Mentoring Scenarios in a changing information world

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Mentoring Scenarios in a changing information world

The Mentoring Committee of the Engineering Libraries Division (ELD) has envisioned a number of mentoring scenarios in which new librarians would be encouraged to seek guidance from experienced librarians. These include: diversity, emerging programs, funding and research, innovation and intellectual property and strategic initiatives on campus. This paper will focus on two scenarios in particular, diversity and emerging programs. This paper also reviews the literature and the committee's current initiatives, before considering diversity and emerging programs at length.

The undergraduate engineering student population at many institutions continues to shift, becoming more diverse and international in scope. Opportunities for under-represented populations, including better advising, tutoring and awareness of post-secondary opportunities and K-12 STEM initiatives that stimulate an interest in engineering are contributing to a more diverse demographic. International students continue to enroll in engineering programs as they always have, with some countries sending more or fewer students, depending on circumstances. Many universities are placing a greater emphasis on undergraduate research participation, creativity, and entrepreneurial endeavors, which will likely draw on the interests of this multi-faceted demographic.

Many new librarians need guidance on cultural issues related to international and under-represented student populations. These students' previous experience with library services is quite varied, and with a large percentage of this population never having been exposed to a modern academic library. If new librarians are not aware of the background of such students, it will be difficult to provide the type of instructional support they need. Experienced librarians can provide mentoring in those situations.

Emerging program areas such as bionanotechnology require new librarians to become familiar with their collection, research and instructional needs. New librarians often are coming from a discipline other than science and engineering. When new program areas emerge, they often need mentoring in terms of collections, research and information needs.

Introduction

The field of librarianship is continuously in the state of flux. It is changing rapidly as new programs emerge, innovative technologies in information discovery arrive at a rapid pace, and more diverse populations of students grow at the world's universities. The demand for quality instruction to engineering students has grown tremendously with these developments. While the demand has grown, however, information science programs have not yet provided opportunities to cater to the unique instructional needs of engineering students. There appears to be no information science program that specifically provides training in library instruction and information literacy for engineering students. As a result, even when new librarians are hired, they lack these important teaching skills. Experienced librarians have developed these skills over a period of time through practical hands-on teaching. In a way, they learned these skills while

developing these instructional programs. Mentoring new librarians in how to create innovative instructional programs can be very useful and beneficial to both students as well as the libraries.

According to the ELD Mentoring Wiki, "The Mentoring Committee has the goal of facilitating mentoring and networking among ELD members. Our activities include recruiting experienced librarians to act as mentors; creating mechanisms for the matching of mentors to mentees; creation and maintenance of a database of members and their fields of expertise, and providing a short information resource on the process of mentoring. Engineering Librarianship 101 is designed to capture the wisdom and expertise of ELD members and communicate best practices in the profession." [1]

In this paper, mentoring scenarios are discussed and some directions are highlighted that will provide guidance and tips for new and practicing engineering librarians. It is envisioned that engaging conversations, dialog and interactions after the presentation will generate ideas that will help the ELD Mentoring Committee develop new strategies for future activities.

Literature Review

For the library profession in general, the literature shows several modes of mentoring. These include traditional, peer, and mentoring circles. In an article describing a community of practice approach which was developed to integrate the need for peer and traditional modes of mentoring, Henrich and Attebury review the literature of traditional, peer and mentoring circles.[2] Traditional mentoring, the oldest and most familiar form is characterized by a relationship between an experienced senior librarian and a less experienced junior librarian. It is driven by the need to socialize the junior librarian into the library organization, in terms of advancement (promotion and tenure or the equivalent), and for further advancement into administrative positions. Peer mentoring described by Level and Mach is a relationship between an inexperienced person with one or more experienced people of the same status.[3] The literature shows that peer mentoring often occurs in the context of a group of individuals with similar concerns such as untenured librarians seeking to better understand the tenure process. These peer mentoring groups are usually less formal and self-organizing and provide emotional support, feedback, and encouragement.[2,3] A preference for peer mentoring by new librarians is a reflection of the undergraduate and library school curriculums, both of which have been shaped by an increased emphasis on group projects[2] Mentoring circles are similar to peer mentoring with some differences; there is usually a facilitator that maintains productive and focused activity.[3] A facilitator could be an outside moderator, thus providing the group with exposure to individuals and ideas to which they might not otherwise have exposure. [2,4]

The literature specific to science and technology librarianship shows the value of the professional societies in mentoring librarians. Davidson and Middleton surveyed the memberships of several sci-tech library associations, including Association of College and Research Libraries Science and Technology Section (ACRL-STS), Special Libraries Association (SLA), Medical Libraries Association (MLA), and ASEE ELD regarding the effect that membership and participation have on mentoring and/or retention in the field.[5] The authors were not able to conclusively determine whether the mentoring provided by professional organizations has influenced members' decisions to remain in sci-tech librarianship. Their research showed

however that ASEE ELD members appear to be the most involved as mentors and mentees in comparison to the other organizations surveyed. Davidson & Middleton's literature review shows that ACRL-STS and SLA have had mentoring programs since the 1990s, and MLA since 1999.[5] ASEE ELD is not mentioned in this regards, but has had a mentoring program probably since the 1980s.

