

Providing Innovative Services to “Our Users” in the World of Web 2.0: The ANTS Initiative

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It is no secret that the *library* is no longer the only information provider out there. We are most certainly competing with e-commerce information providers... In this competitive environment, small libraries, above all others, are the most likely to be marginalized. That's not because these alternative information providers can rival the breadth and quality of information in even the smallest library, but because they have captured the imagination and attention of our patrons with some truly useful technologies. If small libraries are going to survive and thrive in today's competitive technological environment, it will not be as a thousand small units but as a unified collaborative.¹

Introduction

Librarians today are witness to a radical transformation in how people access and value information. The transformation in information consumers' expectations that followed birth of easy to use Web 2.0 technologies—such as Google—has coincided with the emergence of the lifelong learning society where busy people value accessible, easy to use, information systems. Access to

the Deep Web² and hardcover content offered by an academic library is increasingly bypassed by users utilizing generic search engines on the Internet due to their relative convenience and ease of use. For the benefit of users, librarians must reach out to provide training on searching and evaluating information using more substantial indexing tools; and we must do so in a manner that is visible, informative, easy to use and convenient.

This situation has not always existed. There was a time—not so long ago—when a librarian's commitment to understanding and serving local users' information needs resulted in people coming to libraries for much-needed reliable information. But these days are no longer. Reference statistics indicate that the service is receiving less and less usage;³ surveys indicate that most people turn to the Internet as their first source for information;⁴ and distance education, nontraditional, and millennial students have service needs⁵ or preconceptions⁶ that result in them favoring the Internet. In attempting to reach the Internet users, librarians are turning to Web 2.0 technologies to improve and electronically disseminate both services and information—thereby enhancing library visibility. But the use of these new technologies is constrained as many libraries are striving to

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keep existing services in operation and are not receiving the resources they need to enhance services. It is in this environment of rapid change and limited resources that librarians must operate and work to better serve today's information consumers.

One means of addressing changing service needs is by recognizing that advances in social software, creative commons licensing, and open source have opened new doors to collaborative service development across institutions. An example of this approach is the ANimated Tutorial Sharing project (ANTS), which provides readily accessible, online tutorials to library users accessing electronic resources. By adopting a new approach, responsibility for development of tutorial content is distributed among voluntary professional librarians acting as contributors. The ANTS project illustrates the potential for librarians and libraries to collaborate. In this paper, I will discuss 1) how ANTS enables librarians to collaboratively develop a large number of tutorials for specific e-resources that we all share, and 2) how collaborative initiatives like ANTS enable libraries and librarians to reach out to our users with our knowledge.

ANTS Background

ANTS is a project that allows people to share open source animated tutorials created by librarians, and, as of September 2006, it is open to any librarian who wishes to participate. It began as an idea brought forward in 2004 by the Distance Education Forum for the Council of Prairie and Pacific University Libraries (COPPUL). At the time, new Shockwave Flash (SWF) software was emerging that enabled librarians to capture search screens and incorporate audio, text, pointers, or quizzes. These flash tutorials were professional, interactive, easily created, easy to use and follow, and they appealed to individuals with different learning styles. They also could be embedded in course sites, Course Management Systems (CMS), library web sites, or any place that users might conceivably go to for information.

Because professional tutorials could be created more quickly, they held out the hope that interesting and useful point-of-need tutorials could be developed to teach students about a specific e-resource at their own predetermined time and place. The only downside to their development was the magnitude of the endeavor as each library held a vast number of e-resources and vendors seemingly change interfaces overnight—thereby making it impossible for any one library to keep up with their construction and revision. It was determined that the only conceivable way to develop a critical mass of

point-of-need tutorials was via collaboration. Consequently, the forum's Information Literacy Working Group was given the task of finding a way that would allow institutions to share in the creation and updating of a large number of tutorials for e-resources that were used by many COPPUL Libraries.

