

“But I’m not an Engineer”... Collaboration between a Librarian and an Upper Division Project-Based Engineering Program

Introduction

At Minnesota State University Mankato, the Integrated Engineering department houses multiple project-based programs at two off-campus locations, the Iron Range Engineering program and the Bell Engineering program in Virginia, Minnesota and the Twin Cities Engineering program in Bloomington, Minnesota. The department prides itself on an innovative engineering education experience for students and expects students to be self-directed in their learning and to seek out and use available resources as they work in teams to solve industry-sponsored projects. This paper presents a case of a new librarian interacting with a new project-based engineering program to support student success. The choice of case was made for two reasons. First, the library support for a project-based program represents a unique context. Second, although most libraries do not currently support project-based engineering programs, the transition of the librarian to supporting a technical program is an experience many librarians have navigated or will navigate. As innovation in engineering education expands, this case may be a useful resource as librarians seek to support new programs that push the boundaries of traditional university experiences.

The mission of Library Services at Minnesota State Mankato is that “we empower our campus and community to learn, create, and disseminate knowledge through quality services and access to resources” [1]. To help serve the campus community, Library Services is comprised of 17 faculty librarians and 20 library technicians and is led by an Academic Dean. There are also traditionally four or five graduate student assistants and about 15-20 student workers to help staff the library building 16.5 hours a day Monday through Friday, six hours on Saturday, and 13 hours on Sunday. The library, built in 1967, houses approximately 1.5 million books, scores, DVDs, and other materials and contains several special collections including the educational resource center and children’s collection, government documents, maps, and the University Archives and Southern Minnesota Historical Center.

While the faculty librarians have specific jobs such as cataloging, reference, archives and so forth, each librarian works with several specific academic departments as part of the library’s liaison program. The purpose of the library’s liaison program at Minnesota State Mankato is to enable student success by facilitating the use of the library’s services and collections, building relationships across campus, and supporting teaching and learning. The services of the liaison program are broadly defined in five areas: (1) reference, research, and scholar support, (2) information literacy and instruction, (3) accreditation and program review support, (4) collections content and access, and (5) outreach and engagement. Through the library liaison program, a librarian serves as the main point of contact for departments in one of the six colleges at the university. The librarians may or may not have a background in the department or discipline. Early library support for the Integrated Engineering programs focused on access to resources and troubleshooting technical issues as opposed to direct support for students in their project-based work or in access to materials that were not necessarily part of course topics.

The new librarian, hired in August 2013, had a background in history when she became the newest member of the College of Science, Engineering and Technology library liaison team and with little mentorship or information, she was assigned to support the Integrated Engineering department. She had two advanced degrees: a Master of Library and Information Science and a Master of Arts in History, but she had no experience in the engineering disciplines other than some basic knowledge and lacked a formal engineering degree (a lack that she perceived more than her engineering colleagues). At first glance, this match may appear to be a recipe for failure. Indeed, in those first few years, the librarian's angst about the missing engineering degree caused many sleepless nights of worry and concern. However, there came a time when the words "but I am not an engineer" fell to the wayside as the librarian grew more confident and embraced the role of library liaison to the department. This paper describes the partnership that went from self-doubt to success in supporting project teams of student engineers in the program.

