – distinguishing between different types of commentary

Dean Krafft gave a presentation on the NDR covering the NSDL 2.0 vision, contribution and collaboration opportunities, services and tools, and using NDR collaborative tools to build Pathways-focused communities. The NSDL 2.0 vision is to create an NSDL that supports contextualized resource selection and use, enables community tools for structuring, evaluation, annotation, contribution, and collaboration around NDR resources, creating a two-way data flow between users and NSDL. It is an open-source project, built on FEDORA ((Flexible Extensible Digital Object Repository Architecture) – a middleware architecture, toolkit, and

implementation ('middleware' is understood to be any programming that serves to 'glue together' or mediate between two separate and usually already existing programs; usually enabling different applications to communicate). It stores arbitrary internal and external digital objects, disseminations (transformations and combinations), and relationships among objects. It is entirely SOAP/REST based, and its disseminations are URLs. It employs XML data store, RDBMS cache, and RDF triplestore, which supports relationship queries. It uses REST calls on the server for all interactions, and allows combining of metadata from multiple sources, or related content. Authentication includes a private key associated with an 'agent'. Documentation for the NDR API is available at <http://ndr.comm.nsd.org>. Perhaps the easiest way to envision the NDR is to think of it as a lens for viewing science content on the net. Content can be stored locally, or remotely accessed via URLs, or computed (derived from a database or web service), or archived – an older version stored at San Diego SuperComputing Center (SDSC); all with a repository-based URL.

Two NDR instances are up and running, one for full production (1.8 million resources) and one as a test server for external testing. The planned switch from the current Metadata Repository (MR) to the NDR will take place October 1, 2006. NSDL will continue running the MR in parallel as backup through December 2006.

Examples of NDR use. The NDR provides powerful capabilities for creating context around resources; enabling direct community contribution of resources and context, and for representing a web of relationships about science resources. Uses include:

- *Expert Voices (EV)* - a system using blogging technology to support STEM conversations, tying real world science news to resources, creating context to enhance discovery, selection, and use, and enable NSDL community members to become NSDL contributors: of resources, questions, reviews, annotations, and metadata. EV is a multi-user WordPress application – plug-ins provide NDR integration and Shibboleth authentication; blog content is available as an independent RSS feed. Elly Cramer at Cornell has just implemented some anti-spam measures for EV
- OurNSDL: an NDR-integrated wiki, with a community of approved contributors. New resources and metadata created as wiki pages and reflected in the NDR. Non-wiki-based NDR resources and metadata are displayed as read-only wiki pages, subject to comment and linking; planned implementation in MediaWiki.
- Another general tool: is an NDR-integrated tagging/bookmarking system, based on Connotea, an open-source folksonomic tagging system. Authorized users can automatically recommend new NSDL resources by tagging them; gives the user a personal view of NSDL resources.
- Another application for end user is OnRAMP, an NDR integrated, multi-user, multi-project content management system. Supports single sign on and group management. Utilizes a decentralized workflow for the creation and distribution of simple and complex content; disseminates content in multiple publication and online forms. Delivery estimated for 3rd quarter 2006.
- Content Assignment Tool developed by Syracuse – as an NDR application (developed by Anne Diekema, Elizabeth Liddy, et al. at Syracuse University Center for Natural Language Processing). Uses text analysis and machine learning to suggest educational standards alignment for resources. A content expert assigns standard(s), the system learns from that assignment. Is currently a stand-alone tool available now; standards associated with resources in the NDR by 3Q 2006.

Other applications proposed:

- Automated grade level assignment based on vocabulary analysis (SDSC)
- iVia based expert guided crawl – a tool for Pathways and other to turn websites into resource collections (UC Riverside)
- Instructional Architect: developed by Mimi Recker at Utah State – lesson plan development for K12 teachers
- Moodle course management system (proposed)
- Electronic lab notebook, e.g. ELN, Neurosys (proposed)

All of these proposed uses together will create an NSDL 2.0 'ecosystem'. More specialized tools can be implemented in the NDR, including general collaborative tools. To achieve the NSDL 2.0 vision, we need to build sets of communities in each Pathway area and integrate their content with the library. How can this happen for your Pathway and how can CI help?