Davidson and Middleton found evidence, which was not quantified to the extent that it applied to each of the associations, that formal mentoring opportunities by professional associations are not used as much as they could be. These organizations need to find additional ways of informing their membership regarding their mentoring programs.[5] Thus, the literature shows mentoring programs are in place, but generally are not used as much as they could be.

The workplace is changing. In an environment where multidisciplinary research by engineering faculty continues to increase, librarians continuously reinvent their traditional roles of instruction, reference, collection development, and liaison to faculty. [6] New opportunities for showcasing the collection such as through library guides that can be linked to course management software continue to develop. Instruction in the use of citation management software is relatively recent. Data curation for large datasets is another new initiative that librarians are beginning to master.

The ELD Mentoring Committee of the Engineering Libraries Division has envisioned a spectrum of mentoring scenarios in which new librarians will need ample guidance from experienced librarians. These include: diversity, emerging programs, funding and research, innovation and intellectual property and strategic initiatives on campus.

The ELD Mentoring Committee's current initiatives

Among several activities the ELD mentoring committee has initiated are the Friendly Paper Review Service, the Conference Buddy Program and the Bring a Student to Conference Program. The members who attend conference are also given division buttons and ribbons so that we can identify each other and those who are new to ASEE. While the buttons and ribbons are an activity of the membership committee, they enable members of the mentoring committee to ensure a warm welcome to new library conference attendees. Service on committees and on the executive board provides additional mentoring through leadership opportunities.

Friendly Paper Review Service

This initiative is aimed at providing feedback and recommendations for improvements on papers that ELD members submit for publication at the annual ASEE conference or for papers members plan to submit for publication elsewhere. Each paper is informally reviewed early in the process by two ELD Mentoring Committee members. Each reviewer independently provides comments directly to the author to improve the author's chances of having a manuscript accepted for publication. This service is different from the process that papers go through when they are submitted to a publisher. The actual "peer review" process takes place after a paper is submitted for publication. The "Friendly Paper Review Service" is an un-blinded review early in the process of development of a paper and can offer constructive suggestions and comments, or refer

authors to articles that friendly reviewers know about that the author has not included in their paper. The service can also send questions or ideas for further development to the author. The committee encourages members to take advantage of this service by advertising it in the ELD Newsletter and sending announcements out to the listserv a few times per year. This service aims to improve the quality of ELD members' papers. New members or those who are trying to publish papers for the first time will find this service extremely beneficial and an excellent learning experience in the process.

Conference Buddy Program

At the ASEE Annual Conference, navigating the venues and programs can be daunting for new attendees. Especially at smaller colleges, the new engineering librarian may not have a colleague who has attended the conference before and may be hesitant to register or to participate actively in his or her first conference. New attendees from traditionally underrepresented backgrounds may feel particular stress in attending such large events. The Conference Buddy Program, which was started in 2009, pairs librarians attending their first conference (the "buddies") with seasoned conference-goers (the mentors).

Participants, both for mentors and buddies, are solicited through the ELD mailing list and newsletter prior to registration and again closer to the time of the conference. Assignment of mentor-buddy pairs is generally random, but requests where a relationship already or potentially exists can be accommodated. Membership within the Division includes many persons from diverse backgrounds. If known in advance, culturally compatible pairings can be assigned. Participation so far has been from two to four pairs per conference, but both buddies and mentors have indicated that the experience was highly positive.

The mentors can provide information prior to the conference on the division, committees, activities, exhibits, opportunities to participate, meals, dress, and other arrangements that may be unfamiliar to the buddy. During the conference, the mentor meets with the buddy and introduces him or her to the members at the conference, helping to ease anxieties and establish professional networks. The amount of interaction before, during, and after the conference is up to the individual mentor-buddy pairs, but often extends well past the first conference.