Literature Review

Library liaisonship or library liaison programs can be defined in a variety of ways depending on type of academic institution. Given the core responsibilities of a library liaison, the services of such a person may traditionally mirror library work in general such as working with collections, providing reference services, and instruction or information literacy support. As academic libraries have evolved throughout the years, however, so too have the core responsibilities of a library liaison. In the 2012 article, Henry reviewed four academic library liaison programs and described the duties of a library liaison as not only including collection development but working as an embedded librarian, providing direct assistance to specific classes and students [2]. Thull and Hanson state that a library liaison should be proactive in promoting, marketing, and serving as an ambassador of the library and meet their patrons wherever they are, either in-person or online [3]. Carpan discusses the importance of library liaison programs in building strong, personal connections with faculty and students while finding new, transformative ways of becoming engaged in the entire research, teaching, and learning process [4]. The topic of transforming traditional library liaison programs is evident in the ALA Fundamental Series work *Fundamentals for the Academic Liaison*, which discusses new approaches to building and sustaining relationships and the role of library liaison as fundamental to the goals of all institutions [5]. Additionally, Canuel and Crichton's newest edited work, *Approaches to Liaison Librarianship*, provides an updated look at the plethora of rich and diverse roles that librarians as liaisons can take in their libraries [6]. In developing the library's liaison program purpose and broad areas of service, Library Services at Minnesota State Mankato utilized this new book to establish the five areas of service and is currently undertaking discussions to further define a liaison's role. In the current age and beyond, the importance of the connections that academic librarians have with their various programs on campus cannot be overlooked or undervalued. As changes shift these connections, particularly in pedagogical approaches, such as the shift from in-person to more online services or shift from lecture-based to project-based programs, it is important for a librarian to further examine and transform the ways in which one can be a liaison.

In looking at the various roles of a liaison, at the librarian's university (and in many other academic libraries), information literacy is a core component of a library liaison program. The literature is full of research on information literacy in general for academic libraries and for working with specific programs such as engineering. The starting point for much of the research

is the 2000 American Libraries Association's *Information Literacy Competency Standards for Higher Education*, which defines information literacy as the basis for lifelong learning and the ability to locate, evaluate and effectively use information [7]. This definition is echoed in the library's *Educational Competencies & Student Learning Outcomes* that were formally adopted in 2018 by the library faculty, which states that "information literacy principles underpin our educational works and support our collective goal to prepare students for career and life-long learning by facilitating discovery, study, learning and scholarship" [8]. While the 2000 ALA standards were replaced in 2016 with the Association of College and Research Libraries' *Framework for Information Literacy for Higher Education* [9], the original competencies from 2000 were utilized in 2006 to create *Information Literacy Standards for Science and Engineering/Technology*, which contain five standards and 25 performance indicators for information literacy for science and engineering/technology programs [10]. These standards form the basis of many library information literacy programs for engineering programs, but they have not been adopted in a formal manner at the librarian's institution. Instead, each librarian at Minnesota State Mankato relies on their own interpretation and incorporation of information literacy practices into their liaison work. While this has since been modified and more formal outcomes have been adopted, this was the environment that the librarian entered in 2013. She had experiences working with information literacy at other institutions, but this was not a main component of her job responsibilities and she had little time to dedicate to incorporating information literacy standards into her position. A review of the literature would have been beneficial to the librarian, as she now realizes in hindsight.

Regarding information literacy specifically for engineering students, there are many beneficial studies that examine information literacy in a student's first year at a college or university that can be found in conference proceedings such as Hensel, Brown, and Strife's description of West Virginia University [11] or Hall et al.'s of Louisiana Tech University [12]. Both studies reinforce the idea of information literacy as an integral component to teaching engineering students. Additionally, Fosmire's article provides a view of how information literacy competency standards are present in every part of the engineering design process and shows how librarians can translate information literacy in smaller stages to better connect information gathering and engineering design [13]. The idea of integrating information literacy into an engineering (or any) class is not a new concept, but the variety of ways in which information literacy is addressed has undergone a transformation. For the librarian, traditional methods such as a one-shot lecture were the norm in her past practices. The librarian, again, would have benefited from looking at the relevant literature on this topic. For example, at Drexel University, the librarians used a combination of an online tutorial covering basic library skills with face-to-face consultations between design teams and engineering librarians [14]. Furthermore, Stephens et al. discussed a pilot program at Texas A&M University to provide information literacy through embedded librarians into student teams where customized instruction was provided to upper division students [15]. Innovative approaches like these two examples are a good fit with the practice of the librarian and the Integrated Engineering programs, but in the early years, the librarian just did not have enough time to think about changing from the traditional lecture to something different.