The Information Literacy Group held its first teleconference in the fall of 2004, along with the head of the COPPUL Public Services Group who was invited to participate. During this meeting, the group addressed a number of issues that it deemed to be critical to enabling librarians to collaboratively develop tutorials across institutions. In particular, it was decided that:

1. It would be desirable if the project enabled participants to customize any tutorial so as to make them suitable to libraries who wish to see their brand or local holdings information included. This in turn had important copyright and open source implications;
2. We should test to see how easy it would be to exchange source code;
3. We should do a survey of e-resources shared by many COPPUL libraries in order to identify which ones we should collaboratively develop;
4. It would be best if all tutorials could be housed in one location so that they would be easy to locate;
5. Each tutorial should include important metadata so as to provide participants with critical information;
6. Guidelines should be drawn up so as to ensure that anyone participating in the project would develop tutorials that met some minimum criteria;
7. We would not ask participants to use one type of software if they wished to participate in the project.

Over the course of the next several months, members of the working group went out and exchanged source code, created guidelines for tutorial development, did an inventory of COPPUL e-resources, and found a home for these tutorials. By the fall of 2005, all that remained was to 1) consult with the COPPUL Public Services librarians about the project, and 2) find a means of keeping participants up-to-date about what work was taking place across institutions. Both objectives were accomplished when a member of the ANTS working group attended a COPPUL Public Services Meeting in November 2005 where they received feedback about the project and attended a session on Wikis; the latter of which allowed us to resolve our communications dilemma. After the meeting, the ANTS team located a Wiki; finalized development of the ANTS home page; and officially open the project to participants in February of 2006.

ANTS Backbone: Technology and Guidelines

In order to facilitate in the collective development of point-of-need tutorials across institutions ANTS makes use of a collection of Collaborative Information Technologies (CIT) in the form of a Wiki, an institutional repository, RSS feeds, Web pages, creative commons licenses, and open source software. These tools are the result of ongoing developments in the world of Web 2.0 Social Software and of initiatives put forward by the library and technology worlds. They allow people to collaborate across institutions in a way that would have been hard to envision only five years earlier, and as such, they enabled the project to meet all of the objectives it established in order to make sharing easy and desirable (see table 1).

People wishing to participate in the project begin by coming to the ANTS home page (<http://www.bran-donu.ca/Library/COPPUL/>). It provides potential participants with all of the information that they will need in order to locate, create, upload or download content to the project. It also indicates that as the purpose of the project is to create a “create a critical mass of Open Source Tutorials for online resources used by libraries everywhere;”⁷ and as one of the difficulties associated with developing tutorials for these products is currency; that we ask all participants to adopt a tutorial and commit to keeping it up-to-date whenever a vendor changes interfaces.⁸

One of the project’s key strengths is its utilization of a Wiki list that identifies key e-resources for collaborative tutorial development.⁹ This list was created out of an inventory of e-resources shared by many COP-PUL libraries and as it is editable by individuals. It allows participants to:

1. Indicate any time they intend to develop a specific tutorial or have completed one;
2. Access current information about what needs to be developed, what is in development, and what is completed;
3. Link to any tutorial that they have contributed to the project; and
4. Indicate that a tutorial should be developed for a specific e-resource not on the list, or for other tutorials that many would find useful to develop a collection of.¹⁰

It should be apparent that this list serves as more than a mere listing of identified products. It also serves as a 1) vital communication tool that enables participants to inform others of work taking place or completed and 2) a dynamic list that can grow in response to

changing demands. The Wiki list also offers RSS feeds, but this feature has yet to be implemented, as the RSS feature on Media Wiki cannot currently work with the number of pages on our site. This limitation should be addressed with an upgrade to Media Wiki. Once it is, the Wiki will be able send out notices any time someone posts that they have adopted a tutorial, completed a tutorial, or added a new tutorial to the list; thereby making all communication related to ANTS activity instantaneous.

