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Abstract

Master of Library and Information Science (MLIS) graduates seeking employment in academic libraries are often expected to possess user instruction and public service skills. However, it is difficult for students to achieve this experience through coursework alone. To address this disconnect, librarians at the University of Maryland (UMD) College Park Libraries created a Research and Teaching Fellowship to allow MLIS students at UMD to gain practical instruction experience. The authors present the experience of one MLIS student in collaboration with a subject librarian and a faculty member to plan, implement, and assess an information literacy instruction session for an undergraduate course in public health. The article discusses the benefits of mentoring for the MLIS student and subject liaison librarian, and the impact on the undergraduate student learning. This article addresses a gap in the literature on opportunities for MLIS students to gain instruction, collaboration, and assessment experience by presenting a successful model in place at UMD.

Keywords: mentoring, instruction, course management system, online modules, information literacy, learning outcomes, health science librarianship, academic libraries, research

Introduction

Librarians have a growing role in helping students become informed and ethical consumers of information. However, library and information science (LIS) graduates seeking jobs that have public service and instruction responsibilities often do not possess the requisite teaching skills to accomplish this complex task. Formal coursework in reference and information literacy instruction is one method of acquiring these skills, but more than coursework is needed to develop competent instruction librarians.[1]

To remedy this problem, collaborative mentoring programs between library science programs and academic libraries have been flourishing in recent years.[2] This paper describes in detail a current collaborative practice at the University

of Maryland, College Park (UMD) that seeks to prepare students in the Master of Library and Information Science (MLIS) program for the demands and responsibilities of academic librarianship. The benefits of this collaboration to all parties are discussed.

Literature Review

As academic research libraries are adapting to meet new needs and deliver services proactively, recent graduates entering the workforce are expected to possess the experience and knowledge to provide these high quality services. For aspiring academic librarians to be competitive in the job market, it is becoming increasingly important that they have proficiency in user instruction. However, many LIS programs offer instruction courses irregularly or only when demand is sufficient.[3] In a survey of instruction librarians based on the Association of College and Research Libraries' (ACRL) Proficiencies for Instruction Librarians and Coordinators, Westbrock and Fabian[4] found that most librarians acquired these proficiencies on the job or through self-teaching. However, survey respondents indicated that they believe LIS programs should be the primary source of acquiring these proficiencies.

Mullins[5] explored the changing roles of research librarians and whether recent graduates of LIS programs are able to meet these new needs. He administered a survey to nine directors of Association of Research Libraries (ARL) member libraries to learn more about recent LIS graduates' relevant skillsets and identify ways in which libraries can partner with LIS programs to better prepare students for the demands of their work. The library directors who responded to Mullins'[6] survey reported that they provide formal mentorship programs and encourage professional development at workshops and conferences to make up for the gap in new librarians' skills.

Recent graduates who do not have practical experience in areas such as user instruction, data management, or partnering with on-and off-campus organizations may find it challenging to obtain employment. Respondents to Mullins' survey[7] reported that candidates were turned down because they lacked the public service skills necessary for liaison work. Similarly, participants in Reed, Carroll, and Jahre's survey of recent LIS graduates[8] shared that practical, hands-on experience was more important than classroom preparation "because you have to hit the ground running" when entering a position as a new librarian.

To address these concerns, librarians and LIS programs have developed programs aimed at providing library science students with the practical experience requisite for job placements. The Library Instruction Leadership Academy (LILAC) held in western New York state in 2010 and 2013 was a regional attempt to expose librarians, recent graduates, and LIS students to teaching pedagogy and hands-on experience through a structured semester-long curriculum.[9] The program was marketed to local LIS students through their programs' listservs. Of the 21 participants in the 2013 cohort, four were current MLS students and six were recent graduates.[10]

While the need for LIS students to develop instruction skills is widely recognized, there is a gap in the literature on how to proactively fill this need. This article presents a successful model for how research libraries can partner with LIS programs to provide opportunities for students to gain experience with teaching, collaborating with other librarians and faculty, and assessing instruction programs.

About the Partners' Affiliations

University of Maryland Libraries

The University of Maryland Libraries support the teaching and research community of the University of Maryland College Park (UMD).

UMD is the flagship campus of the University of Maryland System and a major public research university. UMD serves over 37,000 undergraduate and graduate students, with about 9,000 faculty and staff.[11]

The UMD Libraries[12] are comprised of eight branch libraries and together are the largest library system in the Washington D.C. area. Information literacy instruction is an important service that the Libraries provide for the campus community. In 2015, over 50 librarians and graduate assistants taught over 400 instruction sessions for almost 8,500 undergraduate and graduate students.[13] In recent years, librarians expanded their teaching methods beyond one-shot library instruction sessions and partnered with teaching faculty to provide online instruction through the university's Enterprise Learning Management System (ELMS). In addition to instruction, the Libraries provide current and innovative services such as consulting for geographic information systems (GIS), data analytics, and makerspaces.