Finally, while information literacy is an important element for a library liaison program, there is a direct correlation to student success in terms of the integration of the library into a specific

program such as Integrated Engineering. There have again been many studies conducted on the various ways in which the library and librarians' work impacts academic success. Hess et al. discuss the various library services at both the individual librarian level, such as the research consultation or creation of online learning objects and through course-level practices such as online learning module can led to greater academic success [16]. Soria et al. discuss how first-time, first-year students at the University of Minnesota who used the library earned a higher GPA for their first semester and had higher numbers of retention from fall to spring than non-library users [17]. At the librarian's own institution, the first competency of student learning outcomes is to have students use information and the library to succeed academically [8]. The role of the library in academic success is not a new topic, but in these days of concern about student retention and completion, the library has and will continue to play an important role in student success.

These are just some of the articles written on the connections between the library and the academic classroom, and it is not meant to be a comprehensive literature review. The wealth of studies, articles, and conference papers, proceedings and presentations provide any librarian a good basis for study. In this case, however, the librarian instead relied on experiences from working with students rather than stopping to review the literature. In addition, the librarian did not feel that there was enough time to conduct a full review of the literature. She had to not only learn about the institution, but she had to learn about her new library and her role in the organization. Besides, the traditional lecture worked just fine at other places and since it was up to the librarian to determine the best way of delivery for information literacy, she just stuck with what she knew for now. This was a mistake that would cause additional strife and stress to the librarian, one that now in hindsight could have been prevented. The authors suspect that this is a typical experience and suggest that providing highlights to new librarian colleagues (whether experienced or just out of school would be beneficial.)

An Imperfect Beginning: Working with Students

While the librarian had been working at academic institutions since 2001 and had worked with a variety of students and subjects, she had very little education in library science related to the science or engineering fields. While she had an interest in chemistry and math, she did not have a background in engineering and had never taken a class in engineering or physics or worked as a science or engineering librarian. This is a bit unusual but not unheard of. Winston provided a study into the demographics of academic science and engineering librarians in 2000 stating that only 3.3% of the librarians surveyed had majored in engineering but that 63.3% of the librarians had taken coursework in science/engineering resources and services [18]. The librarian had not taken additional science or engineering library coursework, but rather her coursework in library school had given her a solid foundation into general reference and academic libraries. In addition, her advanced degree beyond a MLIS was a MA in history, from which she had gained knowledge and experience into research methods and searching. While not a science librarian, the librarian felt that she could work with an engineering class with little trouble, and within one month of arriving, she had her first instruction session online with the Iron Range Engineering program.

While not a complete disaster, the librarian left the session feeling that she had not given it 100%. In fact, she felt underprepared if not a bit confused about the Integrated Engineering program as she had been given information that she had not double checked for accuracy and some information that she misunderstood. She had given the students some basic information about the library and its services, all of which was accurate, but the information that she had given was, to quote a student, “overwhelming” and not in a good way. The librarian had not kept the audience in mind and basically included everything but the kitchen sink rather than target specialized resources or focus on a smaller number of resources. In addition, the librarian left with the absurd notion that the faculty member would never ask her to talk to a class again. This rocky start served only to reinforce the notion that the librarian was not an engineer. Now, if the librarian had done her homework at the time, she may have found Beck and Callison’s 2006 article on how they, despite having some disadvantages of not having a degree in the sciences, thrived in their roles as science librarians [19]. The librarian’s path here mirrored their findings – she just did not realize it at the time. Instead, in that first year, the librarian began to preface conversations and instruction sessions with the saying, “But I am not an engineer,” which only served to instill a defeatist attitude, thus undermining the librarian’s confidence.