As tutorials are only valuable if they are 1) substantive enough to be useful and 2) easy to use, the ANTS team developed important Guidelines for Designing Animated Tutorials.¹¹ They are used by anyone who has indicated that they have adopted a tutorial. They work to facilitate collaboration by focusing its requirements on:

1. The basic content that everyone would generally expect to see in a tutorial;
2. Design elements that enable tutorials to be exchanged more readily (such as standardized fonts and colors);
3. Practical advice on designing tutorials that are more viewable (e.g., recommended viewing times, sequencing, speed, context);
4. What to include or exclude about accessing documents in local collections;¹² and
5. Designing tutorials with others in mind so they can be used as produced by any library that does not wish to customize them.¹³

In dealing with the requirements identified above, these guidelines ensure that each tutorial is 1) a desirable end product, 2) easily configurable, and 3) capable of being used as produced. As they work to ensure that any tutorial is both useful and easy to use, they are a critical component of collective tutorial development.

Also important was the need to streamline the process of accessing and using tutorial source code. ANTS does this by providing all participants with access to a central repository¹⁴ where people can easily upload content and locate tutorial files. People using this repository will find that they can locate SWF files for viewing—or source code for downloading—either by searching or browsing for them. Aside from this, the repository provides people with pertinent metadata for each learning object and relevant user rights information. All user rights information is located in the creative commons license associated with each learning object. The license indicates what rights people have in relation to a specific tutorial as granted by the author of the tutorial.

Table 1: How Technology and Guidelines Enable ANTS to Achieve its Objectives										
	Wiki			DSpace				Guidelines	Web Page	DSpace Tutorial
	RSS Feeds	Dynamic Listing of E-Resources	Registration	Notification	Collection Site	Creative Commons License	Registration			
Objective 1: Provide a dynamic inventory of needed tutorials in order to facilitate sharing										
List of Tutorials for Development by Name of E-resource, Vendor and Priority		•								
Eliminate redundancy via Current Information on Work to be Done, Occurring, or Completed	F	•		•						
Enable participants to Edit List and Add New E-resources to list for Tutorial Development		•								
Direct Link to Actual Tutorial		•			•					
Objective 2: Make It Easy to Locate, Learn About, and Use Tutorials										
Central Home					•					
Ability to View Tutorial before Downloading					•					
Metadata Linked to Learning Object					•					
User Rights Information						•				
Easily Exchangeable / Customizable							•			
Objective 3: Provide people with Information and Technology needed to participate										
Adopt a Tutorial Information								•		
Advise participants of the need to provide others with the right to customize their tutorial								•		•
Content needed to ensure the Tutorial is Substantial Enough to be Useful								•		
Advice on how to make tutorial more Viewable								•		
Information on How to Deal with Local Holdings Issue								•		
Ability to feed participants information about ongoing Developments	F			•						

ANTS Lesson #2: The Critical Role of Collaborative Information Technology.

In their article “Given Enough Minds...Solving the Ingenuity Gap,” Hassan Masum and Mark Tovey talk about the challenges associated with creating a ‘sustainable open infrastructure dedicated to finding solutions’¹⁵ to intractable problems that require the combined intelligences of a diverse array of people dispersed geographically. As part of their discussion they indicate there is a need for tools that:

[filter] contributions and contributors to separate the wheat from the chaff, [build] as sense of community and shared goals, [motivate] contributors to stay involved, [make] the link form smaller to larger efforts and [keep] the whole process fun and productive.¹⁶

Masum and Tovey go on to indicate that the fun factor is critical and hence the infrastructure should be “so much fun that it becomes a natural, widely accepted custom—a combination of widely available software, open science, and open content that leads to open participation in building our common future.”¹⁷