Bring a student to conference program

Occasionally, the annual ASEE conference takes place at a location near universities with a graduate program in library and information science. Students with interest in engineering librarianship would benefit if they have an opportunity to participate in the conference. In Vancouver, one such opportunity resulted in several students attending the conference. Students were able to attend the conference, and in a few cases were also able to present papers in collaboration with engineering librarians from universities there. Such exposure to conferences earlier in their lives will inspire them to learn different aspects of engineering librarianship in creative and engaging ways.
These and several other initiatives are highlighted in the ELD Mentoring wiki at http://eldwiki.lib.ucdavis.edu/index.php/Mentoring[1]

The ELD Mentoring Committee's New Mentoring Scenarios

Diversity

As engineering librarians one of the major challenges many of us face is providing service to international students. The population of international students at most institutions with engineering programs continues to grow as many universities seek greater diversity among students, especially at the undergraduate level. A recent article in *The Chronicle of Higher Education* stated that such increase in the number of international students helps local students "prepare for the globalized workplace of tomorrow."[7] New librarians and librarians with limited experience with engineering users are likely unaccustomed to dealing with large numbers of international students. The collective knowledge of ELD members is a good resource for librarians who find themselves in this situation.

Providing service to international students is not a new challenge for academic librarians. There is extensive literature about the interactions of international students with academic libraries' resources and services. A quick search (12/3/12) of Ebsco's Library Literature and Information Science Full Text database using the terms "academic libraries" and "foreign students" resulted in 74 citations dating from 1984 to the present. More recent articles have also discussed the phenomenon of an increasingly large number of undergraduate students, particularly those from China, coming to our colleges and universities. Adding the term "engineering" to the search strategy reduced the number of relevant citations to one.[8] While dealing with an increasingly large number of international undergraduate students in programs is not unique to engineering, little has been written on the subject of international undergraduate engineering students and their use of library resources.

The following scenario is provided as an example of how a new engineering librarian in an actual position might take advantage of ELD's mentoring services. For example, the next MSU Engineering Librarian or a librarian moving into a similar situation would find it helpful to take advantage of the services provided by the ELD Mentoring Committee. The MSU Engineering Library staff consists of one librarian, one full-time support staff person and a number of student employees. The Engineering Library is located in the main Engineering Building and as of Fall 2012, serves 168 faculty, 747 graduate students, and 3,451 undergraduate students in six engineering departments. Because there has been only one engineering librarian for more than 20 years, the other librarians have had very little experience dealing with engineering users or knowledge of engineering resources. In addition, few MSU librarians have any experience working in a branch library. While new MSU librarians are strongly encouraged to take advantage of in-house mentoring opportunities, a new engineering librarian in this position would be well advised to take advantage of ELD's mentoring to learn about meeting the unique challenges of being an engineering librarian.

One of these issues is dealing with a large number of international students in a branch setting. Enrollment trends at MSU reflect national trends. According to a press release from the Institute of International Education, the number of international students enrolled in U.S. institutions of higher education has continued to increase. "The 2012 Open Doors Report on International Educational Exchange, released today, finds that the number of international students at colleges

and universities in the United States increased by six percent to a record high of 764,495 in the 2011/12 academic year,…".[9] For the same period MSU's enrollment of international student has risen 10.2% over the last year. Both nationally and internationally the number of Chinese undergraduate students has increased significantly; 31% nationally[9] and 36% at MSU University. In MSU's College of Engineering approximately 23% (1031) of students come from 62 countries outside of the United State with the largest number being from China. About 10% of the College's undergraduate students are from China.

Faced with this challenge, what is a new librarian to do? After consulting local resource people and the library literature, it is likely that you will still want additional information about meeting the information needs of your population of engineering students from other countries. A logical next step would be to contact the ELD Mentoring Committee for help. What might you expect hear from your fellow ELD members? Because engineering students often make up a significant percentage of the total number of international students enrolled at an institution finding out from ones colleagues what services are available at the institutional level and how they are taking advantage of them would be a good first step. In this scenario, MSU has the International Studies and Programs Office. Other examples at the institutional level could include finding out if the librarians are working with the faculty and staff who teach English as a Second Language classes and looking for ways to meet your international students outside of the Library such as meeting with international student groups such MSU's Chinese Students and Scholars Association to better understand the needs of the engineering students from that country. And finally learning what the Engineering Library has done to meet the special needs of international students.

Other challenges engineering librarians may face include:

Cultural differences
Diverse learning styles
Varied computer skills
Differences in researching information skills
Confusion about plagiarism issues

Librarians teaching instructional sessions and providing expert consultations may need to get familiar with various cultural differences of varied student groups. Students come from approximately 25 countries in the world and therefore they bring with them a diverse cultural group to their respective institutions. New librarians will need to adjust and learn how to interact, communicate and teach with these new international students.

Scenario

Other minority groups such as Latino, Asian students and women engineering students are represented across several universities.