College of Information Studies

The College of Information Studies (iSchool) at UMD was founded in 1965 and initially offered a Master of Library Science (MLS) degree program.[14] The iSchool now offers all levels of degrees, including Bachelor, Master, PhD, Continuing Education, and Non-Degree Study and programs include Library and Information Science, Information Management, and Human-Computer Interaction.[15] The American Library Association-accredited MLIS program is the oldest and largest program offered by the iSchool. Students enrolled in the program have the opportunity to focus their coursework in one of several specializations, including Diversity and Inclusion, Archives and Digital Curation, School Library, a customizable Individualized Program Plan, and a dual degree in History and Library Science. Experiential learning is an important component of the MLIS program, as students

must complete a 120-hour Field Study at a library, archive, or other information institution.

Research and Teaching Fellowship

In fall 2015, the UMD Libraries partnered with the UMD iSchool to launch the Research and Teaching Fellowship, which allows MLIS students to gain paid and for-credit experience leading information literacy instruction sessions, providing research assistance, and conducting program assessment.[16] Throughout their first two semesters, Fellows are introduced to learner-centered pedagogical principles and given the opportunity to use these principles in action by teaching information literacy sessions for first year writing courses. During their third and final semester in this program, Fellows complete a Teaching as Research Project of their design, which provides a unique opportunity to partner with a subject liaison librarian and disciplinary faculty member to develop an information literacy session for an undergraduate course. The Teaching as Research Project serves as a capstone to the Fellowship program and fills several gaps in the teacher training available to MLIS students through their graduate curricula. This project enables Fellows to gain hands-on experience using a course's syllabus and research-based assignment to partner with a faculty member to develop appropriate learning outcomes, design a learner-centered lesson plan, and create an assessment instrument that measures student learning.

Following the information literacy session, Fellows review the student learning data generated by their assessment tool, and share their results and lessons learned at the iSchool and University of Maryland Libraries' research symposia. By asking Fellows to reflect on their experiences and share them with their local community of practitioners, the Teaching as Research Project also introduces Fellows to action research, and

demonstrates how librarians can use this process to make their teaching practices evidence-based.

School of Public Health

The accredited School of Public Health in College Park is ranked in the top 25 public health academic institutions.[17] It consists of six departments offering degrees at all levels, including certifications and doctoral degrees. Its faculty and students are actively involved in several strategic research initiatives (e.g. Tobacco and Smoking Cessation; Physical Activity and Obesity; Health Disparities, Health Equity, Social and Environmental Justice; Healthy Aging; Health Literacy and Cultural Competence, to name a few). As part of the coursework, students in the School of Public Health are required to participate in various internships and learn the foundations of conducting research. Teaching faculty often assign research projects to students as major part of their overall course grade thus providing opportunities for collaboration with subject librarians.

Methodology

Participants

For her Teaching as Research Project, the MLS student partnered with the Physical Sciences and Public Health Librarian to identify a course in the School of Public Health to work with throughout the semester. The MLS student and librarian met with several faculty members in December 2015 to discuss the information literacy instruction needs for their courses in the following spring 2016 semester. Several factors guided the selection process for deciding which class to work with for this particular fellowship experience, including an established working relationship with the professor, timely communication and responsiveness from all parties involved, clear learning objectives for the course, size of the class, as well as time and location for the library instruction session. In addition, the

MLS student's professional goals and interests were taken into consideration; she had completed coursework in public health for her undergraduate degree and had an interest in working as a health sciences librarian after graduation. Based on the above criteria, the MLS student and librarian chose to work with the instructor for a 60-person course, MIEH 300 – Introduction to Environmental Health: A Public Health Perspective.

Class Preparation

The MLS student and librarian communicated with the course instructor to identify a particular assignment to use as the focus of their instruction. They identified a semester-long project that required students to complete a research paper according to the professor's instructions (see Appendix A). The students had to select an article on a high-profile environmental health issue from a popular news source and support or refute the claims using evidence from at least three articles from the body of scholarly literature. They discussed areas in which students had struggled on their research assignments in past semesters and identified a need to focus on the differences between popular and scholarly sources. Then the librarian and MLS student began by developing learning objectives (see Appendix B). The MLS student used the Association of College and Research Libraries' (ACRL) Framework for Information Literacy for Higher Education[18] as a guide to develop learning objectives, which the librarian had not used prior to this collaboration. In the previous semester, the librarian developed a series of modules,[19] including a series of quizzes on UMD's Enterprise Learning Management System (ELMS), which covered basic information literacy and research skills for public health students. The professor made the completion of the modules and quizzes a total of seven points toward their final grade to encourage students to complete the modules prior to their instruction session. To-

gether, they developed a lesson plan (see Appendix C) that focused on the three learning objectives.