Attitude Adjustment: I am the Library Liaison to Integrated Engineering

In fall 2014, the librarian met a new faculty member at the Twin Cities Engineering program’s facility at Normandale Community College to learn a little bit more about the program and their unique facilities. The faculty member invited the librarian to visit with the students and provide an in-person instruction session in January 2015. After a year and semester at Minnesota State Mankato, the librarian had gained some valuable insight into the Integrated Engineering programs and felt more confident in the specific library resources for engineering. She prepared a lecture covering the basic engineering library resources and accompanied the lecture with a four-page list of resources. She began her lecture with the standard “But I am not an engineer” and proceeded to talk for about an hour on library resources. To their credit, the students did not fall asleep or throw rotten tomatoes as the librarian had dreamt about the previous night. A student did remark again that this was a lot of information, but that it was also a lot of “good information.” In the years that the librarian had worked with students, she found this group very engaged with many thoughtful questions. After the session, the faculty member set it up so that the librarian could meet one-on-one with the student teams to learn about their projects. This simple yet powerful step became a game changer, a turning point in the librarian’s work with the engineering students. By listening to the students explain their projects, the librarian not only learned more about their projects (and the students themselves) but began to learn more about engineering and in the end, learned that she did understand more about engineering than she had originally thought. Through their conversations, the students became the teacher with the librarian asking questions and gaining clarification of what they needed to find. This is not an earthshaking idea as librarians at other institutions, such as Drexel University [14], had done this before, but it was the “ah ha” moment for the librarian. She had not completely found her voice, but for the next several years, this pattern of giving a lecture and working with individual groups soon became second nature to the librarian.

Now, the librarian’s work was not just done after those one-on-one meetings. After meeting with the teams, the librarian would go back to Mankato and compile an email for each team that

contained a list of suggestions for keywords to use in a search, one or two library resources to use to find materials, and a few links to suggested articles that pertained to their research. This is not to say that the librarian did the student's homework. She did not send them everything she could find, but instead, she offered a place to start their search. In addition to library resources, the librarian soon realized that she needed to dig into other resources, such as patent searching, standards, technical reports and even some materials safety data sheets to offer additional information or information beyond a formal study for the students. She also encouraged the students to follow the citations, to look at the works cited or works citing the original work, to follow the literature on a topic as this would give them additional avenues of information. In addition, the librarian realized that Google Scholar could be an added tool in their arsenal of information seeking as it was helpful in determining additional keywords to use in searches but that it was not the only or final place the student should use. All these things helped the students, but they also helped the librarian to become more immersed in the field, adding to her knowledge and expertise in various engineering topics.

These emails also served as a communication channel for the students to ask the librarian for additional help. On the handout, the librarian always included her email and told the students repeatedly to contact her with questions. While some students participated in this occasionally, others sent repeated questions. These emails would lead to impromptu reference consultations or additional reference questions, which the librarian thoroughly enjoyed answering (and still does). Sometimes the questions the students asked really challenged the librarian's abilities as a researcher and further added to her knowledge base in the field. In one very memorable case, the student needed help finding a particular source. All she had to give the librarian was two names plus an acronym (MDDC) and the number 448 (1). That was it, no date, no title, no other source information. After some searching, the librarian managed to find the source in an obscure reference and find a full-text version of the report in HathiTrust. These questions from the students helped the librarian learn alongside the students and allowed the librarian to feel confident in her capabilities.

Moreover, there were several times when the librarian needed to troubleshoot access problems. Electronic resources can break for several reasons, and it is frustrating to students when access is lost. Instead of hunting around to find a librarian for help (the library does have an excellent 24/7 chat service that does do much good), the students soon learned to contact the librarian directly to get help in troubleshooting those broken links. Troubleshooting and helping find resources are all standard practices for a librarian, but to this librarian, these things embody the essence of why she became a librarian – to help people. In fact, after a few years, she changed that overpowering four-page handout into a shorter handout that addressed the five top questions the librarian had received through correspondence with the students and re-modeled the lecture on addressing those commonly asked questions. This approach seemed to better reach the students. Rather than drone on about sources, the librarian used real life examples of sources and questions that a student may have.

