The 2007 STS Continuing Education Survey: Continuing Education Needs of Science/Technology Librarians

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Abstract

This article discusses the background and results of the 2007 biennial survey of the continuing education interests of science and technology librarians conducted by the Science and Technology Section (STS) of the Association of College and Research Libraries (ACRL).

Introduction

Provision of continuing education opportunities is an important part of the mission of the ACRL Science and Technology Section (STS). In the almost 50 years since the Section's formation different committees and discussion groups within the Section provided continuing education opportunities. In the 1990s a Continuing Education Committee was formed to guide officially this important Section function. Desai (2002) describes the history of the Section's continuing education programming and the methods used by the Section to gather information on the programmatic needs of its membership. She identifies two broad trends in science and technology (S/T) librarianship that drive the need for continuing education. Many S/T librarians have limited academic training in the sciences and technology and rapidly changing technologies requiring constant updating of skills now permeate the daily practice of librarianship.

The charge to the STS Continuing Education Committee is "To coordinate, promote and encourage all continuing education efforts within the Science and Technology Section." In response to this charge the Committee has three major ongoing programs: maintain Professional Continuing Education on the Web: A Guide to Internet Resources for Science and Technology Librarians, a site listing current online continuing education opportunities; maintain the STS Sci/Tech Mentoring Program which pairs experienced S/T librarians with those just entering the practice
of science and technology librarianship; and conduct a biennial survey soliciting the continuing education needs of S/T librarians. The remainder of this article will discuss the 2007 survey methods and results with comparison to the 2003 and 2005 surveys.

Methods

Surveys have been used since the mid-1980s to discover member interests and guide the Section's programming efforts. The earliest surveys were distributed to the membership inside the Section newsletter, *STS Signal*. Members were asked to choose three topics of interest from a list of 10 pre-selected topics and mail the survey to a discussion group chair (*Desai 2002*). Changing technology allowed the survey to transition into an electronic format both for distribution and completion and for reporting the results to the membership of STS and beyond. In 2001, 2003 and 2005 the survey was distributed electronically and responses were submitted electronically. In 2003 and 2005 the Committee posted the results of the survey to the STS web page. Additionally a 2004 Hot Topics survey was posted to the web site. These results are readily available to the community of S/T librarians to aid in identifying topics of interest for regional and local programming.

The 2004 Hot Topics survey was the first in which STS collaborated with the Engineering Libraries Division of the American Society of Engineering Education (ELD) and the Science-Technology Division of the Special Libraries Association (Sci-Tech). The origins and history of that collaboration are reported by Spackman, et. al (*2006*). This collaboration continued with the 2005 and 2007 surveys. The 2007 survey benefited from significant input into question formation and suggestions for improving the response rate, from Sci-Tech and members of the STS CE Committee. The questionnaire was distributed in Fall 2007 on the discussion lists of STS which had 1,174 subscribers (*Bobal 2008*), ELD which had 503 subscribers (*DeSart 2008*), Sci-Tech which had an unknown number of subscribers, and CHMINF-L, the Chemical Information Sources Discussion list, which had 1,426 subscribers (*Winterman 2008*).

The 2007 questionnaire, found in Appendix 2 at the end of the article, utilized Survey Monkey software and built on the structure of the 2004 and 2005 surveys. A major goal of the 2007 survey committee was to increase the response rate to the survey which has been low since the first survey in mid-1990 with the exception of the 254 responses to the 2004 Hot Topics survey. The 2007 Committee adopted multiple strategies to increase the response rate.

A monetary incentive of $170.00 towards a professional conference registration was recommended and the STS Council and Executive Board approved and funded this recommendation. The winner was chosen at the 2008 Midwinter meeting from the pool of survey respondents who chose to submit their e-mail address to the drawing.

The 2005 survey committee recommended moving the Likert scale and pre-selected topics ahead of the open-ended questions (*Spackman 2006*) as a strategy to increase the response rate. This recommendation was incorporated into the 2007 survey.