While some might argue whether creating and sharing animated library tutorials would appear to be “fun” to anyone outside of the library profession, it can be argued that ongoing developments in technology and licensing have enabled ANTS to create a *sustainable open infrastructure* that makes sharing more *natural*; an infrastructure that encourages *open participation in building [libraries’] common future*. Member institutions—such as the University of Calgary and the University of Winnipeg—were able to make DSpace and Media Wiki available to others outside of their institutions [i.e., were able to make the software *widely available*] as both were open source and not restricted by licensing constraints. The emergence of social and Web 2.0 software—such as Wikis and RSS feeds—have transformed the Web from static to dynamic sites where people can add or alter content. This enabled ANTS to easily incorporate inter-institutional/peer-to-peer communication into its project so that fellow professionals everywhere can keep themselves—and others—up-to-date about ongoing developments and make the process of sharing truly efficient. Finally, creative commons licenses were invaluable in eliminating messy copyright or licensing restrictions, and in informing others of their rights as it relates to a tutorial. This, in turn, removed one of the last hurdles to sharing source code: uncertainty. As a

result, it was relatively easy for ANTS to provide participants—across institutions—with all of the infrastructure, and information, that they needed in order to:

1. learn whether a tutorial is developed, in development, or if it has been recently completed,
2. easily locate the source code, metadata and user rights associated with any tutorial,
3. find and use tutorials that are current, substantive, highly viewable, and easy to customize, and
4. update the inventory of tutorials for development.

ANTS Lesson #3: Need to Re-envision How We Work

Given that ANTS infrastructure is now open to librarians everywhere—including over 214,000 in North America alone¹⁸—there is now a real opportunity to create and update a critical mass of learning objects that no one library could conceivably create and manage on their own. These learning objects will be important to libraries as they:

1. provide users with an engaging, 24/7, point-of-need, information literacy service that is needed to help students become a) engaged learners who do better in school,¹⁹ and b) more information savvy,²⁰
2. enable libraries to become active contributors to their institution’s e-learning environment,²¹ and
3. enable libraries to “proactively project our services [i.e. tutorials] into the settings ... where our users are most likely to look for them”²²—such as learning management Systems, course sites, and distance education provider sites.

As all of the infrastructure, guidelines and licensing issues have been addressed; the last remaining hurdle is one of attitude and awareness. Public services librarians—who traditionally focused on “their users” local information needs—have seen “their users” flock to Google. These same librarians—who see an increase in user expectations without a concomitant increase in resources—despair as they feel that they cannot conceivably answer all of their users growing needs. These same librarians—should they choose to re-envision their role as one of being a provider of services to all library users—might soon come to realize that even though they are working under taxing circumstances, collaboration affords them the opportunity to develop most of the 24/7, value added, learning objects that could be made available to their users where their users are most likely to need and use them.

All collaborations involve trust, and this would require that many develop a “radical trust”²³ in other’s

ability to serve their local user's instructional needs. Although this would require a substantial leap of faith by some, there are indications that the necessary sea change is coming. Presently, there are two other collaborative projects—CORIL and CLIP.²⁴ There is also an emerging discussion around collective tutorial development in publications,²⁵ and blogs.²⁶ These discussions are good signs that the people are waking up to the need for inter-institutional cooperation and that they may be ready to take the plunge.

Librarians have—by and large—woken up to the reality that our users value convenience; to the reality that today's information seekers turn first to the Internet; to the reality that we must ensure that our services are made visible to people where they are most likely to see them on the Internet; and to the reality that libraries need to find ways to contribute learning to our institutions e-learning environments. What we have not woken up to is the opportunities afforded to us by collaborative information technologies—such as social software, creative commons, and open source. ANTS demonstrates that we do have the ability to develop the social and technological infrastructure that makes inter-institutional collaborative work easy and reliable—thereby enabling us to tap into the professional expertise of librarians outside of our institutions. Now, it is important for all of us to realize that inter-institutional collaboration and virtual team work will increasingly become an important part of all of our jobs. If we do so, we can collectively provide users with the kinds of services that they now seek; the kind of services that will allow us to have a presence where they are; the kinds of service that will benefit all of “our users.”

Conclusion

ANTS was made possible due to advancements in technology; changes in information licensing; and the strength of diverse inputs from partners and contributors who shared a common vision. Using current technology in working towards a common goal, this diverse group was able to create a synergistic system for collaboration. This is good news for libraries and librarians as it informs us that technology enables inter-institutional collaboration at a time when libraries most need to do so; that it enables us to stop worrying about the Googles of the world, and to begin working towards better services for “our users”.