In addition to lectures, handouts, emails, answering questions, the librarian also created library guides or LibGuides to help the students. LibGuides is a Springshare tool that allows librarians a way to quickly create a web page to collect and share library resources around a topic, subject, class, or program [20]. Each librarian at Minnesota State Mankato was responsible for

organizing and developing guides for their specific program. At first, these LibGuides were a bit wordy and rather intense as the librarian just added everything that she could find. In her interactions with the students and from their questions, she soon began to reduce these guides, adding more relevant information and highlighting regularly used but often forgotten information. For example, since the locations of the Iron Range Engineering, Bell Engineering, and Twin Cities Engineering programs are at satellite locations, this complicates the library's document delivery service. At Minnesota State Mankato, document delivery is meant for any student or faculty member working outside of the main campus in Mankato who needs loanable library materials sent to them. When a student needs to return materials, they can take them to a public or academic library in Minnesota to have them return the books to the library. Well, one does not always think about returning an academic library book to a public library to return, but the librarian found out that this was possible. She opened a dialogue with the public library at Virginia, Minnesota and passed on that information to the students through the LibGuide. The librarian also updated the guides after speaking with faculty to fulfill their needs. For example, the librarian created a new LibGuide page on how to use IEEE citation style after talking with a faculty member who was looking for a guide on how to use the citation style for her students. In 2020, the Iron Range Engineering, Bell Engineering, and Twin Cities Engineering programs LibGuides were further transformed as the library adopted a LibGuide template created by one of the instructional librarians. The new template combined evidence-based practices with best practices in usability and accessibility and an understanding of the university's community to refresh the guides. As such, the librarian now has three LibGuides, one for each of the specific engineering programs [21].

Along with answering questions and creating LibGuides, the librarian helped the students through the purchasing of specialized materials, such as books or standards, and in advocating for additional library resources. For example, in 2015, the librarian advocated for the purchase of a subscription to the ASTM Standards and Engineering Digital Library. The library had been purchasing these standards on demand when needed, but the number of requests had substantially increased in the few years that the librarian had been working with the engineering programs. If the library had a subscription, the students would have immediate access at any time, even in the field, to those needed standards. The librarian advocated for the purchase of the subscription to support student success in multiple engineering programs such as civil engineering and construction management in addition to the Iron Range Engineering, Bell Engineering, and Twin Cities Engineering programs. In addition, the librarian had collection development funds for purchasing books for the program if the library did not have them and they would be beneficial to own. Over the years, the librarian has turned to more purchasing of e-resources like eBooks to reach a wider audience, especially the students at the satellite locations. While there are options to send library materials to the students at the satellite locations, eBooks offer a better alternative and have a wider reach than just a single print copy. Online resources are of course more expensive and require additional funds in some cases, so the librarian has tried to be a constant advocate for online resources, especially for those students in distance programs like the Iron Range Engineering, Bell Engineering, and Twin Cities Engineering programs.

By 2018, the librarian had stopped saying "But I'm not an engineer" and instead introduced herself by saying "I am the library liaison to Iron Range Engineering, Bell Engineering, and

Twin Cities Engineering programs, please let me know how I can help you!” Yes, it is true that the librarian was not an engineer, but that did not matter. What was more important to everyone involved was that there was someone knowledgeable and available to help the students, to help them find resources, to troubleshoot the problems, to be there for them. This notion is nothing earthshaking, but by establishing a connection with the students through a more-engaging lecture, an email, and a personal or online visit, this all made the difference. Just because the three engineering programs were at satellite locations did not mean that there was no one there to help the students – instead the students had a dedicated librarian who was willing to go the extra mile to help them succeed.