The 2007 committee worked to reduce the number of overall questions to make the survey shorter and therefore more appealing to respondents. The 2007 survey focused on identifying continuing education topic interests and methods of delivery. For this reason all but four demographic questions were eliminated. The 2005 committee recommended that questions from previous biennial surveys be included in the 2007 survey so that trends across time could be identified. The 2007 committee reviewed questions from the 2003, 2004, and 2005 surveys and incorporated them into the 2007 survey by broadening the wording of topics to incorporate subsidiary topics, for example, "keeping current with technology" instead of individually listing technologies.

Results and Discussion

There were 362 respondents to the 2007 survey, the highest number of responses ever received. This number is still low relative to the potential number of respondents from the four electronic lists where it was heavily promoted. The majority of the respondents, 77.5%, worked in academic libraries, 10% worked in corporate libraries, 7% in government, 1.1% in public libraries, and 5.1% reported themselves as other. Eighty percent of the respondents were female, 18% were male, and 2% did not identify their gender. Sixty-four percent of the respondents were ALA members, 56% belonged to ACRL and 48% to STS. Twenty percent were members of ELD and 43% were SLA STD members. None of the respondents identified themselves as a member of the ACS
Chemical Information Division. These numbers indicate a group of respondents who are very professionally engaged holding multiple memberships in professional societies. While the number of responses was up overall the number of responses from ELD, SLA STD, and CHMINF-L declined. The majority of respondents, 53.6%, had received their master's degree in library and information science more than ten years ago. This question was not asked in 2005. In 2003 about half of the respondents had the master's degree less than 10 years and about half had it more than ten years. The 2007 response represents a slight shift in favor of more experienced librarians.

Pre-selected Topics

The 2007 survey, like the 2005 survey, listed 24 topics that were either selected by the committee or have historically been included in the survey. In 2004 there were 21 pre-selected topics and in 2003 there were 22. Twenty-one of the pre-selected topics on the 2007 survey were on either the 2003 or the 2005 survey. Three new topics were added: future roles for libraries and librarianship; future of reference, e-mail, chat, IM, other new technologies; library as place. As in the earlier surveys responders were asked to rank the topics below from 1, least important to 5, most important. Table 1 rank orders the topics from highest to lowest score.

