CHAPTER 18

BUILDING CRITICAL RESEARCHERS AND WRITERS INCREMENTALLY: VITAL PARTNERSHIPS BETWEEN FACULTY AND LIBRARIANS

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INTRODUCTION

In the spring semester of 1988, a soon-to-be college graduate stared with fright at her syllabus for the "Sociology Methods" course. It required a 25–30 page paper on a topic of her choice. Nowhere in her college career had she been prepared for such a task. Some 20 years later that same student found herself teaching a sociology methods course at Lycoming College, a small, private, liberal arts and sciences college, and looking for ways to prepare her soon-to-be college graduates for writing a similar paper, but in profoundly better ways. Thankfully, in the intervening decades, a nationwide movement toward information literacy (IL) had ensued. In 2000, the Association of College and Research Libraries (ACRL) adopted the *Information Literacy Competency Standards for Higher Education* (*IL Standards*). Through the *IL Standards*, IL is defined as the ability to recognize and satisfy information needs efficiently, effectively, and ethically; while the *IL Standards* were designed for higher education, they ultimately enabled the information literate individual to be a lifelong learner.

At Lycoming College, where the once-bewildered student became a professor, there was a distinct shift in the college's approach to IL. Instead of requiring students to master the research methods of a discipline in one course, in most disciplines, IL development began to occur progressively throughout the sequences of courses leading up to the capstone requirements. The work to meet the capstone methods requirements no longer begins in the eighth semester of college; it begins in the first semester and builds skills along the way across all

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courses to ensure the development of IL. As Katt Blackwell-Starnes (Chapter 7, this collection) notes, students are best served by developing IL proficiencies in the preliminary research assignments of lower level courses that will better prepare them for the formal research assignment in their capstone courses.

DEVELOPING IL PROFICIENCIES

Information literacy is best learned incrementally, moving from the relatively straightforward ability to locate the full text of an article to the increasingly subjective ability to evaluate sources for quality and relevance. The discovery of a relevant research article for a paper is often the stopping point for many students; they are satisfied with their research once they have the requisite number of sources in hand. Understanding how to critique the research, to evaluate its appropriateness and quality, to utilize it to support or warrant further research, and to include it appropriately in a paper is not learned (or taught) in one fell swoop. Both librarians and faculty need to be cognizant of the fact that information-seeking and evaluation abilities need to "be developed over time and [are] not a simple content or procedure that can be handed to students during their first year and then neglected" (Gowler, 1995, p. 392).

At the University of Guelph in Ontario, Canada, the library worked to scale IL "sessions throughout the four year degree" in hopes of helping students to utilize "their maturing education to developing more advanced IL skills over time" (Harrison & Rourke, 2006, p. 602). This model allows IL to be more easily "embedded into the curriculum" and allows the library to introduce "concepts repeatedly and at an increasingly sophisticated level" over the course of the degree (Harrison & Rourke, 2006, p. 602). At York University, also in Ontario, Canada, Robert Kenedy and Vivienne Monty (2008) noted that not only should the learning outcomes for library sessions progress incrementally with the students' experience levels, but it is also important to teach the concepts of information seeking, and not just the tools, with an emphasis on easily transferable skills.

A VERTICAL CURRICULUM—SCAFFOLDING IL

Because these abilities are best learned incrementally, including them vertically throughout the curriculum is a logical step. While a horizontal curriculum indicates the various academic subject areas a student takes during a given school year, the vertical curriculum indicates the upward climb of skills, subject comprehension, and improved application of abilities that come with each new step of the course or discipline. A vertical curriculum is deliberately designed to increase mastery through small steps, with students encountering increasing

difficulty at each new level. Each step in the process, through repeated practice, allows for refinement of the learner's knowledge. As students build expertise, they broaden their aptitude for more intensive work.

Another term for educational elements that conspicuously move students from an entry level to an expert level is that of "scaffolding." Scaffolding can be thought of as a "learning sequence" that can "help the student climb to the desired educational goal or behavior," wherein the teacher "fades from the learning situation" as the student climbs to ever higher levels of mastery (Callison, 2001, p. 37). Librarians and faculty are the underlying structures working together to support the construction of adeptness at IL, moving learners toward stronger overall research skills. Well-designed scaffolding can help students to see how a previously learned skill can be applied to new situations without explicit instruction, making the student a more active participant in his or her own learning (Callison, 2001). Including research competencies "gradually and cumulatively" gives students a logical way of understanding library resources, while providing them a view of research as "relevant and potentially useful in other situations" (Gowler, 1995, p. 396). Rolf Norgaard and Caroline Sinkinson (Chapter 1, this collection) note the importance of avoiding the "skills-oriented 'inoculation' approach to IL" because it can remove or obscure the contextual basis for IL applications beyond the classroom. Norgaard and Sinkinson (Chapter 1, this collection) also emphasize the importance of imparting IL abilities broadly so that learners identify information competencies as being both transferable and relevant in contexts outside of academia.