Notes

1. Gary Roberts, “Small Libraries, Big Technology,”

Computers in Libraries 25, no 3 (March 2005): 24. EBSCOhost Business Source Premier, <http://web.ebscohost.com/> (accessed April 20, 2006).

2. The Deep Web is a term originally defined in a 2001 White Paper by Michael Bergman. In it he indicated that the digital content not found by search engines—but available via database driven content—is in the magnitude of 400–550 times greater than the one billion sites on the Internet, so that “simultaneous searching of multiple surface and deep web sources is necessary when comprehensive information retrieval is needed.” Although search engines like Google are working to index a few of the deep web sites—such as Amazon or publisher sites—there are many others with commercial interests that would not want to see their content indexed by Google, and these definitely include database vendors who supply search engines and content to libraries. Consequently, in the near future, it is unlikely that our users can access this content unless they use the tools we provide them with, and the instructional resources they need in order to learn how to use them properly. See Michael K. Bergman, “The Deep Web: Surfacing Hidden Value,” *JEP: The Journal of Electronic Publishing* 7, no 1 (August 2001), <http://www.press.umich.edu/jep/07-01/bergman.html> (accessed January 3, 2007).

3. Association of Research Libraries, *ARL Library Trends* (Washington, D.C.: Association of Research Libraries, 2004), Table 1: Service Trends in ARL Libraries, 1991–2004, <http://www.arl.org/stats/arlstat/05pub/05intro.html> (accessed May 5, 2006).

4. Data gathered from a variety of sources consistently points to a user preference for first consulting the Internet. In a 2002 report by the Pew Institute, it was found that “students tend to use the Internet prior to going to the library to find information” See Steve Jones, *The Internet Goes to College: How Students are Living in the Future with Today's Technology* (Washington, D.C.: Pew Internet and American Life Project, 2002), 13, http://www.pewinternet.org/report_display.asp?r=71 (accessed December 28, 2006). It was also reported that 73 percent of students indicate that they use the Internet more than the library for their research. (12) Similarly, in the 2005 OCLC White Paper, 89 percent of college students indicated that they begin their searches for information with an Internet Search engine. See OCLC, “College Students' Perceptions of Libraries and Information Sources: A Report of OCLC Membership” (Dublin, Ohio: OCLC Online Computer Library Center, Inc, 2006), 1–7, <http://www.oclc.org/reports/perceptionscollege.htm>. (accessed December 20, 2006). The data also indicates that it is their preferred destination in the future as 91 percent indicated they would use a search engine, 66 percent indicated they would use the library,

and 50 percent indicate they would use a virtual library, next time they did research (1–11).

5. Lifestyle fit is the reason identified by different user groups whose needs are not being met by the traditional library. It is common knowledge that distance education students are unable to access the physical library, as they are disadvantaged by location. Studies done on nontraditional students indicate that this group of students are equally disadvantaged by time. In a 2002 study of nontraditional undergraduates, 30 percent of minimally nontraditional, 38 percent of moderately nontraditional, and 50 percent of highly nontraditional students who worked, indicated that their work limited their access to the library. See Susan Choy, "Nontraditional Undergraduates: Findings from the Condition of Education 2002" (Washington, DC: National Center for Education Statistics: 2002), 8.

In a Netlibrary study, traditional students also indicated that time is a factor affecting their preference for the Internet over the library. In it 75 percent of full-time students interviewed said they do not have enough time; 85 percent responded that it is common to be unable to get the reading materials they need because the library is closed late at night or early in the morning; and 71 percent indicated that they save time by finding information online. See Netlibrary and Yankelovich Partners, "Online Attitudes and Behaviors of American College Students" (1999), <http://www.netlibrary.com/Company/PressReleases/20000113-3.htm>. (accessed November 24, 2006).