Under the librarian's guidance, the MLS student developed pre- and in-class assignments that addressed the learning objectives (see Appendix D) and assigned a total of one additional point for both assignments toward the final student grade. To make the assignments comparable, students were asked the same four questions about their search for one popular and one scholarly article. The pre-class assignment had a specified topic, and the in-class assignment asked students to find two articles on an environmental health topic that interests them. In addition, these activities allowed the librarian and the MLS student to assess students' learning after taking the online library modules and attending the one-shot library instruction session.

Instructional Design

The MLS student was confident in her ability to be the lead instructor for the MIEH 300 instruction session based on her two semesters of experience teaching information literacy instruction sessions to freshman composition students as part of the Research and Teaching Fellowship. The MLS student followed her lesson plan to reinforce the difference between popular and scholarly sources, provided a brief interactive database demonstration, and offered hands-on activities for students to master research skills and cite in correct American Psychological Association (APA) citation style.

The MLS student and Librarian borrowed assessment criteria from several rubrics made available on Oakleaf's RAILS website.[20] They decided to employ three forms of assessment.

1. *Pre-class assignment rubric* (see Appendix E) to understand the information seeking behavior of students when they approach a research assignment.

2. *In-class assignment rubric* (see Appendix F) to evaluate the effectiveness of the teaching methods, both online and in-person, and to measure the impact of library instruction on students' learning.

3. *Research papers grading rubric* (see Appendix G) to assess students' ability to properly give credit to others' work, evaluate sources, and analyze biases in the sources they used.

Results

Pre- and In-class Assignments

A total of 59 students participated in both pre- and in-class activities. Specifically, 47 out of 59 students completed both assignments which yielded 80% completion rate. Breaking down the results by assignment, 52 out of 59 students completed the pre-class assignment with an 88% completion rate, and 45 out of 59 students completed the in-class assignment with a 76% completion rate.

The average score for the pre-class assignment was 0.33 points out of 0.5, while the score for in-class assignment was 0.41 points out of 0.5. Students showed an improvement in their scores from the pre-class assignment to the in-class assignment.

Quizzes

All students completed the quizzes as part of the online modules with a 100% completion rate. The quizzes were not graded. Instead, they were assigned as practice exercises for students to acquire the necessary skills to effectively and efficiently conduct a research assignment.

Research Papers

Students submitted their research papers via ELMS. Across all scoring attributes, students demonstrated a proficient level of mastering the skills (see Table 1, after endnotes).

Discussion

Challenges for the MLS Student and the Librarian

The MLS student and the librarian found the initial process of finding a professor to collaborate with for this project to be challenging. In preparation for the spring 2016 Teaching as Research Project the pair met with several instructors to discuss how library instruction could complement their courses. Due to the nature of her project, the MLS student sought a collaboration that would allow for more student contact than a one-shot instruction session. Building upon the partnership that the librarian had developed with the selected professor provided a good opportunity, as the professor and librarian had a mutual understanding of the importance of information literacy instruction. Øvern[21] discusses the importance of trust and "a shared understanding of purpose" in developing successful librarian-faculty collaborations, which contributed to the success of this collaboration. Through the process of selecting a professor to partner with, the MLS student observed the diversity of faculty's communication styles and understanding of the library resources and librarian's role.

Other challenges included rescheduling and decreasing the length of time of the library session on a short notice, as well finding another librarian to co-teach the session due to an unfortunate event. These unexpected road blocks provided a learning experience for the MLS student to understand the flexibility and the time management skills a librarian should possess.

Assessment

The data indicate that students have benefited from completing the online modules and having the in-class instruction and activities. There were several components for assessing students' learning, including peer editing before submit-

ting their final papers to the professor. The professor's assigning eight points toward the final grade for completing all library assignments probably motivated students to complete all of these assessments:

Quizzes (total of 7 points)

Quizzes were automatically graded by ELMS for completion only. The average score was 6.96 out of 7 which shows a high completion rate of all questions included in each of the thirteen quizzes.

Pre- and in-class assignments (0.5 points for each assignment for a total of 1 point for both assignments)

The improvement in students' pre- and in-class activity scores from 0.33 to 0.41 out of a possible 0.5 suggests that the content covered in the instruction session improved students' ability to find and identify popular and scholarly sources. There are several possible reasons for the lower completion rate for the in-class activity. First, the instruction session was held on the last day of classes before UMD's week-long spring break, which may have impacted attendance. Additionally, because the class time allocated for the session was shorter than anticipated, some students were not able to finish the in-class assignment. To address these issues, the MLS student sent a message to the class on ELMS informing students of the extended deadline of one day, giving extra time to complete the in-class assignment.

Research papers

The average rubric scores for the research paper were between 3-Proficient and 4-Exemplary. Students' success in all of the rubric categories may be due in part to their correspondence to the learning objectives for the instruction session. Another reason for the high scores is the design of the assignment: the professor included peer review and revisions as mandatory steps for completing the assignment. The benefits of

librarian-faculty collaboration is exemplified through the combined result of the professor's assignment design and the instruction session on student success.