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Rating Average</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaboration between faculty and librarian</td>
<td>3.69</td>
<td>362</td>
</tr>
<tr>
<td>Evaluating existing services/developing new services</td>
<td>3.69</td>
<td>361</td>
</tr>
<tr>
<td>Future roles for libraries and librarianship</td>
<td>3.65</td>
<td>360</td>
</tr>
<tr>
<td>Keeping current with technology, e.g. Web 2.0, blogs, listservs, RSS, podcasts, etc.</td>
<td>3.65</td>
<td>358</td>
</tr>
<tr>
<td>Collection development, print and electronic resources</td>
<td>3.58</td>
<td>360</td>
</tr>
<tr>
<td>Future of reference, e-mail, chat, IM, other new technologies</td>
<td>3.53</td>
<td>358</td>
</tr>
<tr>
<td>Library instruction, assessment and surveys</td>
<td>3.49</td>
<td>354</td>
</tr>
<tr>
<td>Designing Web tutorials</td>
<td>3.32</td>
<td>359</td>
</tr>
<tr>
<td>Managing and utilizing usage statistics</td>
<td>3.27</td>
<td>360</td>
</tr>
<tr>
<td>Professional advancement</td>
<td>3.24</td>
<td>357</td>
</tr>
<tr>
<td>Copyright in the electronic age</td>
<td>3.23</td>
<td>357</td>
</tr>
<tr>
<td>Alternative publishing models and the cost of serials</td>
<td>3.2</td>
<td>358</td>
</tr>
<tr>
<td>Enhancing access to full text through Google Scholar</td>
<td>3.14</td>
<td>360</td>
</tr>
<tr>
<td>Invisible web</td>
<td>3.07</td>
<td>356</td>
</tr>
<tr>
<td>Library as place</td>
<td>3.07</td>
<td>358</td>
</tr>
<tr>
<td>Management skills, budgeting, personnel recruiting, training, and evaluation, etc.</td>
<td>2.99</td>
<td>361</td>
</tr>
<tr>
<td>Federated searching</td>
<td>2.97</td>
<td>359</td>
</tr>
<tr>
<td>Advocacy, generating awareness of library services</td>
<td>2.89</td>
<td>354</td>
</tr>
<tr>
<td>Building and utilizing institutional repositories</td>
<td>2.86</td>
<td>356</td>
</tr>
<tr>
<td>Informatics</td>
<td>2.83</td>
<td>357</td>
</tr>
<tr>
<td>Consortial collaboration</td>
<td>2.79</td>
<td>359</td>
</tr>
<tr>
<td>Patent and trademark sources, searching, etc.</td>
<td>2.71</td>
<td>360</td>
</tr>
<tr>
<td>Improving document delivery services</td>
<td>2.64</td>
<td>359</td>
</tr>
<tr>
<td>Managing archival rights</td>
<td>2.41</td>
<td>356</td>
</tr>
</tbody>
</table>
All of the pre-selected topics held interest for the responders. Only one of the 24 pre-selected topics received a Likert ranking lower than 2.5. Fifteen of the pre-selected topics were ranked above 3.0. No item received a ranking above 3.69 indicating that respondents to this survey did not strongly converge on a single issue or a few issues. S/T librarians' responses in 2007 suggest strong interest in many issues confronting the profession. In contrast the 2005 survey showed convergence around four topics that scored above 4 on a 5-point Likert scale. Results of the 2003 survey indicate a weaker level of engagement with the pre-selected topics. In the 2003 survey only two items were scored above 3.0 and four scored below 2.0.

Two items ranked at the top of the 2007 survey both receiving a Likert score of 3.69. The first was "collaboration between faculty and librarian." This was the second-ranked item in the 2005 survey and the top-rated item in 2003. Clearly this topic is of sustained interest to S/T librarians.

"Evaluating existing services/developing new services" also received a Likert score of 3.69 in the 2007 survey. In 2005 this was topic ranked seventh with a Likert score of 3.88. In 2003 this was not a pre-selected topic nor was it among the respondents' additional suggested topics. This topic has emerged as a growing interest of S/T librarians.

Two items also tied as the second most highly rated in the 2007 survey receiving Likert scores of 3.65. "Future roles for libraries and librarianship" was one of them. This topic did not appear as a pre-selected topic in either 2005 or 2003. However it did appear as an open-ended question response in the 2005 survey. This is a topic of emerging interest to S/T librarians.

"Keeping current with technology, e.g., Web 2.0, blogs, listservs, RSS, pod casts, etc." also received a Likert score of 3.65 in the 2007 survey. This topic was the tenth item of interest in the 2005 survey receiving a Likert score of 3.72. Using technology also appeared as an area of interest in the 2003 survey. "Electronic reference (e-mail, chat, etc.) was the 13th highest ranked topic with a Likert score of 2.23. This topic holds a sustained and growing interest for S/T librarians.

"Collection development, print and electronic resources" rated third in 2007 with a Likert score of 3.58. The topic of collection management and the appropriate mix of collection formats appeared on the list of pre-selected topics in both 2005 and 2003 although the wording varied each year. Selection and collection development issues were also frequently mentioned in response to the open-ended questions of the three surveys. Not surprisingly, collection development is a sustained interest of S/T librarians.

"Future of reference, e-mail chat, IM, other new technologies" ranked fourth in the 2007 and 13th in the 2003 survey. The 2003 and 2005 surveys both included pre-selected topics related to the use of technology and the provision of reference services. The topic was worded by the CE committee this year to suggest a broader topic including the need to examine reference service in response to technological advances. This topic holds growing and sustained interest.