Discussion:

- BEN feels these possibilities are of interest to them but would need to do cost benefit analyses. CI very willing to work more closely with Pathways groups to explore options.
- What is the status with iVia – if given a set of vocabulary, could one search and find, say, mathematics resources within the ComPADRE collection? iVia does some level of classification.
- All projects have a set of best practices for a given domain. How would metadata generated by iVia be customized to reflect best practices? iVia extracts keywords and does some level of classification. Middle School Portal and MatDL have done lots of work with iVia. We need to decide if going forward with iVia is something we all really want to do.
- Examine best practices, needs and gap analysis, and cost/benefit analyses.
- What services may you want beyond what is available
- Funding limitations mean all projects can't do everything they want to
- Need to think about the short term needs as well as long-term needs
- These tools can be customized for Pathways use. Think of CI as building a tool that we can hand over to you and you can then customize it to your own needs. This will not be a standard tool.
- Engineering pathway would like to have materials that will be related to engineering - a way to use the REST server to be able to pull in the central archive those things that will be of interest to our community
- This call for services should go beyond what is currently available – what of a citation service? What would really add value? Review mechanisms.
- What is possible to 'give up', in NDR integration? Something that the NDR can do for you that you needn't maintain yourselves?
- What sorts of services do the Pathways value, what are common, and would be suitable for centralized provision?

Dean commented that from this discussion it is clear that a high priority is to develop a bulk search tool refinable for Pathways use (Engineering, ComPADRE, AMSER, Math Gateway expressed interest/need).

Karen Henry gave a presentation on all the tools and services that currently make up the NSDL. She emphasized that this list is a starting point and is the CI view of tools and services. What does CI have, what do Pathways have, what is available overall in NSDL? We all have many of the same issues. We have cataloging tools but which are better than others? CI has been doing user testing to see what the users

really want. We need to put these tools out to the users to see which of these tools are valuable to them. Issues of concern:

- Contributing resources
- Contextualization assembly layer
- Content management
- Educational standards
- Outreach and community building
- Web presence
- Evaluation
- Metadata enhancement tool
- Personalization tool
- How do we manage new contributors?
- Work flow for submitting and reviewing
- Teacher education
- Authorization
- Working environment
- Educational revolution
- NSDL toolbar release
- What is important and needful in your daily workflow and activity?

Discussion

Ed Almasly noted that it would be very helpful to have a tool or service that would normalize metadata that is in the NDR - getting material to a state that fits in with everything else in the AMSER collection. Can we all identify specific fields that are problematic, and develop a way to address the metadata normalization process? Everything depends upon the available information about the resource. Other issues:

- A tool to give an overall view of metadata in the NDR
- Provide mapping for basic fields
- Tighten up collection tools, 'allowable metadata'
- Users want a description, certain type of information
- Are resources free or not
- This time last year we agreed to have a thesaurus for resource type...would be good to complete
- De-accessioning issue - of collections that lack good metadata?
- Share crosswalks
- What can be done in the short term? What can be done to enhance current results?
- What can be done in the long term?

Action: Karen would like to make sure Pathways tools are included, she will send out a spreadsheet to all pathways so they can add any tools and services that might have to the list. Feedback should be returned to Karen by the 15th of August. The new list will be sent back to the Pathways. Karen will also get an update on the Stuart Sutton's metadata registry project and advise Pathways of same.

Susan Van Gundy reported on strategic partnerships and publisher initiatives. Library building and awareness building have created a critical mass of value, and have led to and enabled different kinds of partnership building efforts than in the past. Susan presented the idea of how the world views the NSDL is as the *NSDL network* – composed of Core Integration, Pathways, 202 total Collections, Services and Targeted Research projects, other NSF-funded resource providers, Policy Committee, Standing Committees, National Visiting Committee, and publishers and other external resource providers. This is the 'net' of the NSDL network. This is a complex entity, comprising K-12 teachers, college and university faculty, informal educators, librarians, digital library developers, and researchers. Moving forward into the future requires greater coordination of image, message, user experience, outreach and communications activities, and partnership building efforts. The power

of this network is the ability to offer quality content, technology, dissemination services, and reputation, including the connection to NSF.

Strengthening this network promotes:

- Improving the user experience – understanding what users want
- Enhancing educational utility
- Aiding sustainability
- Creating centralized tools and services
- Engaging new network members

Increasing usage promotes:

- User awareness
- Improving usability and utility, removing barriers
- Teacher and faculty professional development
- Evaluation
- Leveraging existing networks of trust

Susan elaborated on current discussions and/or efforts with the American Museum of Natural History, Apple, EOT-EPIC, Fedora, a major K-12 textbook publisher, the National Science Teachers Association, Net Day/Project Tomorrow, NRCEN, state departments of education (Pennsylvania and Colorado), TryScience, ASTC, and IEEE, and Yahoo! She also discussed the partnership work being done with publishers by Mike Luby at Columbia University (separate report available on the [Pathways wiki](#)).