The Netlibrary Study measured student attitudes about the convenience of the Internet in 1999—and if anything they have intensified over the years. In a 2005 OCLC study, 97 percent of students indicated that search engines were a good to perfectly with their lifestyle. In contrast, 63 percent of students indicated that physical libraries were a good to perfect fit and 63 percent felt that virtual libraries were a good to perfect fit. See OCLC, "College Students' Perceptions of Libraries and Information Sources: A Report of OCLC Membership," 3–20. The contrast in findings between the Internet and virtual libraries—both of which are accessible on a 24/7 basis—is likely attributable to a lack of awareness as 32 percent of college students are unsure about whether the library owns electronic journals and 33 percent are unsure about whether the library provides access to databases (2–4).

6. Another factor that leads to students' preference for search engines is their belief in the trustworthiness of information found on the Internet. Recent findings indicate that students not only value the ease of use of search engines—they also are confident in the quality of information accessible through them. Ninety-six percent of college students agree or completely agree that Google provides them with

worthwhile information. (See: "College Students' Perceptions of Libraries and Information Sources: A Report of OCLC Membership, 1–13), and 69 percent believe that the information they receive from a search engine is as trustworthy as the information they receive from a library (3–4).

7. See <http://www.brandonu.ca/library/coppul/>.

8. See <http://www.brandonu.ca/library/coppul/Identify%20Viewlets%20for%20Development.htm#Adopt%20a%20Viewlet>.

9. This Wiki is an Open Source Wiki housed at the University of Winnipeg. Karen Hunt—the initial COPPUL Public Services Representative to ANTS—granted the group permission to use it for the project when they put out the call for a Wiki. The Wiki List—as constituted—arose from a survey I constructed and was designed by Paul Pival and myself. See http://wiki.uwinnipeg.ca/index.php/COPPUL_Tutorials.

10. While the ANTS project initially started as a means of developing important point of need tutorials for e-resources that COPPUL wanted developed, it soon became obvious that its dynamic infrastructure would allow it to do much more. As a result, ANTS opened its infrastructure to any animated library tutorial created by any librarian (within or outside of COPPUL) and its team members have been told that it would be useful for general information literacy tutorials and for literacy tutorials used in public libraries. Needless to say, the more people learn about the project, the more ideas will come forward and be posted on the site.

11. The primary author of the document was one team member Bill Badke, an information literacy librarian at Trinity Western University. Bill designed the guidelines and received input from COPPUL librarians before they were finalized and accepted by the ANTS working group. See <http://www.brandonu.ca/library/COPPUL/Guidelines%20for%20Animated%20Online%20Tutorials%20Final%20Revision.pdf>.

12. In particular, the guidelines emphasize that if a database links to articles within its database, the tutorial could include bringing up full-text articles from that database—as it would display the same way in each library. If however, the database links to full-text outside of its database, or points to holdings in hardcover, we ask people to include a slide that tells users to go their library's "How to locate items in our library tutorial," which would show them how to bring up articles using ABC lists, link resolvers, or library catalogs. In this manner, any tutorial created can mention holdings and be used by any library—despite differences in how items are located in various institutions.

13. The section related to designing tutorials with others in mind was not integrated into the guidelines until the spring of 2006 as our first draft was designed with the idea that libraries would like to customize tutorials. As a result,

many of our earlier tutorials incorporated things that other libraries indicated that they wanted to see omitted—such as how to get to a database from a specific library’s home page.

14. This repository is DSpace and is housed at the University of Calgary. It became available to us when one team member—Paul Pival—learned that it had been upgraded to accept learning objects and asked whether it could be used to house the COPPUL ANTS tutorials. Paul was able to secure access to DSpace as it is an open source repository—and hence there were no restrictions on who could use it (i.e., on people outside of the University of Calgary) as is often the case with commercial software. See <https://dspace.ualgary.ca/handle/1880/43471> He also developed a tutorial using SWF software that informs others about how to add content to DSpace. See <https://dspace.ualgary.ca/handle/1880/44054>.

15. Hassan Masum and Mark Tovey, “Given enough minds ... Bridging the Ingenuity Gap,” *First Monday* 11, no. 7 (May 2006), http://www.firstmonday.org/issues/issue11_7/masum/index.html (accessed August 28, 2006).