Additional Support: Working with Faculty

While much of this paper has focused on supporting students, the librarian also supports faculty and the department. This support varies but is also a critical part of being a library liaison. The librarian supports faculty and their curriculum through the purchase of library materials and advocating for additional materials whenever possible. Just as the librarian would purchase materials needed by the students, the librarian works with faculty to purchase relevant materials for their own research and to build up the library’s collections. For these programs, the materials are predominantly online as they will best serve faculty who could be anywhere in the state. In addition, the librarian has worked with the faculty to find ways to provide low-cost or no-cost course materials whenever possible. This may take the form of eBooks or articles through library databases or in helping the faculty member find open educational materials to use instead of a costly textbook. The librarian can also provide advice for faculty interested in creating their open educational materials and has completed a Creative Commons certificate so that she can advise faculty on the use of Creative Commons licenses. The librarian has also been an advocate for adding new resources such as the ASTM Standard and Engineering Digital Library and more recently IEEE Xplore Digital Library. Both resources came with expensive price tags, so the Librarian solicited feedback from the faculty to be a better advocate for these resources to share with the library’s collection development committee, which authorizes all major/subscription-based purchases.

Moreover, the librarian has worked with faculty to help them find needed materials for their own research and has helped to troubleshoot connection issues. With the start of the Bell Engineering program, the librarian was invited to attend an orientation session for new faculty and instructors for the program so that they could meet their librarian. This has yielded several questions from the newer faculty and led to continued collaboration and assistance in helping the students. Meeting the faculty before they have even begun is another way in which the librarian has supported the engineering faculty. Several times, she has been invited to speak to potential candidates for positions in the Iron Range and Bell engineering programs as part of the interview process. This has been a very informal and informative visit where the librarian tells the candidate about the services that the library provides for the faculty member and their students. This has been a very rewarding experience in that the librarian gets a chance to learn more about the person and their areas of interest and can be a springboard into offering information literacy support if they are hired. Finally, the librarian supports the department in providing information for various accreditation documents that are required, in providing library tours for an accreditation visit, or talking to the members of accrediting body when needed.

Lessons Learned

The transition from “But I’m not an Engineer” to “I am the library liaison to Iron Range Engineering, Bell Engineering, and Twin Cities Engineering programs and I am here to help you” did not take place overnight. Like many things, it simply took time. Not only did the librarian have her main duties as Digital Initiatives Librarian, but she soon became a more active member in her newly assigned University Archives team with multiple new responsibilities. Several times, she has been pulled in different directions. For example, the university celebrated its sesquicentennial and as a member of the Archives team, she had a whole host of new tasks to complete. Additionally, she took on job responsibilities for other librarians who were out on sabbatical or librarians who had left and not been replaced. Personal health issues and family matters also did slow the process a little bit, but despite all this, in the end, the librarian learned several valuable lessons in this personal transition.

1. *Don't beat yourself up and say that you are not an engineer.* No one is going to throw rotten tomatoes at you if you don't have an engineering degree. ABET is not going to come after you in the night and drag you away. Instead of saying what you don't have, simply say how you can help and what you can do for a program. For some time, the librarian beat herself over the head at her “deficiencies” and lack of a related degree rather than embracing and immersing herself into the engineering field and realizing the various skills and traits that she really had that could support the three engineering programs.
2. *Continual life-long learning applies to you too, but don't be afraid to ask for help.* You should never become complacent and stop learning. One should be constantly learning. The best thing that the librarian can do is to learn from others, to spend time reading the literature, joining societies like the ASEE ELD, talking with colleagues rather than going it alone and just depending on what you think you know. The librarian did not do this in the beginning, but now she dedicates time each week to reading something new regarding information literacy or engineering education and utilizes her colleagues more to help her figure out best practices. At the library, the librarian is fortunate to have not just one but two instructional librarians who are charged with developing the library's information literacy program and are excellent resources to help the librarian figure out how to be a better instructor.
3. *Establish a dialogue with your students, your faculty, and your department and keep it up.* The simple act of listening to students and to faculty have made such a profound impact on the ways in which the librarian has approached her liaison role. Just as the students can learn from the librarian, the librarian can learn from the students and the faculty. Establishing a dialogue with them has helped the librarian improve and gain more confidence. Since helping people was the main reason the librarian became a librarian, being there for (and being used by!) the students and the faculty has made the work more enjoyable than anything else. Connecting with the department is constantly on the librarian's to-do list. She regularly sends out emails to the faculty telling them of new resources or inviting them to collaborate on new projects, such as OER or affordable

textbooks. This should not stop just because it is the end of the semester or year. Keep reaching out to your faculty or students whenever possible.