An international student unfamiliar with the research and writing process accidentally plagiarizes a paper. The professor teaching the class finds that paper plagiarized and the student is punished. The student is asked to seek assistance from the librarian to find appropriate sources, learn about proper citation styles, and write paper with citations.

Mentors within the ELD group can provide support to new engineering librarians by providing expert assistance on how to guide them in such situations.

1. Provide guidance on successfully helping students from diverse subject backgrounds
2. Tips on matching learning styles with providing instructional consultations
3. Guidance on communicating with students

A current database of information experts is available on the ELD web site can be updated to provide information experts who have worked with closely with international students and have addressed such issues. This database can be initial starting point to make connection with the ELD expert.

Emerging programs

New emerging technology areas such as bionanotechnology require new librarians to become familiar with their collection, research and instructional needs.

As new academic research initiatives become increasingly interdisciplinary, it is imperative that science and engineering librarians develop and implement new approaches to the dissemination of library research tools and techniques. Collaborations among researchers in several areas of science or engineering disciplines are increasingly obtaining research grants for new areas of research. Faculty and students need advice about how to access information from a variety of resources that cover a broad spectrum of academic disciplines. Taking on the role of an information consultant can be beneficial in such circumstances to meet the challenges of finding viable ways to partner with faculty and student researchers in multidisciplinary areas. [10] New librarians need not only to get familiar with their general job functions but they also need to incorporate ways to deal with new opportunities arising because new emerging technology areas are being created at their institutions. Many times due to organizational changes even the experienced librarians are assigned newer subject areas. In those cases they will also need guidance from other experienced library colleagues.

More often than not, many new engineering librarians lack background in science and technology-related subject areas.[11] They may have taken courses related to social sciences or business resources but they may not have taken courses in science and technology-related resources. Since in most universities, having a subject background is desirable but is not a requirement for employment as an engineering librarian, more training may be needed to help a new librarian to develop the skills necessary to successfully perform required tasks as an engineering librarian. New librarians may need assistance from experienced librarians in many areas such as collection development and management, electronic resources evaluation, library instruction, understanding the scholarly communication process, professional development, and outreach including information consulting.

Scenario

A new librarian has been asked to develop a research guide and an instructional session for students in a medical devices product development class. Students in this class are required to research a medical device, current status of FDA approval, and intellectual property related documents for those medical devices. For a medical device that has recently been approved by the FDA, they are required to develop a business plan for a possible commercialization of that product. What type of assistance can an experienced librarian provide to the new librarian?

How can Web 2.0 tools help students keep current with the latest developments in medical devices? Increased cognizance of alerting services available from resources such as ASCE, IEEE Xplore,Web of Knowledge, ScienceDirect and Engineering Village, is the crucial first step in their effective use by faculty and students.

The experienced librarian can initiate conversations highlighting case studies using Web 2.0 applications such as blogs, feeds, bookmarking services, and aggregators to illustrate their roles as information awareness tools. Actual examples of how these technologies can provide state of the art information in the emerging areas can help new librarians to grasp these concepts better.

At a mutually convenient time, using Adobe Connect or other web conferencing technologies, a live illustration of these tools can enhance communication between the mentor and the new librarian. Success for a good mentor and mentee relationship depends on the nature of interaction, communication and proactive nature of information sharing between them.

Many universities now have new emerging programs in areas such as nanotechnology. In order to deal with new programs effectively, a restructuring of the library liaison program may be an option to pursue. [12]

ELD experts can provide their expertise on the mentoring wiki. The information on expertise will be very crucial and therefore it is extremely important that this page is updated continuously. New librarians can contact an expert from the ELD membership list in order to initiate a mentoring relationship.

Vision and conclusion

This paper has highlighted two important areas: Diversity and Emerging Programs. In the future, the ELD Mentoring Committee will develop a mechanism to identify any members with expertise in these areas. The current database of experts will be updated with this new information. This will allow new and other members needing assistance in these areas to connect with them directly.

The ELD Mentoring Committee has also identified other important mentoring activities such as: How universities are supporting innovation. Faculty and students around the country are engaging in bringing viable new products to the marketplace. Thus, new librarians need more guidance and mentoring to meet the growing needs of students and faculty engaged all the activities that surround patents and intellectual property.

Funding and research: As more students are encouraged to apply for funding for research, new librarians will need to become familiar with providing instruction to students on how to find funding opportunities.

Besides the focus on innovation and funding, most universities and institutions now have well defined strategic goals in their mission statements. Library administrators may change, and individual librarians need to be able to match their own goals and objectives to the strategic directions of the new library administration or to new University directions. New librarians will need support from experienced librarians to do this effectively. It is likely that all librarians will benefit from this interaction and dialog to keep current with new developments in the field. In the process, they will be able to engage in mutually beneficial learning environments.

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