Impacts for Collaborators

Each participant in this semester-long collaboration benefitted from the experience, and several key lessons were learned along the way.

The library student

Completing this Teaching as Research project was a substantial undertaking for the MLS student. The project allowed her to assume a leadership role in designing and implementing an instruction session. She was able to build upon her prior experience leading sessions for freshman composition students and tailor the lesson plan to her strengths as an instructor. Having the support of the librarian throughout the semester was an asset. The student was able to ask for guidance when she needed it while maintaining her leadership role within the course collaboration. She strengthened her lesson planning and assessment skills and developed her classroom presence as an instructor. In addition, the Teaching as Research project reinforced her interest in working as an academic librarian after graduation, particularly in instruction and health sciences.

Some of the most pronounced benefits of the program resulted from taking on the project as a student. The MLS student developed stronger time management skills by balancing a full-time course load, part time assistantship, and internship at an area health sciences library. The challenges posed by the librarian's inability to be present for the instruction session as well as the last-minute time allocation change reinforced the importance of being flexible as an instructor. The collaboration benefitted her job search, providing her with a concrete example of a collaboration with librarians and faculty to discuss

during her interviews for academic librarian positions. Before graduation, the MLS student successfully received an offer of employment for a competitive health sciences librarianship fellowship.[22]

The co-directors of the Research & Teaching Fellowship

Connecting library school students with practicing librarians through the Teaching as Research project is a distinguishing feature of the Research & Teaching Fellowship. While many internship programs allow library students to staff public service points and lead information literacy sessions for first year students, the opportunity to work alongside a subject specialist librarian to develop and assess an information literacy intervention for upper level undergraduates or graduate students creates a compelling reason for MLIS students to apply to the Fellowship program. Partnering with a librarian to develop lesson plans for a research-based assignment enables fellows to gain instructional design experience, and to see evidence of a mutually beneficial partnership between disciplinary faculty and library faculty. The Teaching as Research Project goes beyond an internship by providing practical, concrete, and tangible teaching and research experience, which culminates in the presentation at two research symposia. The practical experiences gained through these collaborative projects combined with the research and scholarly outputs prepare fellows to succeed in the competitive academic library job market. Over time, the fellowship's directors envision that the fellowship's alumni will become leaders within the field of academic libraries, who will share its core values of learner-centered pedagogy and evidence-based practice.

The librarian

The literature is abundant on the benefits of mentoring as a transformative experience for both the mentor and the mentee. Mentoring was

a wonderful opportunity for the librarian's individual growth and professional experience. The MLS student's enthusiasm in lesson planning provided a refreshing opportunity for the librarian to update her teaching practices. Due to the busy schedules of both the MLS student and the librarian, they overcame the time challenge by exploring new tools for teaching, research, and collaboration thus enhancing their work productivity in the digital world. One outcome of this relationship is this joint publication which challenged the librarian to guide her mentee in the development of the ideas and transform them into this scholarly work. The librarian also was inspired and gained a sense of fulfillment by giving back to the profession and empowering the future library professional to become a successful teacher and researcher. This relationship also had a triangular role in further strengthening the relationship with the departmental faculty. It added an additional layer of trust in the library as a hub for learning and research.

The professor

The professor has taught this course each semester since spring 2015 and has included the library modules each time. The modules proved to be very beneficial to the students as it is evident from the Results section of this paper. Through this collaboration, as a newly hired professor to the university, she learned about the resources (e.g. Public Health Librarian and the Undergraduate Writing Center) available to students. She included this information in her syllabus and also emphasized that students should take advantage of these resources as she introduced the course writing assignments.

There is evidence in students' final research papers that they have met the course objectives. Several students felt they did not need instruction on how to research scholarly sources or how to properly cite, but did need the refresher. It is imperative that students practice their writ-

ing skills and strengthen their ability to synthesize information from multiple sources. While the environmental health course is designed to introduce students to the scientific foundations of environmental health (e.g. exposure science, toxicology, epidemiology, and risk assessment), the professor designed the course to give students the opportunity to practice the professional skills that are critical to public health: (1) oral and written communication skills; (2) the ability to synthesize information from disparate sources, and (3) the ability to apply concepts across different scenarios.

After students completed the library modules, the professor saw a reduction in the use of websites as sources in students' final assignments. The professor had more meaningful conversations with students about credibility of sources. She was motivated to encourage several students to apply for the Library Award for Undergraduate Research[23] which is a competitive program for students across all subject disciplines. One of these students became one of the three 2016 award recipients.[24]

Impacts for School of Public Health Students

The MLS student and librarian were intentional in designing the assessment of student learning. They wanted to know if the students met the learning objectives and how this knowledge translated to performance on their research papers. The improvement in students' scores on the pre- and in-class assignments from 0.33 to 0.41 out of 0.5 possible points indicate that students gained actionable knowledge on finding and citing popular and scholarly sources from the online modules in ELMS and the instruction session. Students' performance on their research papers shows that they met the learning objectives. Students scored above a 3-Proficient in all of the categories of the Research Paper Grading Rubric (see Appendix G). This shows that the learning outcomes were achievable in the

timeframe of one semester of working with the students.