The third pre-selected topic that was new to the 2007 survey was "Library as place." The topic tied with another topic, "Invisible Web," with a Likert score of 3.07 and ranked in the middle of the pre-selected topics.

The 24th and lowest ranked item in the 2007 survey, "managing archival rights," received a Likert score of 2.41. In the 2005 survey this was the 14th ranked item with a Likert score of 3.63. Interest in this topic declined between 2005 and 2007.

Open-Ended Questions

In addition the survey requested responders to submit other topics of interest to them. Response to this open-ended question was robust. Many topics from the very broad to the very specific were suggested. The authors have grouped the suggested topics into eight broad categories. Table 2 summarizes the categories of suggested topics. The topics in the original wording of the respondents, also grouped into eight broad categories by the authors, are at the end of the article as Appendix 1.

A review of the respondents' suggested topics indicates that some suggestions were very similar to the pre-selected topics. For example there was a pre-selected topic "advocacy, generating awareness of library services" and there were the suggested topics "marketing library services" and "outreach opportunities/marketing (to not only faculty)." Suggested topics expanded upon or went beyond the pre-selected topics. For example "collaboration
between faculty and librarian" and "consortial collaboration" were pre-selected topics that specifically addressed collaboration. Responders suggested additional types of collaboration such as "academic industrial pairings" and "corporate-academic partnerships." They also suggested specific types of collaboration such as "collaborative publishing with faculty" and "librarians as researchers and co-PIs with research faculty at the university." These very specific suggestions can aid in focusing planning for program sessions and identifying the types of speakers of greatest interest.

<table>
<thead>
<tr>
<th>Category</th>
<th>No. of topics suggested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collections</td>
<td>13</td>
</tr>
<tr>
<td>Collaboration</td>
<td>8</td>
</tr>
<tr>
<td>Information Services Management</td>
<td>12</td>
</tr>
<tr>
<td>Marketing and Outreach</td>
<td>4</td>
</tr>
<tr>
<td>Professional Development</td>
<td>18</td>
</tr>
<tr>
<td>Reference and User Services</td>
<td>18</td>
</tr>
<tr>
<td>Subject Specific Resources and Issues</td>
<td>8</td>
</tr>
<tr>
<td>Technology</td>
<td>25</td>
</tr>
</tbody>
</table>

The respondents identified the preferred methods for receiving continuing education opportunities in this order: web-based information, in-person workshops, or national conference/pre-conference workshops. These were the three preferred methods identified in the 2005 and 2003 surveys. There was low interest in traditional credit courses or e-mail tutorials. There was low interest in mentoring. Only 17% of the respondents had an interest in mentoring which corresponds to the fact that 53.6% of the respondents received the graduate degree in librarianship more than ten years ago. Only 19.8% of the respondents had received their master's degree three or fewer years ago, and it is this group which would be most likely to be interested in a mentor.

**Implementation and Use of Survey**

The survey is available to be used as a resource for programming committees in STS and by our partner organizations ASEE EDL and SLA SciTech. The STS Hot Topics Discussion Group regularly uses the survey outcome to plan discussion group sessions at ALA Annual and Mid-Winter meetings. The survey results are disseminated through the STS web site, through mailing list announcements, and by way of this article to reach local and regional organizations interested in programming for S/T librarians.

**Recommendations for the Next Survey**

Many demographic questions were suggested to the committee for inclusion in the questionnaire. There is interest in adding gender options to the questionnaire allowing individuals to self identify as gay, lesbian or transsexual. There was also interest in gathering more data about academic preparation of S/T librarians such as the discipline of their undergraduate and any graduate degrees held in addition to the master's degree in library science.

The 2007 committee recommends maintaining continuity in the selection of topics to obtain longitudinal data about trends in the interests of S/T librarians while still leaving opportunity for hot topics to emerge.