Possible priorities for future work include:

- Combined campaign(s)
- Evaluation agenda
- Bundling tools and services
- NSF plan
- Partnership plan
- Others? – Professional societies are a key component of Pathways work and should be included in our thinking

Near-term initiatives include:

- Co-branding (portals, print materials, crediting, centralized services (e.g. toolbar), articles, message, communications, conference presence)
- Audience pages at nsdl.org – K-12, higher ed, libraries and informal ed. Researchers? Others? Types of services to feature: RSS feeds, podcasts, other services...
- Workshops – Pathways workshops, NSTA Web Seminars
- Expert Voices
- Publisher partnerships

Action: It will be helpful to have similar kinds of partnership info from all Pathways, and Susan will follow-up to collect that information.

Robert Payo will be working to get more articles about NSDL out there. Robert also will be working on workshops. Susan would like to make sure everyone is using the co-branding on all sites and materials. We will be slimming down on the conferences that we will be attending next year but hope all of you will be able to represent NSDL when you are attending conferences. Alice suggested this might be a good time to revisit attending the AAAS annual meeting.

Community sign-on. David Millman (Columbia CI) noted that many of the Pathways have communicated with and worked individually with Rob Lane and Noah Levitt on community sign-on issues. David announced that Columbia may be able to provide a little more project management for this effort in the coming year, with the idea of CI staff visiting Pathways technology groups individually to help advance community sign on development with the Pathways. This has been done with ComPADRE, and Columbia has worked closely with Jialong Wu from the Engineering Pathways. A visit is already scheduled with Teachers Domain in October. Engineering and BEN are also interested.

Kaye suggested that everyone thing about major concerns and issues that the group would need to work on. Bring these issues back to the table tomorrow for discussion Meeting adjourned for Thursday.

Friday, August 4, 2006

Evaluation components. Web metrics issues were covered by Mick Khoo and Bob Donahue from Teachers' Domain, who has worked extensively with Omniture in the past year. Mick Khoo explained that web metrics measure users' interactions with a website to support understanding, management, and improvement. There are no standard web metrics, and different tools measure site traffic in different ways. Last year we agreed to utilize Omniture as the web metrics tool, to standardize across the Pathways. Omniture:

- Measures traffic remotely with javascript and cookies
- Data and analyses are accessible via a browser
- Each site sees its own metrics. Through a central account, CI (Mick Khoo) can view the metrics data collected for all projects who have an Omniture account through CI. However, these data are not viewable by anyone else.
- Projects are free to implement their own server log tools in addition to Omniture.
- The preliminary metric that CI is interested in collecting, and would like all projects to collect, is that of the *visit*.

The Omniture statistics for site usage are often lower than projects' own server-based web metrics, as the Omniture technology excludes visits to project websites from bots and crawlers. Tasks ahead include identifying standard metrics for all projects and agreeing how to report those metrics at a programmatic level. This work is evolving into developing a 'task-centric' model of web metrics: redefining the unit of analysis for a 'visit' to a 'task'; and identifying typical task profiles from web metrics

Bob Donahue gave a more in-depth presentation on the capabilities of Omniture, noting that the big questions to ask are why (is the end result worth the effort?); what (can be used to accomplish this assessment?); who (inform others of comparative successes of different metrics and methodologies); and how (defined by strategic importance). But, the relationships are quite complicated – everything is evolving; alterations happen at all phases of the process, and specifics change over time. Bob used Teachers' Domain experience with Omniture to demonstrate the complexities of web metrics and how they can help identify underserved communities within user groups, site 'stickiness' – or how long users stay on a site (a quick entrance/exit can indicate success – the user found what they were looking for); and behavior doesn't always follow the design plan. Measures of success might not be the same for each population, and evaluating impact has to take these considerations into account. TD also implemented a 'test drive' area of their site

which allows access without sign-on for a limited number of resources views. Some findings:

- K-2 teachers are actively seeking online resources
- Teachers want more lesson plans
- Behavior doesn't always follow the design plan. Then it's time to re-design the plan
- Omniture is evolving and is adding several very good features
- Omniture does not have geographic tagging down to the city level
- This would be on a wish list: Follow any specific user session; map of site nodes overlaid with path and traffic information; cross-referencing of custom metrics with other reports, e.g. what's the traffic for users identified only as teachers?