Conclusions and Next Steps

This semester-long project highlights the value of collaboration and active participation by many stakeholders in order to support the MLS student's development of an instructor identity and to ensure that the undergraduate students develop and retain information literacy skills. A recurring concept in the literature on librarian-faculty collaborations is the issue of limited time.[25] As next steps for future improvement of students' acquisition of research skills, the professor has expressed interest in having the librarian visit her course twice each semester, but it is difficult to accommodate an additional session in the course schedule. Librarians can only include limited information in one-shot instruction sessions, so the online modules serve as a

feasible alternative to fill the gap of information literacy concepts. There is evidence in the literature that online library modules prove to be more effective than face-to-face one-shot library instruction.[26] Moreover, Stevens and Levi[27] suggest including students as participants in the rubric design, thus providing a more rewarding experience for all players in this activity. This experience has shown that working closely with the faculty instructor to embed library instruction into the course curriculum has a great impact on increasing students' research skills. Next steps for this collaboration may include both online and face-to-face instruction to provide multiple platforms for learning, as well as sharing rubrics with students at the beginning of the semester to provide them an opportunity to actively participate in the teaching and learning process.

Table 1. Students' scores for their research papers.

Attributes	Maximum of 4 points
Consults a variety of sources *(Objective 1)*	3.47
Analyzes biases *(Objective 2)*	3.52
Paraphrases information *(Objective 2)*	3.59
Accuracy of works cited page *(Objective 3)*	3.07
Accuracy of in-text citations in APA format *(Objective 3)*	3.38

(1 – Unacceptable, 2 – Developing, 3 – Proficient, 4 – Exemplary)

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Appendix A. Persuasive Essay Instructions

Note: This assignment will be peer edited, then revised, then the final turned in to me.

The purpose of this assignment is to help you increase your understanding of the science behind the popular news articles we reviewed in class from Above the Fold and how to take a position on an issue and support it using the scientific literature.

For this persuasive essay writing assignment you must take a position FOR or AGAINST an issue and write to convince the reader to believe or do something. Additionally, in your essay, you must state how your position addresses an environmental sustainability principle such as 1) Triple Bottom Line; 2) True Cost Accounting; 3) the Precautionary Principle or 4) Environmental Justice.

Persuasive writing, also known as the argument essay, utilizes logic and reason to show that one idea is more legitimate than another idea. It attempts to persuade a reader to adopt a certain point of view or to take a particular action. The argument must always use sound reasoning and solid evidence by stating facts, giving logical reasons, using examples, and quoting experts or citing the scientific literature.

To prepare you for this assignment, we will have a module on using Library Resources that includes online readings and homework that **must be completed by March 9, 2016**.

A summary of the news story from Above the Fold that you have selected for this assignment (using the same format we have been using for EHNews, including the APA formatted citation) and 2 to 4 sentences on why you are interested in the story, a scientific question associated with the news story that you will research, and the position that you will be arguing in the essay will be due before the actual paper and will count toward your paper grade. The topic you select must be connected to human health in some way. **You will submit this news story summary, your reason for selecting the news story, and your research question to me via ELMS by March 23rd for my review and approval.** Your news article summary *must* include a copy of the article or URL link to the article.

> ➤ **Persuading your freshman cousin to take your position on an environmental health issue**
> *Your environmental activist cousin just enrolled as a freshman at UMD College Park. She is excited to join a student environmental group to help with a variety of campaigns. She tells you that her group plans to work on a current environmental health issue that has been highlighted recently in Above the Fold. You are concerned that your cousin may be taking a position on a high profile environmental health issue with little background understanding of the underlying science, stakeholder interests and environmental sustainability concerns associated with this issue. Also you don't agree with her position.*
>
> *Since you have just taken MIEH 300, you have decided to help your cousin. She accepts your help and suggests that you provide her with a 5 - 7 page double spaced, 12-point font persuasive essay referencing at least 3 scholarly articles to support your position on the topic that may or may not be in agreement with the position of the news article. To help educate her and her fellow environmental group members, she invites you to present your analysis orally at the next student environmental group meeting.*

Essay Requirements. Your persuasive analysis should be communicated using the following format:

1. *Title Page:* Use APA style title page.

2. *Introduction:* Your introduction should catch the reader's attention and put your paper topic in context. Remember your audience is a student led environmental group. The introduction should also include a thesis or focus statement. Thesis/focus statement is your position on the topic. The thesis/focus should be one sentence in length and in the first paragraph. This is the foundation of your essay and it will serve to guide you in writing the entire paper. The introduction should provide some background on your topic by introducing your article from the popular press (Above the Fold), potential stakeholders and a preview of your supporting arguments. Be sure to transition to the next section with a sentence or two that provides closure to the introduction and moves the reader to your argument.