**Suggested Web Sites:**

2007 Continuing Education Survey Results


2005 Continuing Education Survey Results
References

Bobal, A. 2008. Private e-mail.


DeSart, M. 2008. Private e-mail communication.


Appendix 1

These are the unedited responses from the open-ended question "Did rating the pre-selected topics jog your memory about other topics of interest?" The authors have organized the responses into the eight category headings.

Collections

- Assessment and statistics
- Cataloging
- Collection assessment
- Collection management (weeding, purchasing)
- Contract negotiations
- Data curation, e-science, other information about management and especially acquisition of data
- License negotiation
- Management of data from researchers / Institutional Repositories
- Moving to the electronic series
- Scholarly communication
- Science e-journal costs and packages
- Updates on OA mandates
- Vendor updates

Collaboration

- Academic industrial pairings
- Collaboration among libraries
- Collaborative publishing with faculty
- Corporate-academic partnerships
- Dealing with science faculty, including the teaching of science databases
- Forming partnerships with other libraries to provide services to students enrolled in distance learning
- Globalization, global opportunities for science librarians
- Librarians as researchers and co-PIs with research faculty at the university

Information Services Management

- Beyond library as place - libraries as learning spaces
- Costs and benefits of information services. Return on investment and other metrics in information services
- Finding ways to recruit people with programming skills to work on library projects and products - e.g. how to write requirements documents, use case scenarios, put out RFPs, work with programmers, etc.
- Fostering an informal learning environment -- encouraging interaction between students, students and faculty, faculty and researchers, etc.
- Fostering innovation in the library
- If all STM information were free, what would libraries do then? Would researchers need librarians more or less? And what would librarians focus their advocacy on then? Would we advocate for making all university education free? Or would we marshal our energy behind universal health care?
- Recruiting / succession planning
- Reflecting the institution's mission in the academic library goals
- Staffing the library into the future
- When to ask for legal counsel
- Whether to eliminate or streamline procedures and old best practices
- Working with support staff
Marketing and Outreach

- Crafting the elevator speech - developing a 30sec - 2min discourse for faculty and students about how we can make their life better
- Expanding library awareness to academic constituents such as administration and staff
- Marketing library services
- Outreach opportunities/marketing (to not only faculty)

Professional Development

- Communication, conflict resolution, negotiation, interpersonal skills, supervisory skills
- Conduct research studies with the goal of publishing an article on the findings.
- Dealing with information overload
- Grant writing
- How to get more done in less time
- Information for new librarians; getting in the door
- Intra-institutional training. What do other individuals do in the institution?
- Leadership for librarians
- More efficient internet searching
- New information professions; e.g. data curation in scientific databases
- Research and publication process (particularly for newer librarians in academia)
- Searching strategies
- Technical writing/report writing
- Time management
- Using your ALA membership to best advantage - finding other people, resources and services with similar interests and needs
- Vendor contract negotiation skills
- Work/life balance
- Writing well for a web environment

Reference and User Services

- Balancing the use of print and electronic resources
- Cited reference searching beyond Web of Science and Scopus
- Copyright - Canadian and International, current awareness
- Customer service
- Designing effective assignments, quizzes, and exams
- Encouraging scientific literacy
- Finding Technical reports, standards and/or conference proceedings
- Freely available online research data
- Helping kids
- How our clients/users/patrons use our electronic resources and how to study this
- Information seeking in everyday life
- Managing and utilizing usage stats
- New approaches for individuals to learn information literacy skills in order to work independently
- Patterns of information use among scientists, engineers and technology graduate students
- Skills related to successfully serving our association, such as running volunteer groups, chairing meetings, chairing committees etc
- Supporting GIS use
- Understanding undergraduates and their use of information
- Use of gaming for information literacy training

Subject-Specific Resources and Issues

- Content areas: biology, chemistry, geology, bioinformatics and genomics, Astronomy, Physics, Petroleum industry, Mining, etc.
- Dealing with consolidating libraries and meshing of various subject groups
- Developing core collections to meet needs of new programs
• Strategies for changing subject specialties, getting proficient in the new area
• Subject-based reference roundups
• Unique role of science/science librarians in research libraries. What makes science different? Why does science seem to be moving in its own direction?