Omniture is not going to give you all the answers but is a good starting point. Dean noted within the discussion that some kinds of tracking can be instrumented within the NDR, such as tracking the 'top ten', most popular resources requested in searches, which was one suggestion.

Flora McMartin followed with a report on the work of the Pathways Evaluators' workshop which took place separately on Thursday. She noted that the participants were enthused to learn the power of Omniture – it will be important to us as a resource tool. The anticipated outcomes of the workshop were to:

- Develop a basic understanding of the Omniture web metrics package in the context of its current use by NSDL CI and individual Pathways
- Identify ways Omniture might be used to explore evaluation questions, data collections, and reporting methods common to all Pathways projects
- Identify a minimum set of web metrics common to Pathways projects
- Share Pathways evaluation work to date including plans, methodologies, and tools
- Identify common research questions and methods in order to leverage evaluator instruments and expertise

As a working group, one of the first tasks we will be dealing with is a common guideline for Omniture and report back with recommendations. Privacy policies should align to meet local institutional IRB requirements, and to the fact that Pathways are implementing Omniture as a web metrics tool. Ideas discussed included:

- Exploring new ideas for a user panel for NSDL
- Find users that will agree to be testers over time
- Agree on how to find these users

Post-meeting addition: The recommendations from the evaluators workshop are shown below. See also the Evaluators meeting report on the [Pathways wiki](#).

Summary of Recommendations & Questions

Recommendations from the Pathways' Evaluators

- 1) Agree on common categories for reporting Omniture results
 - a) Report NSDL usage at the programmatic level
 - b) Develop a checklist to ensure Omniture is correctly implemented
- 2) Align privacy policies with regard to implementing Omniture (and other server log tools) to meet local institutional IRB requirements
- 3) Find common tools to effectively capture data about user satisfaction
 - a) Explore proof of concept plan for developing a common user satisfaction survey based on ARL pilot study
 - b) Explore user panels as a method for gathering data from a large set of DL users
- 4) Present results at the NSDL Annual Meeting; Proposed Sessions
 - a) Overview of Omniture by Mick Khoo and Bob Donahue
 - b) Report out on Survey of Evaluation efforts by CI / EIESC and results of this meeting
 - c) EIESC meeting: Follow-up on previous sessions and develop action plan
- 5) Initiate a secure listserv for Pathways evaluators to share evaluations questions and results

Further questions from Pathways' PI's

- 6) How does Omniture arrive at the results it generates via the Site Catalyst interface?
- 7) Is there a way to use Omniture to collect metrics around features or services of sites?
- 8) As part of Recommendation 3.b. (develop a user panel), survey PIs to learn about the "classes" of users that projects would like to know about.

Evaluators have submitted two proposals this year for the annual meeting; one will be on Omniture, the other will be with CI & the Standing Committee on evaluation. We will be reporting out on both of these after the Annual Meeting. The Evaluation Standing committee is a good group to start working with on this. Josh Morrill has set up a list serve for the group and it will include Pathways PIs. We will set up a proposal on classes of users. This group will work very closely with Mick Khoo from CI, and will again meet face-to-face at the Annual Meeting but will continue to be in contact with each other over conference calls and email.

Mick Khoo then followed up with a report on the results of the User Testing that he has been doing this summer. Prominent outcomes of the testing reveal:

- Users did not like confusing or distracting icons and links
- Users wanted to follow a 2-click path to results – the first click takes them from the front page to the search results, and the second click takes them from the search results to the resource itself
- Users want to be able to determine the relevance and usefulness of a resource before they click through to the resource itself
- Login and subscription resources appear to be a barrier to users
- Recommended layout changes for the nsdl.org search results page are presented in the full report. Primary recommendations are to place the search box further up on the page - this increases space available for resource descriptions; make layout flow to page width; and remove left navigation menu from search results page (Omniture shows this is little used). Search results should not mix the needs of the users with the needs of collection developers, and design solutions can address these issues.