4. *Don't be afraid to fail.* It is okay to fail. It is okay to try new things and have them fail. Again, no one is going to come and harass you if something does not work out. The librarian has had the fortune to talk to different accreditation boards for the various programs that she works with. In one such visit, an accreditor turned to the librarian and said that the thing that impressed them the most was not what the library had or did not have, but the fact that the librarian was there for the students. She was the best resource in everything that the accreditors had reviewed. She wasn't perfect - no one is, but that the librarian took time from her schedule to help a student find the book or article, who created a guide or handout that was too long and should have been pared down, the librarian who answered questions early in the morning or late at night and on weekends, those things mattered more to the accreditation board and to others more than anything that the library did or did not own or whether the librarian tried something and it did not work out.

Conclusion

While this paper provides the development of a strong relationship, it remains one that needs tending. When COVID-19 hit the university and the move to online learning transformed how the library operated, the librarian needed to navigate the transition as well. In some regards, she felt that she succeeded. She continued offering instruction to students through Zoom and chatting online via email and through LibAnswers, another Springshare product that manages the library's online chat service [22]. In addition, with the library's purchase of LibCal (another Springshare product), the library has set it up so that students (and faculty) can now make appointments to chat with her via Zoom or in-person [23]. She is still there for the students and the faculty. In other ways, however the pandemic has also clearly pointed out what the librarian has not done or what needs to be rethought. The librarian has not met with the different engineering teams one-on-one for several semesters – that unfortunately fell through the cracks. In general, reference questions have dropped considerably during the pandemic and the numbers have not rebounded even now that she is back working in the library. While this is something program faculty can better support, the librarian can help drive the practice by reminding the faculty of her availability for student teams.

Another area of support that warrants further investigation is the relationship between ABET accreditation standards and what the librarian can do to further help the department. The librarian feels that she also needs to be better at incorporating the library student learning outcomes and additional information literacy practices into her work. Moreover, she would like to do a better job of working with faculty to document and assess what needs to be done. Assessment, while always an important part of any program, is something the librarian would like to learn how to do better in the upcoming years which would further support the engineering program and their accreditation process. Her transition from “But I am not an engineer” to “I am the library liaison to the Iron Range Engineering, Bell Engineering, and Twin Cities Engineering programs,” while complete in one way, is still a work in progress with lots of potential to benefit both the department and the librarian.

References

- [1] Library Services, *Mission & Vision*, 2016, <https://library.mnsu.edu/about/information/mission/> (accessed April 27, 2022).
- [2] J. Henry, "Academic librarian liaison programs: four case studies," *Library Review*, vol. 61, no. 7, pp. 485-496, 2012, doi: 10.1108/00242531211288236.
- [3] J. Thull and M. A. Hanson, "Academic library liaison programs in US libraries: methods and benefits," *New Library World*, vol. 110, no. 11/12, pp. 529-540, 2009, doi: 10.1108/03074800911007541.
- [4] C. Carpan, "The importance of library liaison programs," *College & Undergraduate Libraries*, vol. 18, no. 1, pp. 104-110, 2011, doi: 10.1080/10691316.2011.550536.
- [5] R. Moniz, J. Henry, and J. Eshleman, *Fundamentals for the Academic Liaison*. Chicago, IL, USA: Neal-Schuman, 2014.
- [6] R. Canuel and C. Crichton, Eds. *Approaches to Liaison Librarianship: Innovations in Organization and Engagement*, Chicago, IL, USA: Association of College & Research Libraries, 2021.
- [7] American Library Association, *Information Literacy Competency Standards for Higher Education*, 2000, <http://hdl.handle.net/11213/7668> (accessed April 27, 2022).
- [8] Library Services, *Library Services Educational Competencies & Student Learning Outcomes*, 2018, <https://libguides.mnsu.edu/slo> (accessed April 27, 2022).
- [9] Association of College and Research Libraries, *Framework for information literacy for higher education*, 2016, <https://www.ala.org/acrl/standards/ilframework> (accessed April 27, 2022).
- [10] ALA/ACRL/STS Taskforce on Information Literacy for Science and Technology, "Information literacy standards for science and engineering/technology approved at ALA Annual Conference, June 2006," *College and Res. Libraries News*, vol. 67, no. 10, pp. 634-641, 2006. doi:10.5860/crln.67.10.7706.
- [11] R. Hensel, O. Brown, and M. Strife. (June 2012). "Engineering an information literacy program for first-year engineering students." Presented at the 2012 ASEE Annual Conference and Exposition. [Online]. Available: <https://strategy.asee.org/21292>
- [12] D. Hall, S. Cronk, J. Nelson, and P. Brackin. (June 2009). "Facilitating lifelong learning skills through a first year engineering curriculum." Presented at the 2009 ASEE Annual Conference and Exposition. [Online]. Available: <https://peer.asee.org/5718>
- [13] M. Fosmire, "Information literacy and engineering design: Developing an integrated conceptual model," *IFLA J.*, vol. 38, no.1, pp. 47-52, 2012, doi: 10.1177/0340035211435071.
- [14] J. C. Roberts, and J. Bhatt, "Innovative approaches to information literacy instruction for engineering undergraduates at Drexel University," *Eur. J. of Eng. Educ.*, vol. 32, no. 3, 2007, pp. 243-251. doi: 10.1080/03043790701276171.
- [15] J. Stephens, P. Melgoza, D. E. Hubbard, C. J. Pearson, and G. Wan., "Embedded information literacy instruction for upper level engineering undergraduates in an intensive writing course," *Sci. & Technol. Libraries*, vol. 37, no. 4, pp. 377-393, 2018, doi: 10.1080/0194262X.2018.1484317.

- [16] A. Hess, K. Greer, S. Lombardo, and A. Lim, "Books, bytes, and buildings: The academic library's unique role in improving student success," *J. of Library Admin.*, vol. 55, no. 8, pp. 622-638, 2015, doi: 10.1080/01930826.2015.1085241.
- [17] K. Soria, J. Fransen, S. Nackerud, "Library use and undergraduate student outcomes: New evidence for students' retention and academic success," *portal: Libraries and the Acad.*, vol. 13, no. 2, pp. 147-164, 2013, doi: 10.1353/pla.2013.0010.
- [18] M. Winston, "Academic science and engineering librarians: A research study of demographics, educational backgrounds, and professional activities," *Sci. & Technol. Libraries*, vol. 19, no. 2, pages 3-24, 2000, doi: 10.1300/J122v19n02_02.
- [19] D. Beck, and R. Callison, "Becoming a science librarian: Accident, serendipity, or purposeful plan?," *Sci. & Technol. Libraries*, vol. 27, no. 1, pp. 71-98, 2006, doi: 10.1300/J122v27n01_06.
- [20] Springshare. *LibGuides: Content Management and Curation Platform for Libraries*, 2020, <https://www.springshare.com/libguides/> (accessed April 27, 2022).
- [21] Library Services. *Library Class and Subject Guides at Minnesota State University Mankato*, 2022, <https://libguides.mnsu.edu/?b=s> (accessed April 27, 2022).
- [22] Springshare. *Libanswers – Communication and Social Media Management for Libraries*, 2020, <https://www.springshare.com/libanswers/> (accessed April 27, 2022). Library Services' 24/7 chat service can be found at <https://libguides.mnsu.edu/ask>
- [23] Springshare. *LibCal: Calendaring, Event Management, and Booking Platform for Libraries*, 2020, <https://www.springshare.com/libcal/> (accessed April 27, 2022). Library Services' LibCal page can be found at <https://libcal.mnsu.edu/>