IL CHALLENGES

The *IL Standards*, developed by the Association of College and Research Libraries (ACRL) in 2000, have been the guiding principles for IL in colleges throughout the country. Although the *IL Standards* provide a solid basis for the kinds of information-seeking skills that undergraduate students ought to master, the *IL Standards* were written by, and are almost exclusively used by, professional librarians. One risk in discussing IL is the jargon the *IL Standards* use, which can limit the appeal to educators outside of the library. Another risk is a confusion of what computer or technology literacy is and what IL is—the two are not the same and a student can be highly computer literate whilst being wholly "information illiterate" (Kenedy & Monty, 2008, p. 91). Adopted in early 2015, the ACRL *Framework for Information Literacy in Higher Education* (*Framework for IL*), seeks to address some of these challenges through threshold concepts that reflect students' roles in knowledge creation, the increasingly complex dynamics of the infosphere, and a growing emphasis on information ethics. The *Framework for*

IL allows for more individualized implementation of concepts, rather than using fixed standards or skill sets.

Concerning the first risk, that of terminology, a number of groups have addressed the breadth and jargon typically associated with IL in an attempt to make the concepts more accessible, and some accrediting bodies and state higher education associations have created their own language and plans for incorporating IL into higher education. The state of New Jersey, as an outgrowth of the Lampitt Law that regulates requirements for students transferring from county community colleges to four-year colleges and universities, created a task force of librarians to develop a plan to standardize the information-seeking abilities that would accompany the standardized transfer obligations; the resultant Information Literacy Progression Standards provide a two-tiered approach for the introductory/novice level of skills and the gateway/developing level of skills (DaCosta & Dubicki, 2012). New Jersey's Progression Standards, which align well with the new *Framework for IL* language regarding novice learners and experts, are intended to denote "an ongoing process" that are not "too context-specific" and can "be elaborated on and further customized" (DaCosta & Dubicki, 2012, p. 619). Jacqui Weetman DaCosta and Eleonora Dubicki concluded that, as a result of the collaboration between librarians, faculty, and administrators, students not only have stronger IL competencies for their academic work, but also that these "information seeking and handling skills" better prepare them for the workplace (2012, p. 628).

Addressing the second risk, that of confusing computer literacy with IL, speaks to the need to teach students to use familiar technologies to identify resources and to also apply IL proficiencies. Computer literacy commonly refers to the ability to use a computer effectively for problem solving, to distinguish between hardware and software, to use software programs, and to use the Internet for information-gathering (Kershner, 2003). Because so many research resources are available through online platforms, it is necessary to have some computer and technological savvy in order to use the systems and databases for information retrieval, and it is tempting to think that because "everything" is available online, being able to access a web-based database and to retrieve the full-text of the source is the equivalent of IL. College-level research, however, necessitates going beyond the ability to retrieve search results. Information competencies are needed to evaluate search results, to determine which resources will best satisfy the information need, and to use the sources ethically, appropriately, and intellectually.

COLLABORATING AND CUSTOMIZING IL

These risks of discussing and implementing IL become lessened to a great degree with collaboration between librarians and faculty to establish consistent and

effective development of IL. Students benefit from building long-term relationships with the library's human resources (Gowler, 1995) by way of working with a librarian throughout the entire course of the major. The liberal arts college where this particular collaboration took place is committed to excellence in teaching and supports a strong collaborative library instruction program. Faculty are encouraged to work with librarians to design research and writing assignments that will foster transferable lifelong abilities such as the ability to communicate effectively and to think critically, and the ability to be research- and information-competent.

To counteract the library-centric feel to the *IL Standards*, and to customize IL as we see it in a liberal arts environment, an *ad hoc* subcommittee of the Faculty Library Advisory Committee (FLAC) at Lycoming College set forth in 2006 to rearticulate the skills and abilities of the *IL Standards* into a more faculty-friendly version. FLAC, comprised of seven faculty members, the provost, the chief information officer, and the director of library services, assists and advises in the formulation of library policies and evaluation of services. Committee members promote better understanding of library concerns and needs to other constituencies within the college. The *ad hoc* committee that created the college's information standards was comprised of faculty members, guided by documents the librarians provided, but the end result was written by and for faculty members. The resultant guiding document of Research and Information Competencies (RICs) was approved by the faculty in 2007 (see Appendix A); since that time, individual academic departments have adapted the RICs to suit their disciplinary research needs and goals.