Technology

• Advanced web programming or database construction skills
• Archiving born digital materials
• Desktop publishing
• Digitization projects
• Do libraries need library web sites anymore?
• Effective digital library management, including integration of digital libraries into the mainstream organization and workflow
• Information visualization
• How the way science/research is being done is changing due to technology and how this effects scholarly communications/publishing
• How to best make use of listservs
• How to delete email
• Keeping current
• Implementing new information technology standards in libraries
• Improving the OPAC
• Integration of existing information technologies - blending the services we provide (and simultaneously moving away from the silo model of services and technologies)
• Library presence in social networks
• New subject classification approaches (FRBR), faceted searching and related catalog usability issues
• New technology applications
• Online collaboration
• New subject classification approaches (FRBR), faceted searching and related catalog usability issues
• Social Networking and other e-environments and how they are being used relative to library and information science in STS
• Web accessibility and Section 508 compliance
• What are the cognitive implications of virtual worlds? If librarians have to deliver LIS instruction via Second Life, what does this say about how young people are learning and forming learning relationships? E.g., if a student is anonymous or only identified as an avatar and an instructor is anonymous or only identified as an avatar, how is the student/instructor relationship changed? What are the implications for career development? (How can one avatar serve as a reference for another avatar?)
• Wiki formats for subject guides: enhancing wiki-format library web pages with images, media, etc.
• Will there be a universal library catalog?

Appendix 2

2007 STS Continuing Education Survey

Help the STS Continuing Education Committee plan future programming by completing this survey and get a chance to win $170.00 TOWARD A 2008 CONFERENCE REGISTRATION OF YOUR CHOICE!

Tell us about yourself.

1. Where do you work?
   Academic library
   Corporate library
   Government library
   Public library
   Other
2. Years since receiving your master's degree in library science
   - Less than 3
   - 3-5 years
   - 5-10 years
   - More than 10 years

3. Gender
   - Male
   - Female

4. What professional organizations are you a member of?
   - ALA
   - ACRL
   - STS
   - ASEE ELD
   - SLA STD
   - Other (please specify)

5. How would you prefer to receive continuing education?
   - Credit courses – distance
   - Credit courses traditional
   - E-mail tutorials
   - In-person workshops
   - Mentors
   - National conference/Pre-conference workshops
   - Teleconferences
   - Web based information
   - Other (please specify)

6. Please indicate how interested you are in learning more about the following topics.; Choices are 1 "least interested" to 5 "very interested". "No answer" or "not applicable" option is on the far right, beyond "very interested."
   - Advocacy, generating awareness of library services
   - Enhancing access to full text through Google Scholar
   - Building and utilizing institutional repositories
   - Managing archival rights
   - Keeping current with technology, Web 2.0, blogs, listservs, RSS, pod casts, etc.
   - Managing and utilizing usage statistics
   - Evaluating existing services/developing new services
   - Copyright in the electronic age
   - Collaboration between faculty and librarian
   - Library instruction, assessment and surveys
   - Federated searching
   - Invisible web
   - Informatics
   - Alternative publishing models and the cost of serials
   - Designing Web tutorials
   - Professional advancement
   - Consortial collaboration
   - Future of reference, e-mail, chat, IM, other new technologies.
   - Improving document delivery services
   - Management skills, budgeting, personnel recruiting, training, and evaluation, etc.
   - Collection development, print and electronic resources
   - Future roles for libraries and librarianship
   - Library as place
   - Patent and trademark sources, searching, etc.

7. Did rating the pre-selected topics jog your memory about other topics of interest? If so, enter them here:
8. Do you have any other suggestions for provision of continuing education opportunities? If so, enter them here: