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Abstract

In today's academic environment, students equipped with self-regulated learning and information literacy (IL) skills have an excellent opportunity for professional success given the current information-based practices in health care. Purposefully providing IL instruction to students early in their coursework will help them develop competent research skills applicable to their remaining studies and scholarly projects. Along with IL challenges, students can experience "library anxiety," which the literature identifies as a contributing factor to poor academic performance. This study explored components of library anxiety in Master of Occupational Therapy (MOT) students and identified opportunities for IL training that could help students become more confident and proficient in analyzing research publications. The study was embedded in a class assignment, that had the students, in small groups, connect with a university librarian for a one-hour research consultation and review of library resources. Participants in the study completed a pre- and post-survey of 17 questions utilizing a 4-point Likert scale. The results indicated that the students experienced significant positive change in their confidence level with utilization of research tools. Results also showed that students had increased comfort in seeking help while using the university library. The study suggests that the students' ability to find and assess quality research material will only improve with practice. Despite the availability of new technology that does not necessitate human contact to facilitate research, face-to-face interactions are the most effective mode of communication for questions that are involved and complex, such as graduate students' scholarly projects.

Keywords

Information literacy, library anxiety, research consultation

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Assessing Information Literacy Skills and Library Anxiety of First-Year Occupational Therapy Graduate Students

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ABSTRACT

In today's academic environment, students equipped with self-regulated learning and information literacy (IL) skills have an excellent opportunity for professional success given the current information-based practices in health care. Purposefully providing IL instruction to students early in their coursework will help them develop competent research skills applicable to their remaining studies and scholarly projects. Along with IL challenges, students can experience "library anxiety," which the literature identifies as a contributing factor to poor academic performance. This study explored components of library anxiety in Master of Occupational Therapy (MOT) students and identified opportunities for IL training that could help students become more confident and proficient in analyzing research publications. The study was embedded in a class assignment, that had the students, in small groups, connect with a university librarian for a one-hour research consultation and review of library resources. Participants in the study completed a pre- and post-survey of 17 questions utilizing a 4-point Likert scale. The results indicated that the students experienced significant positive change in their confidence level with utilization of research tools. Results also showed that students had increased comfort in seeking help while using the university library. The study suggests that the students' ability to find and assess quality research material will only improve with practice. Despite the availability of new technology that does not necessitate human contact to facilitate research, face-to-face interactions are the most effective mode of communication for questions that are involved and complex, such as graduate students' scholarly projects.

Graduate students in many health science programs must complete a research project at some point during their education, which requires the ability to locate, assess, and cite peer-reviewed journal articles. Students often struggle with these projects because they lack sufficient information literacy (IL) skills to complete the assignment properly (Allen & Weber, 2012; Bussell et al., 2017; Peter et al., 2017). The literature shows that students often are anxious about using the university library and asking for assistance. While academic librarians seek to work with students to help them succeed, studies indicate that librarians are often approached last for research help (DiPrince et al., 2016; Ismail, 2013; McPherson, 2015; Morgan-Daniel, 2017). Students often do not realize librarians can help them develop research skills.

Faculty are essential in guiding graduate students in their use of the university library (Kayongo & Helm, 2010). Students tend to identify more readily with their faculty than the librarian, and often view faculty as their primary research resource. However, educators need to understand that some students may mistakenly feel highly confident about their IL skills, so they may not ask for assistance (Robertson & Felicilda-Reynaldo, 2015). Graduate students' reliance on faculty for direction in library research has a potential for problems. For example, the faculty member may be unaware of or not up-to-date on library resources and services or may just be uninformed about effective database research strategies.

Faculty and librarians' collaboration can reinforce the importance of the library as well as the role of the librarian in the students' successful completion of their research. This collaboration can also influence the quality of the research that students conduct while in school and throughout their professional lives. The purpose of this study which was based on a faculty and librarian collaboration was to explore components of library anxiety in Master of Occupational Therapy (MOT) students and identify opportunities for IL training to increase proficiency in analyzing research publications.

Literature Review

Library Anxiety

Few institutions inspire reflection upon intellectual identity and competency more than an academic library (McAfee, 2018). In the academic library setting, a student does not necessarily want to appear unknowledgeable, yet asking a simple research question may reveal a lot about a person's educational level and research experience (McAfee, 2018). The term "library anxiety" first emerged in the literature in 1986, as a result of the observations and studies by Constance Mellon, then a professor of library science in North Carolina (Gremmels, 2015; McPherson, 2015). Mellon described library anxiety as a "situation-specific negative feeling or emotional disposition that occurs when a student is in a library setting" (Onwuegbuzie & Jiao, 2000, p. 46). Jiao and Onwuegbuzie (1997) expanded on Mellon's definition by describing feelings of uncertainty, helplessness, fear, tension, and even mental confusion. Academic library circles have widely acknowledged the term, library anxiety, as a concept that has evolved since the early part of the 1990s (Still, 2015, p. 322).

Causes of Library Anxiety

The causes of library anxiety have been investigated since Mellon's (1986) initial work, in which she established the foundation of issues contributing to library anxiety in her research of undergraduate students. "Mellon studied students' written documents about libraries drawn from classes of twenty English composition instructors, over a two-year period" (Gremmels, 2015, p.268). Her findings revealed three main causes for library anxiety: 1) students feel that their library skills are inadequate, yet believe those of their peers are adequate; 2) inadequacy is something to be ashamed of and hidden if possible, and 3) inadequacy likely would be revealed if one asked questions (McAfee, 2018; Vernon et al., 2016). Bostick later tested Mellon's findings by developing in her dissertation a Likert survey for college students called the Library Anxiety Scale (LAS), which consisted of 43 items designed to test library anxiety in undergraduates (Gremmels, 2015). Bostick identified five prominent factors leading to library anxiety: barriers with library staff, affective barriers, comfort with the library, knowledge of the library, and the presence of mechanical barriers (Lu & Adkins, 2012).

McPherson (2015) and Vernon et al. (2016) discovered similar antecedents to students experiencing library anxiety, which they described as situational/institutional and personal/dispositional. For situational issues, the authors described encountering barriers within the immediate library environment, including the size of the library, size of the information collection, lack of location/procedural knowledge, layout, noise, ventilation, lighting, signage, décor and overall comfort. Libraries often can be perceived as overwhelming by students because of the volume of information found there and the unfamiliar, even mysterious systems and skills needed to obtain the available information (Cooke, 2010; Di Prince et al., 2016).

The librarian may reflect institutional factors that can produce student anxiety. McPherson (2015) noted that students could be inhibited by the librarian's jargon and their perceptions that librarians are unapproachable and inaccessible (too busy to assist). Personal/dispositional antecedents included attributes of the students themselves, such as perfectionism, academic procrastination, poor study habits, lack of previous library experience, lack of self-confidence in conducting research, reluctance to ask questions, feeling overwhelmed, and lack of IL skills (Cooke, 2010; McPherson, 2015; Vernon et al., 2016). Both Vernon et al. (2016) and McAfee (2018) found in their research that the traits of perfectionism and procrastination were very high in those individuals identified with library anxiety. Perfectionism has been linked to depression, anxiety, and obsessive-compulsive disorders. And procrastination can be as equally serious, affecting a large percentage of college students, with that number increasing for those students who have heavy research work (McAfee, 2018). Both authors believe these traits are present as self-protective mechanisms against the possibility of any negative evaluation, which, unfortunately, is an inevitable part of academic life.

In addressing possible causes of library anxiety, Cooke (2010) offered that new electronic tools and information resources found in today's academic libraries require students to achieve a learning curve to utilize them effectively and efficiently. Cooke

(2010) felt that this new technology could contribute to students' fear of failure and low level of academic confidence, all leading to library anxiety.

Impact on Students

Library anxiety can negatively impact students' studies and make their coursework very arduous. Library anxiety has been recognized as a contributing factor to poor overall academic performance; to negatively influencing a student's ability to complete assignments and be successful, while also having cognitive, affective, physiological and behavioral ramifications (Brinkman & Hartsell-Gundy, 2012; McPherson, 2015; Vernon et al., 2016). As Gremmels (2015) offered, "This is what I am seeing in my students who seem overwhelmed by the library, in need of a librarian's help yet reluctant to approach us" (p. 268). In the extreme, students with library anxiety will actively avoid using the library for the duration of their studies (Cooke, 2010; McPherson, 2015; Still, 2015). This unnecessary anxiety is a concern if students are to succeed during and after their education and must be alleviated lest it limit students' achievements and overall experiences (Vernon et al., 2016).

According to Ismail (2013), help-seeking is basic to most library interactions; however, adult learners and students of other age groups report in high numbers that they do not need help from a librarian because they are capable of figuring things out for themselves. Students primarily prefer to seek information help from classmates and friends first, therefore academic libraries must actively engage in outreach to overcome these barriers to their services (Ismail, 2013).

Interventions for Library Anxiety

The literature offers multiple suggestions to help alleviate library anxiety, from very basic environmental modifications in lighting, temperature, and seating, or, as Brinkman and Hartsell-Gundy (2012) suggested, to relationship-building between librarians and graduate students engaged in research. Timing to cultivate these relationships is critical. The librarian can be seen more easily as an ally when relationship-building begins early in the students' academic careers. Ismail (2013) agreed, stating that people need a level of familiarity and comfort with the person before seeking help from them. Still (2015) supported one-on-one librarian-student training, especially in initial coursework. Kayango and Helm (2010) suggested face-to-face may be most effective with complex and involved questions. Ongoing support then would help students acquire competency in their continuous studies.

These strategies of relationship-building and ongoing support reflect the varying abilities of graduate students to find, access, evaluate, and ethically use information. Graduate students could greatly benefit from face-to-face meetings. Mellon's (1986) data reinforced this concept in finding that interacting with a librarian in a 50-minute orientation session considerably reduced library anxiety. DiPrince et al. (2016) agreed but cautioned that accurately and effectively communicating the value of the library's resources and services takes time and careful consideration and preparation.

Faculty-librarian collaboration is fundamental to encouraging and arranging these student-librarian interactions. Many faculty members are now integrating library instruction within their courses. Collaboration with faculty can increase the library's exposure while helping faculty increase awareness of what librarians can truly offer (Gaspard & Prentice, 2014). Kayango and Helm (2010) concurred that teaching faculty are essential in their guidance of graduate students' use and non-use of the library, especially at the beginning of their academic careers. This guidance can help students garner a sound understanding of library services and the librarian's role and help them feel more comfortable seeking out assistance to meet their research needs (Brinkman & Hartsell-Gundy, 2012; DiPrince et al., 2016).

Today's university libraries are regarded as the foundation of education, embodying intellectual competency, research, and development (Ashrafi-rizi et al., 2014; McAfee, 2018). Cooke (2010) believed that librarians are changing roles, from an information provider to a learning facilitator, with the capacity to lessen the anxiety of learners while giving them tools to assist them with their course work. Ashrafi-rizi et al. (2014) suggested that studying factors like library anxiety help identify the causes responsible for them, and therefore, help advance the educational and research goals for the university. The efficient use of libraries is only possible if the students feel psychologically peaceful and secure in their provision of relevant research services and the physical comfort of the physical space.

Information Literacy

Durando and Oakley (2005) defined IL as the ability to know when there is a need for information as well as possessing the ability to identify, locate, evaluate, and effectively use this information. Librarians who help students with research questions are familiar with this definition. While faculty may or may not know this term, they do agree that students need research skills to find quality information. Today the Internet makes it easy to find information, but is it reliable or accurate? Having the skill set to find and assess information for quality and reliability is crucial (Yevelson-Shorsher & Bronstein, 2018, p. 535). Dixon et al. (2017) suggested that healthcare workers need IL skills because clinical information is becoming more complex and recognizing quality material can be challenging. Both graduate and undergraduate students are required to complete research assignments that rely on reported data from journal publications. They need IL skills to recognize the information need, and the ability to find and assess information. They will continue to need these skills as they seek continuing education in their practice.

Purpose of Information Literacy

So how do IL skills help graduate students? Learning IL helps students succeed in their coursework because these skills incorporate learning search strategies and critical appraisal techniques (Durando & Oakley, 2005). Graduate students who do not have proper IL skills may struggle or have trouble completing assignments for their degree (O'Clair, 2013). Morgan-Daniel and Preston (2017) found "students noted the following training needs: formulating searchable questions, developing search strategies, choosing relevant databases, using database limiters, locating full-text articles, critical

appraisal and improving information-seeking confidence” (p. 168). Librarians help students gain these skills.

Researchers formulate searchable questions when starting original research and defining a research question. For novice researchers, creating the research question takes practice. Librarians can help students learn how to develop search strategies, such as listing and combining search words and exposing them to advanced search techniques, truncation, Boolean operators and, in the medical databases, Medical Subject Headings (MeSH; Peter et al., 2017). Librarians also can direct students to the appropriate databases to use for their research.

Students who improve their IL skills become more confident and comfortable with finding and validating information on the Internet and in academic libraries (O’Clair, 2013; Yevelson-Shorsher & Bronstein, 2018). These skills can advance even further as the student progresses in a program. Librarians and faculty can work together to help build students’ research confidence as they learn to identify various levels of publications like evidence-based practice (EBP) articles (Allen & Weber, 2012). Health science programs require students to learn about and use EBP information. Healthcare professions, including occupational therapists, require continued lifelong learning to stay abreast of the ever-changing medical information and technology. Having strong information-seeking skills is important at all these levels (Molteni & Chan, 2015).

Challenges & Opportunities

Studies have found that some students tend to overestimate their IL skills, which often dissuades them from requesting help (Peter et al., 2017; Robertson & Felicilda-Reynaldo, 2015). They may not be aware of available resources and supports. A study at Notre Dame found that graduate students assigned low importance to the use of librarian services (Bussell et al., 2017). Nonetheless, both faculty and librarians are aware that an unknown number of students do struggle with finding information for their assignments. Many students are not comfortable asking for help at the library and prefer to seek help from instructors or peers (O’Clair, 2013) or seek no help because “they pride themselves in being self-sufficient” (Ismail, 2013).

Faculty and librarians working collaboratively throughout an academic program can generate strategies to impart IL skills to students, such as instruction sessions, consultations, or mock assignments using certain resources or databases. Boruff and Thomas (2011) suggested that students in health science programs need multiple repetitive exposures to IL skills to successfully learn and retain this knowledge. Librarians can help build students’ research confidence by helping them locate different types of research articles (Allen & Weber, 2012). Graduate students seem to benefit from meeting with librarians for a specific need at the beginning of their coursework (O’Clair, 2013). Librarians and faculty can work together to help students succeed and excel in their academic programs.

Method

Research Design

The study design was a survey. The university's Institutional Review Board approved the original study proposal in September 2018 (33 students), with an extension granted for the continuation of the study in September 2019 (33 students).

Instruments

A pre/post survey was constructed (see Appendices 1 and 2) with 17 questions utilizing a 4-point Likert scale. The literature review and the Library Anxiety Scale (LAS) by Bostick (Gremmels, 2015) served as guides for question construction. Consideration was given to keeping the survey brief and relevant to the context of this particular study; therefore, a standardized survey was not utilized. Seven of the survey's questions addressed students' confidence and competence in defining the information needed for research, in selecting relevant research databases, in creating organized reference lists, and assessing their familiarity with American Psychological Association (APA) publication and citation resources. The remaining ten questions explored students' use of the library relative to comfort for study, utilization of the librarians, and incorporation of regular library visits as needed for coursework. For the post-survey three open-ended questions were developed which focused on library anxiety and IL topics.

The participants also completed a Background Experience Questionnaire (see Appendix 3) prior to the consultation. The Background Experience form was anonymous and used by the librarian to plan learning sessions based on experiences with research databases and tools.

Sampling

This study used a convenience sample. The participants, comprised of two MOT student cohorts, were all in their first trimester of occupational therapy graduate school and attending a Foundations in Occupational Therapy course. For study participation, Cohort 1 had 26 students and Cohort 2 had 21 students who completed the pre/post survey. The predominant age category in the sample of students was 23-29 years of age, followed by 18-22 years old. Most students had achieved their undergraduate degrees less than 1-year prior to the study, followed by 1-3 years prior to the study.

Data Collection

Participation in the study was voluntary. Students were given a consent form, the Background Experience form, and the pre-survey at the beginning of the trimester. All participants received an annotated bibliography assignment requiring a meeting with the university librarian who provided instruction on databases and general resources. Post-surveys were collected at the end of the trimester.

Data Analysis

Survey data were analyzed utilizing the Mann-Whitney U test (non-parametric test) to compare the confidence and usage in pre- and post-survey, respectively. The open-ended questions were collated into categories.

Results

The survey results indicated there was a significant difference between the mean value of pre- and post-survey for confidence in research tool usage ($P < 0.0001$). Also, there was a significant difference between the mean value of pre- and post- for comfort in seeking help and usage of the university library ($P = 0.0018$; see Table 1). Students gained confidence in their IL knowledge and skills, and their comfort in use of the library also increased.

Table 1

Pre- and Post-Survey Data

	Pre (N=47)	Post (N=44)	P-value
Confidence			<0.0001
Mean \pm SD	20.02 \pm 3.44	24.55 \pm 2.68	
Comfort in Library Usage			0.0018
Mean \pm SD	25.17 \pm 2.76	23.25 \pm 2.59	

From the open-ended questions on the post survey, student comments were organized into categories of beneficial, efficient, and comfortable. The students appeared to see the benefit of their time spent in the consultation with the librarian, with 77% ($n=35$) reporting positive comments such as:

- “It was useful to refresh my memory of how to do things. It is easier to talk to people in the library.”
- “1:1 really was helpful and helped to clarify any misconceptions I had.”
- “Very helpful in finding/using tools throughout the semester.”
- “It was helpful. I probably wouldn’t have talked to the librarian without this.”

Graduate students unfamiliar with research can regard information gathering as a daunting and laborious experience. Following the librarian consultation however, the students gained some efficiencies in navigating databases and resources with 77% ($n=35$) reporting comments such as:

- “It took less time to put together citations, and formatting papers is easier.”
- “I learned new sites to find research articles.”
- “I used tools that I would not have used otherwise.”
- “I learned a lot more ways of searching for information that I needed.”
- “Easier to find relevant articles to the research topic.”
- “I was able to navigate the online sources with ease.”

Getting acclimated to the library through this consultation helped establish a comfort level with the library personnel and with the building itself. Student comments 75% ($n=35$) Included:

- “The librarians are very nice and approachable.”
- “This was useful because we could ask questions.”
- “I feel more comfortable looking up research.”

Discussion

The study's primary aim was to explore components of library anxiety in MOT students, introduce library resources, and further identify opportunities for IL training. Survey results indicated that a 1:1 meeting with the university librarian increased students' confidence in research skills while lowering their library anxiety. These results reinforced the work of Kayongo and Helm (2010) and Magi and Mardeusz (2013) which offered the perspective that even though technology exists, complex student questions, such as those related to research, are best answered with face-to-face intervention. Muszkiewicz (2017) also found that students had less library anxiety after learning library skills from a person rather than from using technology.

Many of the students initially came to the librarian with either limited information or inflated confidence in their research skills. However, after their meeting, their perceptions of available research resources and their abilities to access them, broadened considerably. Cooke (2010) advocated for a consultative approach, such as one embedded in this study, with the concept of the "andragogical librarian," as a method to serve adult students' needs. An andragogical approach focuses heavily on engagement. Cooke believed that focused in-person instruction can empower adult learners while promoting self-direction, relevance, and immediacy (Ismail, 2013, p.165) Ismail (2013) and Magi and Mardeusz (2013) offered that while adult learners are highly motivated to learn, they do not have the luxury of time and therefore require instruction that is more immediate and collaborative.

Students' comments gathered in this study indicated that time spent with the librarian was beneficial in that it also increased their comfort level with the library. These students established a relationship with key personnel who can assist them with research while increasing their familiarity with a library as a source of support for their academic achievement. Ismail (2013) contended that this "outreach" plays an essential role in academic libraries today. It continues to be a challenge attracting students to the library and for them to use the resources and services. Mellon has commented that librarians forget how "overwhelming" it is to learn library research tools so helping students feel comfortable asking questions and being in the library is important (Tiemann & Black, 2017).

An overall positive experience for the students and the significant results of the study indicated students were now more comfortable with using research tools and more likely to ask for assistance. This result matters because occupational therapy requires a professional commitment to EBP and continuous contribution to the research. Early intervention in the curriculum, such as this librarian-student collaboration, is key along with continuing IL practice throughout the rest of their academic program. McPherson (2015) and Brinkman and Hartsell-Gundy (2012) suggested that students may not outright recognize their library anxiety, but the absence of IL skills may contribute to this anxiety. This is a sequence of reciprocal cause and effect where these negative emotions (known and unknown) associated with library anxiety can then interfere with the student's research process and development of IL.

Limitations

The limitations of this study included sample size and student interpretations of survey questions. The sample size of the cohorts was small (33 for both cohorts). Some of the survey questions on the topic of library anxiety have negative overtones, which may have influenced the way participants answered them. Not piloting the survey was also noted as a limitation. For future research, repeated measure design should be considered. The matching of pre/post surveys with the individual students will better control factors that cause variability between subjects, thus strengthening the validity.

Implications for Occupational Therapy Education

Findings from this study suggest students could experience less stress in their research work due to increased knowledge of library databases and improved search efficiencies. It is hoped that this could equate to higher quality and volume of occupational therapy research in the future. This study was just the beginning of the continuing collaboration between occupational therapy faculty and librarians to find additional ways to develop the students' abilities to find and assess quality research material. Students' research skills will only improve with practice. Quality occupational therapy education should routinely incorporate interprofessional experiences across disciplines and across the university campus throughout the curriculum. Informed approaches to occupational therapy practices, as a result of quality research, has the potential to reach a larger community of professionals and consumers, who then advocate for continued research and evidence-based occupational therapy interventions. This is what will keep our profession vital and relevant.

Conclusion

It is important that future occupational therapists learn the EBP skills needed to complete proper research and have a comfort level with not only using the library resources but also in communicating with library professionals as needed. This study showed collaboration between faculty and librarian is essential in modeling the value placed on IL, and EBP in the occupational therapy curriculum. It is critical students are taught these skills early and continuously throughout the program.

References

- Allen, E. J., & Weber, R. K. (2012). Graduate student searching proficiencies in the selection of qualitative and quantitative journal references. *Journal of Academic Librarianship*, 38(3), 130-134. <https://doi.org/10.1016/j.acalib.2012.02.007>
- Ashrafi-rizi, H., Sajad, M., Rahmani, S., Bahrami, S., & Papi, A. (2014). The effective factors on library anxiety of students in Isfahan University of medical sciences and Shiraz University of Medical Sciences. *Journal of Education and Health Promotion*, 3, 1-6. <https://doi.org/10.4103/2277-9531.139667>
- Boruff, J. T., & Thomas, A. (2011). Integrating evidence-based practice and information literacy skills in teaching physical and occupational therapy students. *Health Information & Libraries Journal*, 28(4), 264-272. <https://doi.org/10.1111/j.14711842.2011.00953.x>
- Brinkman, S. N., & Hartsell-Gundy, A. A. (2012). Building trust to relieve graduate student research anxiety. *Public Services Quarterly*, 8(1), 26-39. <https://doi.org/10.1080/15228959.2011.591680>

- Bussell, H., Hagman, J., & Guder, C. S. (2017). Research needs and learning format preferences of graduate students at a large public university: An exploratory study. *College & Research Libraries*, 78(7), 978-998. <https://doi.org/10.5860/crl.78.7.978>
- Cooke, N. A. (2010). Becoming an andragogical librarian: Using library instruction as a tool to combat library anxiety and empower adult learners. *New Review of Academic Librarianship*, 16(2), 208-227. <https://doi.org/10.1080/13614533.2010.507388>
- DiPrince, E., Wilson, A., Karafit, C., Bryant, A., & Springer, C. (2016). Don't panic! Managing library anxiety with a library survival guide. *Reference & User Services Quarterly*, 55(4), 283-292. <https://doi.org/10.5860/rusq.55n4.283>
- Dixon, B. E., Barboza, K., Jensen, A. E., Bennett, K. J., Sherman, S. E., & Schwartz, M. D. (2017). Measuring practicing clinicians' information literacy. *Applied Clinical Informatics*, 26(1), 149-161. <https://doi.org/10.4338/ACI-2016-06-RA-0083>
- Durando, P., & Oakley, P. (2005). Developing information literacy skills in nursing and rehabilitation therapy students. *Journal of the Canadian Health Libraries Association/Journal de L'Association des Bibliothèques de La Santé Du Canada*, 26(1), 7-11. <https://doi.org/10.5596/c05-007>
- Gaspard, C. S., & Prentice, K. A. (2014). Focused library instruction for occupational therapy, physical therapy, and respiratory care students and faculty: Library instruction in allied health. *Medical Reference Services Quarterly*, 33(3), 335-342. <https://doi.org/10.1080/02763869.2014.925713>
- Gremmels, G. S. (2015). Constance Mellon's "Library Anxiety": An appreciation and a critique. *College & Research Libraries*, 76(3), 268-275. <https://doi.org/10.5860/crl.76.3.268>
- Ismail, L. (2013). Closing the gap: Determining the library help-seeking preferences of adult learners in a graduate social work program. *Reference & User Services Quarterly*, 53(2), 164-173. <https://doi.org/10.5860/rusq.53n2.164>
- Jiao, Q. G., & Onwuegbuzie, A. J. (1997). Antecedents of library anxiety. *Library Quarterly*, 67(4), 372-389. <https://doi.org/10.1086/629972>
- Kayongo, J., & Helm, C. (2010). Graduate students and the library: A survey of research practices and library use at the University of Notre Dame. *Reference & User Services Quarterly*, 49(4), 341-349. <https://doi.org/10.5860/rusq.49n4.341>
- Lu, Y., & Adkins, D. (2012). Library anxiety among international graduate students. *Proceedings of the American Society for Information Science and Technology*, 49(1), 1-4. <https://doi.org/10.1002/meet.14504901319>
- Magi, T. J., & Mardeusz, P. E. (2013). Why some students continue to value individual, face-to-face research consultations in a technology-rich world. *College & Research Libraries*, 74(6), 605-618. <https://doi.org/10.5860/crl12-363>
- McAfee, E. L. (2018). Shame: The emotional basis of library anxiety. *College and Research Libraries*, 79(2), 237-256. <https://doi.org/10.5860/crl.79.2.237>
- McPherson, M. A. (2015). Library anxiety among university students: A survey. *IFLA Journal*, 41(4), 317-325. <https://doi.org/10.1177/0340035215603993>
- Mellon, C. A. (1986, March). Library anxiety: A grounded theory and its development. *College & Research Libraries*, 47(2), 160-165. <https://doi.org/10.5860/crl.47.02.160>

- Molteni, V. E., & Chan, E. K. (2015). Student confidence/overconfidence in the research process. *Journal of Academic Librarianship*, 41(1), 2-8. <https://doi.org/10.1016/j.acalib.2014.11.012>
- Morgan-Daniel, J., & Preston, H. (2017). The information needs of occupational therapy students: A case study. *Health Information and Libraries Journal*, 34(2), 165-170. <https://doi.org/10.1111/hir.12179>
- Muszkiewicz, R. (2017). Get to know your librarian: How a simple orientation program helped alleviate library anxiety. *Public Services Quarterly*, 13(4), 223-240. <https://doi.org/10.1080/15228959.2017.1319780>
- O'Clair, K. (2013). Preparing graduate students for graduate-level study and research. *Reference Services Review*, 41(2), 336-350. <https://doi.org/10.1108/00907321311326255>
- Onwuegbuzie, A. J., & Jiao, Q. G. (2000). I'll go to the library later: The relationship between academic procrastination and library anxiety. *College & Research Libraries*, 61(1), 45-54. <https://doi.org/10.5860/crl.61.1.45>
- Peter, J., Leichner, N., Mayer, A., & Krampen, G. (2017). Making information literacy instruction more efficient by providing individual feedback. *Studies in Higher Education*, 42(6), 1110-1125. <https://doi.org/10.1080/03075079.2015.1079607>
- Robertson, D. S., & Felicilda-Reynaldo, R.F.D. (2015). Evaluation of graduate nursing students' information literacy self-efficacy and applied skills. *Journal of Nursing Education*, 54(3, Suppl), S26-S30. <https://doi.org/10.3928/01484834-20150218-03>
- Still, M. (2015). Addressing library anxiety (LA) in student nurses: A study in an NHS foundation trust hospital library and information service. *Health Information & Libraries Journal*, 32(4), 322-325. <https://doi.org/10.1111/hir.12124>
- Tieman, A. L., & Black, M. E. (2017). Exploration of library outreach to nontraditional students. *Reference and User Services Quarterly*, 56(3), 198. <https://doi.org/10.5860/rusq.56n3.198>
- Vernon, N. A., Evans, M. M., & Frissen, I. (2016). The relationship between dimensions of personality and library anxiety in graduate students. *Education for Information*, 32(4), 397-410. <https://doi.org/10.3233/EFI-160083>
- Yevelson-Shorsher, A., & Bronstein, J. (2018). Three perspectives on information literacy in academia: talking to librarians, faculty, and students. *College & Research Libraries*, 79(4), 535-553. <https://doi.org/10.5860/crl.79.4.535>

Appendix 1

Pre-Survey Questions

1=Strongly Disagree 2=Disagree 3= Agree 4=Strongly Agree

I feel confident and competent to:

- | | | | | |
|---|---|---|---|---|
| 1. Define the information I need. | 1 | 2 | 3 | 4 |
| 2. Use different kinds of print sources. | 1 | 2 | 3 | 4 |
| 3. Use electronic information sources. | 1 | 2 | 3 | 4 |
| 4. Create bibliography records and organize the bibliography. | 1 | 2 | 3 | 4 |
| 5. Use the OneSearch Tool to locate journal articles. | 1 | 2 | 3 | 4 |
| 6. Navigate Google Scholar and link to full-text articles. | 1 | 2 | 3 | 4 |
| 7. Use APA Style Central (now Academic Writer) | 1 | 2 | 3 | 4 |

Using the Library:

- | | | | | |
|---|---|---|---|---|
| 1. The librarians are not approachable. | 1 | 2 | 3 | 4 |
| 2. I am unsure about how to begin my research. | 1 | 2 | 3 | 4 |
| 3. I get confused trying to find my way around the library. | 1 | 2 | 3 | 4 |
| 4. I do not know what to do next when the book I need
is not on the shelf. | 1 | 2 | 3 | 4 |
| 5. I feel comfortable in the library. | 1 | 2 | 3 | 4 |
| 6. The library is a comfortable place to study | 1 | 2 | 3 | 4 |
| 7. The library never has the materials I need | 1 | 2 | 3 | 4 |
| 8. The library is an important part of my school success | 1 | 2 | 3 | 4 |
| 9. The library is a safe place | 1 | 2 | 3 | 4 |
| 10. I cannot find enough space in the library to study | 1 | 2 | 3 | 4 |

Appendix 2

Post-Survey Questions

1=Strongly Disagree 2=Disagree 3= Agree 4=Strongly Agree

I feel confident and competent to:

- | | | | | |
|---|---|---|---|---|
| 1. Define the information I need. | 1 | 2 | 3 | 4 |
| 2. Use different kinds of print sources. | 1 | 2 | 3 | 4 |
| 3. Use electronic information sources. | 1 | 2 | 3 | 4 |
| 4. Create bibliography records and organize the bibliography. | 1 | 2 | 3 | 4 |
| 5. Use the OneSearch Tool to locate journal articles. | 1 | 2 | 3 | 4 |
| 6. Navigate Google Scholar and link to full-text articles. | 1 | 2 | 3 | 4 |
| 7. Use APA Style Central. | 1 | 2 | 3 | 4 |

Using the Library:

- | | | | | |
|---|---|---|---|---|
| 1. The librarians are not approachable. | 1 | 2 | 3 | 4 |
| 2. I am unsure about how to begin my research. | 1 | 2 | 3 | 4 |
| 3. I get confused trying to find my way around the library. | 1 | 2 | 3 | 4 |
| 4. I do not know what to do next when the book I need
is not on the shelf. | 1 | 2 | 3 | 4 |
| 5. I feel comfortable in the library. | 1 | 2 | 3 | 4 |
| 6. The library is a comfortable place to study. | 1 | 2 | 3 | 4 |
| 7. The library never has the materials I need. | 1 | 2 | 3 | 4 |
| 8. The library is an important part of my school success. | 1 | 2 | 3 | 4 |
| 9. The library is a safe place. | 1 | 2 | 3 | 4 |
| 10. I cannot find enough space in the library to study. | 1 | 2 | 3 | 4 |

How did you feel about individualized attention from a librarian? Was it useful?

How did your research skills change?

How often did you return for library assistance this trimester?

Appendix 3

Background Experience

Please answer the following:

1. Finding articles online
 - a. I usually use Google or Google Scholar.
 - b. I use the main search on the library website.
 - c. I use individual library databases.

2. CINAHL
 - a. I have never used this source before.
 - b. I have heard of this before but do not remember exactly what it is.
 - c. I have used this source before, but I would like a refresher.
 - d. I am an expert at using this source.

3. PubMed
 - a. I have never used this source before.
 - b. I have heard of this before but do not remember exactly what it is.
 - c. I have used this source before, but I would like a refresher.
 - d. I am an expert at using this source.

4. Google Scholar
 - a. I have never used this source before.
 - b. I have heard of this before but do not remember exactly what it is.
 - c. I have used this source before, but I would like a refresher.
 - d. I am an expert at using this source.

5. RefWorks
 - a. I have never used this source before.
 - b. I have heard of this before but do not remember exactly what it is.
 - c. I have used this source before, but I would like a refresher.
 - d. I am an expert at using this source.

6. Interlibrary Loan
 - a. I am not sure what this is or why I would use it.
 - b. I have heard of it but not used it.
 - c. I have used interlibrary loan in the past and would be comfortable using it again.

- 7. Asking for help from library staff
 - a. I have used chat.
 - b. I have used Ask US.
 - c. I am not familiar with any help services and would like to know more.
 - d. I am not comfortable asking for help.

- 8. Rank the following according to your preferences. When I do need research help with course work, I would seek help from:

	Rank 1-3; 1 being first to ask
A fellow classmate or friend	
My instructor/professor	
A librarian /library staff	

- 9. I am:
 - a. 18-22 years old
 - b. 23-29 years old
 - c. 30 – 39 years old
 - d. 40 and over years old

- 10. I earned my undergraduate degree:
 - a. Less than 1 year ago
 - b. 1-3 years ago
 - c. 4-6 years ago
 - d. 7-10 years ago
 - e. More than 10 years ago
 - f. Other (specify) _____