Users liked:

- Users indicated that they would like longer descriptions, expressed in more concise syntax, and with their search terms highlighted
- Users indicated that they would like to have a bulleted power point format for the resource description
- Interactive resources are defined in wider terms than are currently available in the advanced search - images, video, multimedia are all considered to be engaging resources for students
- The interest in 'engaging' and 'interactive' resources (broadly defined) suggests that users want information about the pedagogical format as well as file format of a resource

Users disliked:

- Collection icons
- Login and or subscription resources
- Clip art/images, and the large banner at the top of the page
- Users were confused by the notions of 'collection,' 'federated collection,' and 'federated search.' They like to feel that they are in one 'place' in NSDL, and can be confused by being forwarded to different sites, even if those sites are part of NSDL. (If we are on the library why would we want to go to a collection? If we go to collection are we still in the library?)

This is a good summary of user behavior and gives everyone a good understanding of these issues. The idea of 'test drive' sites prior to subscription of a site, similar to what Teachers' Domain has done, might be an option for addressing how users see subscription/registration as a barrier to use. Additional discussion also brought out the importance within Pathways of attribution of resources to specific collections - the acknowledgement of specific collections as sources of material - and the importance of educating users to understand the value of icons as indicators of trusted source resources.

Kaye Howe led the discussion on potential changes to the Memorandum of Understanding (see [revised MOU posted on the Pathways wiki](#)) and summarized the main issues to address for the coming year:

1. *Fedora* – each Pathway is in a different place and CI needs to understand the needs of each. Dean will take the lead on arranging visits/meetings with each Pathways to advance this understanding.
2. *Tools and Services* – Karen Henry will take the lead on gathering Pathways information about their tools and services, and augmenting the list as presented at this meeting with that information, and re-circulating it.
3. *Accessibility* - We need to see where nsdl.org and Pathways sites are with respect to accessibility. There are people and projects within NSDL that can help provide valuable expertise with these issues, and Rachael is one of these. This may emerge as a working group as we explore and pursue this goal.
4. *Licensing/Creative Commons* – This is another area where we can capitalize on knowledge and expertise within our community. Teachers' Domain has had significant experience here. CI will begin to gather necessary information on both licensing and IP issues, and we should be able to report back to Pathways at the Annual Meeting.
5. *Editor-in-Chief position at Columbia* – More discussion with Columbia will take place to ensure that this position includes consultation and follow-up with the

Pathways PIs to fully understand their relationships with professional societies and how best to advance our various strategic partnerships with them. In the short-term, Susan Van Gundy will survey the Pathways to collect appropriate partnership information from the projects to help inform the strategic partnership plan.

6. *Community Sign On* – Regular reporting to the Pathways on the status of CSO work is a priority.
7. *Metadata issues* – Susan Jesuroga will take the lead in September on fully exploring metadata issues with Pathways projects including interim as well as long-term approaches.

Of lesser priority, but of great interest:

8. *Server farm* – Eileen and Dean will work together to survey Pathways on whether or not CI can be helpful to them in providing server services.
9. *Registration* – Developing a common registration profile across Pathways – what are the elements we are all collecting from users in registration profiles? This relates both to the work of the Evaluation group as well as to Community sign-on. The Evaluation working group will begin to examine this issue as part of their agenda and report back to CI and Pathways.

Pathways should reserve the week of July 30 in 2007 for the fourth annual Pathways meeting, possibly two full days. It is clear that NSDL is in a transitional state regarding governance issues. The coming year will see further refining of the role of the Policy Committee – they are very open to what works best for NSDL and we want to take advantage of their expertise and participation in NSDL. The Policy Committee did approve the Pathways designation as Authorized Service Providers.

Additional discussion:

Alice brought up the issue of what Pathways are interested in AAAS workshop. How many are interested in participating? Engineering & Math Gateway are interested in doing a workshop together. Eileen and Robert will follow up with more information on this issue and figure out how to do a series of workshops. September 16th is the deadline for this.

Alice proposed that metadata for audience level be normalized by grade level and will initiate a discussion on the Pathways list about this issue.

Scheduling/reporting should be a two way issue and mutual reporting and communication between CI and Pathways is critical. Eileen will follow up with Pathways on project reporting. Additional communications:

- Please provide Carol Minton Morris with any press contacts for your Pathways that she should know about.
- Contact lists for projects/CI: an updated Contact List was provided prior to the meeting. Please provide Eileen with any updates that are not included there, and she will ensure that CI descriptions are augmented to fully reflect responsibilities.

Working groups moving forward:

- Pathways evaluators (from Aug. 3-4 workshop)