3. *Presenting your argument(s) to support your position:* In the next 2 to 3 paragraphs present your arguments. The next 2 to 3 paragraphs should address you arguments and should include a topic sentence explaining your point and reasons supported by the scholarly scientific articles that you find using the library databases, your findings from the popular press article, relevant course material, and your own insights. Be sure to describe how your position addresses an environmental sustainability principle such as 1) Triple Bottom Line; 2) True Cost Accounting; 3) the Precautionary Principle; or 4) Environmental Justice. You might state possible concessions toward an opposing argument, but then go back to elaborate your point. End with a clincher.

4. *Acknowledge opposing arguments:* In one paragraph describe possible opposing point(s) to your argument and who might have those opposing points of view (other stakeholders).

5. *Conclusion:* Your final paragraph should be a conclusion and should restate/summarize your main points or reasons, restate your thesis, and your recommendation on what action(s) your cousin's student environmental group could pursue to address the issue or what they should believe about the issue.

6. *References:* Cite appropriate references in the body of your paper and in a reference section at the end of the paper. You must cite at least 3 original research articles from scholarly peer-reviewed journals. Minimize use of websites as references. Use the American Psychological Association (APA) Style Manual for your references. The manual is also available in the library.

Your persuasive essay should be typed, double-spaced, 12-point font and should be at a minimum 5 pages and no more than 7 pages in length, not including the title page and references. Distill your thoughts and be concise; good writing need not be long-winded. This is not a draft but rather represents your best and most complete thinking to date. Your paper should be proofread and well edited. Correct grammar, spelling, and punctuation are basic requirements.

Key Dates

1. **Complete the Health Science Library Resources Modules (all 6) in ELMS by March 9, 2016.**
2. **Summary of the news story your "cousin" found from Above the Fold is due on March 23, 2016 for my review and approval.** Submit your news story summary, reason why you are interested in the story, the position that you will be arguing in the essay, and your research questions to me via ELMS.

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3. **The first draft of your persuasive essay is due on April 15, 2016 by 9AM.** You will submit your essay online to me via ELMS and you will bring in stapled hard copy to class on April 15, 2016.
4. Your essay will be reviewed by your peers during our **in-class writing workshop on April 18, 2016.**
5. **The final revised version of your essay is due on April 29, 2016 by 9AM** submitted to me online through ELMS.

Appendix B. Learning Objectives

At the end of the session, students will be able to:

1. Match information needs and search strategies to appropriate search tools. *ACRL Framework: Searching as Strategic Exploration (Knowledge Practices)*

2. Demonstrate the value of evaluating a source, and indicates an understanding of the role of self-bias in the process; i.e. distinguish between scholarly and popular sources and evaluate those sources. *ACRL Framework: Authority is Constructed and Contextual*

3. Give credit to the original ideas of others through proper attribution and citation. *ACRL Framework: Information Has Value (Knowledge Practices)*

Source:

ACRL Framework for Information Literacy for Higher Education:
http://www.ala.org/acrl/standards/ilframework

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Appendix C. Teaching Plan

Activity	Length	Description of activities
Introduction	3 min	Professor introduces the librarian and the library student fellow
Popular vs scholarly sources and APA citations	10 min	Power Point slides available at http://www.slideshare.net/ntlibrarian/scholarly-popular-apa2016

Finding articles	15 min	Live demo
		
		1. **Introduce students** to the UMD Libraries' web site: www.lib.umd.edu
		   a. Where they can get help
		   b. Overview of the Databases tab
		
		2. **Popular Sources:**
		   a. Search in **LexisNexis Academic**.
		     • "**air pollution"** retrieves a large number of results.
		     • Search within results: **asthma**
		     • Show how to narrow by publication type, publication name, Subject (especially helpful to narrow results)
		     • Click on <u>Edit Search</u> at top of results page → Advanced Options → modify Dates
		
		3. **Scholarly (and also Popular) Sources:**
		   a. Search in **Academic Search Complete**.
		     • **"air pollution" AND asthma**
		     • **Choose Databases** link on the top of the search box. Show how to search multiple databases simultaneously. **Select ALL** databases. Scroll down and show **AGRICOLA, GreenFILE, MEDLINE**, etc.
		     • Too many results. Show Limiters (Dates, <u>**Scholarly/Peer Reviewed Journals**</u>, Subject Thesaurus—especially helpful when you need to narrow your search.)
		     • Articles about China show up. Not interested? Use **NOT China** to eliminate these articles from the search results. Mention truncation * (child* will retrieve child, children, childhood).
		     • **Finding full text**—point out PDFs, HTML, Linked Full Text; ILL
		     • **Cite Link**—point out that the citation is not correct. Mention Zotero (on handout, recommend creating an account, makes writing papers so much easier).
		     • **"air pollution" AND asthma AND child* NOT China**
		
		4. Briefly Mention two additional databases: **Environmental Science Collection (ProQuest) and Public Health (ProQuest)**
		   a. They look different, but work the same way.

		b. Show how to find Magazine/Newspapers and Peer Reviewed articles.