16. Ibid.

17. Ibid.

18. According to OCLC there are 203,000 librarians in the United States. See OCLC, *Libraries: How they Stack Up*, (Dublin, Ohio: OCLC Online Computer Library Center, Inc, 2003), 6. <http://www.oclc.org/reports/2003libsstackup.htm>. (accessed December 20, 2006). According to Statistics Canada there are 11,400 in Canada. See *Statistics Canada*. 2001 Census: Occupation.

19. The National Survey of Student Engagement reported that schools which “channel student time and energy toward effective educational activities [did] two things very well; 1) They teach students early on how to take advantage of institutional resources for their learning and 2) they make available to students what they need when they need it.” One need not have to be proficient in reading tea leaves to understand that the library’s role in creating engaged learners centers around teaching them to use our information resources effectively and making sure that they can access this help on a 24/7 basis. See Center for Post-Secondary Research, “National Survey of Student Engagement: Pathways to Collegiate Success: 2004 Annual Survey Results” (2004), 6. http://nsse.iub.edu/2004_annual_report/pdf/annual_report.pdf (accessed December 20, 2006).

20. Although millenials appear to be confident in their ability to discern useful information, Chuck Thomas and Robert H. McDonald rightly point out that “one cannot assume that this generation is any more intuitively skilled than other groups in finding or understanding information” (See Chuck Thomas and Robert H. McDonald, “Millennial Net Value(s): Disconnects Between Libraries and the Informa-

tion Age Mindset,” Florida State University D-Scholarship Repository, Article #4. (August 15, 2005), 96. <http://dscholarship.lib.fsu.edu/general/4> (accessed December 19, 2006)) and—as a result—libraries need to find ways “to deliver information literacy skills to them in alternate channels and spaces” (102).

21. In the report “Libraries and E-Learning” by the Canadian Association of Research Libraries, one key requirement identified was the need to “embed training modules to assist with information seeking” into E-Learning Systems—the very thing that ANTS enables libraries to do. See CARL “E-Learning Working Group, Libraries and E-Learning: Final Report of the CARL E-Learning Working Group” (November 2005), 10. http://www.carl-abrc.ca/projects/e_learning/pdf/final-report.pdf (accessed March 2006).

22. Gary E. Strong, “If we change it – will they come?,” *Reference Services Review* 34, no 3 (2006): 338.

23. Tim O’Reilly, “What is Web 2.0: Design Patterns and Business Models for the Next Generation of Software,” <http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html> (accessed May 1, 2006).

24. CORIL is a repository of library tutorials that was originally envisioned as a place where peer-reviewed tutorials could be housed. CLIP is a newer project that also is open source and indicates that one of its goals is the creation of guidelines for tutorial development across institutions. Neither provides the advanced sharing infrastructure that ANTS does, due to different focuses (as in CORIL) and their stage of development (as in CLIP). They can be found at: <https://ospace.scholarsportal.info/handle/1873/6> and <http://library.nsuok.edu/tutorials/project/>.

25. See David Gee, “Laying the Foundations of Law Library Cooperation around the World,” *Legal Information Management* 3, no. 3/4, (winter 2003): 202. This publication reports on a workshop held by the Legal Information Transfer Network in 2002. During the meeting they indicated that there was a need for a “pilot [project for] online tutorials that, in time, could be shared and customized by all partner libraries”—but there is no indication that the project ever got off the ground.

26. In the “Share and Share Alike” entry on the Library Voice Blog, the author—Chad F. Boeninger—wrote that he has received several requests from people who want to use the source code for an EBSCOhost tutorial that he developed. In the entry, Boeninger indicates that he made the source code available via a creative commons license—just as ANTS has done. See Chad F. Boeninger, Chad F. “Share and Share Alike,” The Library Voice Blog, entry posted Oct 11, 2006. <http://libraryvoice.com/index.php?s=share+and+share+alike> (accessed November 20, 2006).