In-Class Activity	10min	Go to ELMS site and locate the *Library Resources for MIEH300 (Spring 2016)* course. Note: A sneak preview of the library modules in ELMS is available at https://myelms.umd.edu/courses/1195203/pages/home-page
		
		1. Using the Library's resources covered in today's lecture and in the ELMS modules, search for articles on an environmental health topic that interests you.
		
		2. Choose one **popular article** and one **scholarly (peer reviewed)** article that discuss the **same** topic.
		
		3. Copy and paste the citations of the articles in APA format. Make any necessary edits such as capitalization, punctuation, grammar, etc.
		   a. Popular source: _____
		   b. Scholarly source: _____

Discussion	5 min	1. In pairs, talk about:
		   a. What database did you use, and why?
		   b. How you searched (keywords, Boolean operators, limiters)?
		   c. How you could improve your search strategy?
		2. Discussion questions:
		   a. How did your search process differ from your partner's?
		   b. Did you have similar or different struggles?

Wrap up	2 min	1. Reinforce how students can get help: contact librarian via email, schedule an appointment, visit librarian's office hour, or through Libraries' AskUs chat 2. Resources on home page of ELMS Course.

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Appendix D. Pre-Class Assignment Instructions

Find one **popular** article and one **scholarly** article on **indoor air pollution exposure and health effects** that you think would be good sources for inclusion in a research project. Record the sources in proper APA citation style format.

1. Popular

2. Scholarly

Describe your search strategy:

1. What **sources** have you used? (e.g. Google, Google Scholar, library databases, any other?)

2. What **keywords** have you used? Any other search strategies?

3. Where did you look for **the proper APA citation formatting** for your sources?

In-class Assignment Instructions

Using the Library's resources covered today and in the handouts (**not** Google Scholar), find one **popular** article and one **scholarly** article on an **environmental health topic that interests you**. Record the sources in proper APA citation style format.

1. Popular article in APA format:

2. Scholarly article in APA format:

Describe your search strategy.

1. What **sources** have you used for finding each article? Please be specific.

    For example:

    Popular: Environmental Science Collection (ProQuest)

    Scholarly: GreenFILE

2. What **keywords** have you used? Any other search strategies?

3. Where did you look for **the proper APA citation formatting** for your sources?

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Appendix E. Pre-Class Assignment Rubric
Maximum of 0.5 points
Adapted with permission[1]

Question	Points		
	0.1	**0.05**	**0**
1. Popular article in APA format.	Student identifies a relevant article, and creates a reasonably correct APA style for the bibliographic citation for the article.	Student identifies a relevant article, and creates a reasonably correct APA style for the bibliographic citation for the article, but not both. OR Student does not identify a relevant article, BUT creates a reasonably correct APA style in text and bibliographic citation for the article.	Student does not identify a relevant article, and does not creates a reasonably correct APA style for the bibliographic citation for the article.
2. Scholarly article in APA format.	Student identifies a relevant article, and creates a reasonably correct APA style for the bibliographic citation for the article.	Student identifies a relevant article, and creates a reasonably correct APA style for the bibliographic citation for the article, but not both. OR Student does not identify a relevant article, BUT creates a reasonably correct APA style for the bibliographic citation for the article.	Student does not identify a relevant article, and does not creates a reasonably correct APA style for the bibliographic citation for the article.
3. What sources have you used for finding each article? Please be specific. For example: Popular: Google	• For finding popular article, **student identifies a source other than Google** (website, other search engine AND • For finding scholarly article, student identifies a source other than Google Scholar (e.g. one subscription	• For finding popular article, **student identifies Google or any other free online source (WorldCat)** AND/OR • For finding scholarly article, student identifies Google Scholar or any free online source (library	**Student does NOT identify where** they searched for information (name of database, website, search engine, etc.)

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Scholarly: Google Scholar	based source such a specific library database or print journals.)	website, library catalog, LibGuide, Worldcat, Pubmed or any other free portal/directory)	
4. What keywords have you used? Any other search strategies?	**Student identifies BOTH:** • What keywords or phrases they used when searching • Additional filters and/or limiters	**Student identifies 1 of the following 2:** • What keywords or phrases they used when searching • Additional filters and/or limiters	**Student identifies 0 of the following 2:** • What keywords or phrases they used when searching • Additional filters and/or limiters
5. Where did you look for the proper APA citation formatting for your sources?	Student identifies <u>1 or more</u> of the following 4: • Accessing citation tools/resources through UMD Libraries' website or any other website related to APA citation style. • Visited the OWL at Purdue's website. • Used the "cite' feature on a database to copy/paste a citation. • Used a citation maker (e.g. EasyBib, Citation Machine)	**No points assigned**	Student identifies 0 of the following 4: • Accessing citation tools/resources through UMD Libraries' website. • Visited the OWL at Purdue's website. • Used the "cite' feature on a database to copy/paste a citation. • Used a citation maker (e.g. EasyBib, Citation Machine)

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Appendix F. In-Class Assignment Rubric
Maximum of 0.5 points
Adapted with permission[2]

Question	Points		
	0.1	**0.05**	**0**
1. Popular article in APA format.	Student identifies a relevant article, and creates a reasonably correct APA style for the bibliographic citation for the article.	Student identifies a relevant article, and creates a reasonably correct APA style for the bibliographic citation for the article, but not both. OR Student does not identify a relevant article, BUT creates a reasonably correct APA style for the bibliographic citation for the article.	Student does not identify a relevant article, and does not creates a reasonably correct APA style for the bibliographic citation for the article.
2. Scholarly article in APA format.	Student identifies a relevant article, and creates a reasonably correct APA style for the bibliographic citation for the article.	Student identifies a relevant article, and creates a reasonably correct APA style for the bibliographic citation for the article, but not both. OR Student does not identify a relevant article, BUT creates a reasonably correct APA style for the bibliographic citation for the article.	Student does not identify a relevant article, and does not create a reasonably correct APA style for the bibliographic citation for the article.
3. What sources have you used for finding each article? Please be specific. For example:	• For finding popular article, **student identifies a source other than Google** (website, other search engine AND • For finding scholarly article,	• For finding popular article, **student identifies Google or any other free online source** AND/OR • For finding scholarly article, student identifies Google Scholar or any free online source (library	**Student does NOT identify where they searched for information (name of database, website, search engine, etc.)**

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<u>Popular</u>: Environmental Science Collection (ProQuest) <u>Scholarly</u>: GreenFILE	student identifies a source other than Google Scholar (e.g. one subscription based source such a specific library database or print journals.)	website, library catalog, LibGuide, Worldcat, Pubmed or any other free portal/directory)	
4. What keywords have you used? Any other search strategies?	**Student identifies:** • What keywords or phrases they used when searching • Additional filters and/or limiters	**Student identifies 1 of the following 2:** • What keywords or phrases they used when searching • Additional filters and/or limiters	**Student identifies 0 of the following 2:** • What keywords or phrases they used when searching • Additional filters and/or limiters
5. Where did you look for the proper APA citation formatting for your sources?	Student identifies 1 or more of the following 4: • Accessing citation tools/resources through UMD Libraries' website or any other website related to APA citation style. • Visited the OWL at Purdue's website. • Used the "cite" feature on a database to copy/paste a citation. • Used a citation maker (e.g. EasyBib)	**No points assigned**	Student identifies 0 of the following 4: • Accessing citation tools/resources through UMD Libraries' website. • Visited the OWL at Purdue's website. • Used the "cite" feature on a database to copy/paste a citation. • Used a citation maker (e.g. EasyBib)

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Appendix G. Research Papers Grading Rubric

Attributes	Unacceptable 1	Developing 2	Proficient 3	Exemplary 4
Consults a variety of sources *Objective 1*	Citations are from free web sites with a questionable credibility; Extensive additional research is needed.	Some citations are from credible sources; Some additional research is needed.	Most citations are from credible sources; A small amount of additional research may be needed.	All citations chosen are from credible sources; Sources add greatly to overall research.
Analyzes Biases *Objective 2*	Does not articulate the biases of the information source OR his/her own biases.	Articulates either his/her own biases OR those within the information source.	Articulates the biases of the information and its source AND his/her own biases, one may be inaccurately stated.	Articulates the biases of the information and its source, as well as his/her own biases, and both appear accurately stated.
Paraphrases Information *Objective 2*	Does not show evidence of presenting information from the original text.	Presents information from the original text verbatim without quotation marks.	Summarizes relevant information from the original text, but uses phrases from the original text as well as their own words.	Summarizes relevant information from the original text in their own words.
Accuracy of Works Cited Page *Objective 3*	Major elements of citations are missing along with consistent formatting errors.	Most elements of citations present but with some formatting errors.	All elements of citations present, but some formatting errors.	All elements of citations present and all sources are cited and formatted perfectly according to style.
Accuracy of in-text citations in APA format *Objective 3*	Major elements of in-text citations are missing along with consistent formatting errors.	Most elements of in-text citations present but with some formatting errors.	All elements of in-text citations present, but some formatting errors.	All elements of in-text citations present and all sources are formatted correctly according to APA style.

Adapted from the *AAC&U VALUE Information Literacy Rubric Revision - Assessment Immersion 2011 "Final" Draft*. Available at http://railsontrack.info/rubrics_details.aspx?wkid=184&catid=12.

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[1] Alexander J. Carroll, Nedelina Tchangalova, and Eileen Harrington, "Uncorking Learning: Flipping Library Instruction Pechakucha-Style (quiz Rubric)" (Radford, Virginia, May 12, 2015), http://hdl.handle.net/1903/16346.

[2] Ibid.