As is the case at North Harris College, a public community college, we want students to leave library research sessions with "transferable strategies for finding information" rather than situationally specific tasks, and we want students to "think critically about the information" they discover (Dodgen et al., 2003, p. 28). In his description of the library's role in the general studies program at Berea College, a small liberal arts college, Steve Gowler (1995) noted that an approach of teaching transferable research capabilities allows librarians to be very targeted in the library sessions because there is no need to "try to tell students everything they need to know about the library in each class session" (p. 397). The Lycoming College RICs statement, as included in the college's faculty handbook and noted below, makes clear the campus expectation of incorporating these practices and behaviors throughout the curriculum, both in the general education courses and in the major-specific classes, building transferable information-seeking abilities that lead to overall mastery without specifying the tools or resources.

> The Faculty of Lycoming College endorses a research and information competency commitment across the curriculum

> that will enable Lycoming students to master the following skills: formulate and refine questions; acquire basic knowledge of where to begin the discovery process; know how, when and what kind of information defines effective research; synthesize, format, cite and reconcile diverse information; evaluate the quality and sustainability of information; and differentiate between types of sources and the relevance of each. (Lycoming College, 2007)

IL WITHIN THE CURRICULUM

One academic department at Lycoming College that has worked to deliberately incorporate the research and information competencies in an incremental and progressive way into its curriculum is that of sociology-anthropology. The department has devised its own learning outcomes related to information-seeking skills and behaviors, not dissimilar from the "Information Literacy Standards for Anthropology and Sociology Students" from ALA/ACRL's Anthropology and Sociology Section (2008), but written at a micro-level specific to the curriculum and goals of the department.

The focus of IL in sociology and anthropology is similar to other disciplines. As established by the Anthropology and Sociology Section of ACRL, in collaboration with the American Sociological Association, the disciplines have four specific standards: to know what kind of information is needed; to access needed information effectively, efficiently, and ethically; to evaluate information and its sources critically and incorporate selected information into knowledge base and value system; and to use information effectively and ethically to accomplish a specific purpose (ALA/ACRL/ANSS, 2008). The ability to create a plan for collecting, synthesizing, and analyzing data is strongly tied to Lycoming College's RICs statement and utilizes critical thinking skills to connect basic research competencies to the original research students need to conduct through their course sequence, and the information literacies are best learned incrementally, using "sequential mastery of tasks from an elementary to an advanced level" (Proctor, Wartho & Anderson, 2005, p. 159). The research competencies that students need to be successful in the sociology-anthropology majors and minors are mapped to specific course levels, and then are articulated within the individual courses at each level, matching where possible to the department's learning goals.

The sociology-anthropology department at Lycoming College offers a major in sociology-anthropology, with concentrations in either anthropology or sociology, as well as a major in medical sociology; it also offers three minors: sociology, anthropology, and human services. All majors within the department must

take SOC 330 "Research Methods I" and SOC 430 "Research Methods II" as their capstone experience. The end goal is for the students to conduct and write about original research. The capstone project includes conducting a review of the literature, selecting and describing at least one methodology, conducting the research, describing the findings, and documenting the sources. The department has explicit learning goals for its graduates:

- Understand how race, class, gender and its intersection influences peoples' experiences within larger social institutions and across cultures.
- Articulate empirical research questions and hypotheses and develop a logical plan of data collection and analyses to address such questions and hypotheses.
- Create and deliver a professional presentation designed for a professional audience using oral, written, and visual formats.
- Hone effective critical thinking skills. (Lycoming College, n.d.)

Based on these departmental goals, sociology professor Betty McCall created scaffolded RICs goals for her courses and worked collaboratively with librarian Alison Gregory to implement them:

- 100-level courses: Find peer-reviewed articles; Identify components of research articles; Provide appropriate citation
- 200-level courses: Evaluate appropriateness and quality of research articles; Effectively synthesize research articles to support or warrant further research
- 300-level courses: Identify within research articles the connection between questions and theory; Develop unique and measurable research questions
- 400-level courses: Synthesize a research question with appropriate methodology and theory to produce original research

APPLYING IL WITHIN COURSES

As part of the collaborative culture of the library, the faculty librarians at Lycoming College offer a series of workshops in January of each year, just prior to the beginning of the spring semester. Topics for the workshops vary, but in 2008, Alison Gregory, librarian, offered one such workshop on IL as related to the Middle States Commission on Higher Education, as the college was in the early stages of a reaccreditation process, and Betty McCall, sociology professor, attended the workshop. While the two had already been paired together

in library instruction sessions, this workshop was the beginning of a stronger working relationship wherein a more deliberate approach to connecting content learning goals to research competencies goals began, an outgrowth of the discussion IL related to Middle States and assessment. The partnership played to the strengths of each—as a faculty member, McCall could be the subject expert guide who could help students become more knowledgeable and independent researchers, while as a librarian, Gregory could mentor students as they honed their research abilities.

Better integrating information-seeking competencies was one goal of the collaboration between McCall and Gregory. Another goal was to improve students' critical thinking skills. While the two—information literacy and critical thinking—have a number of things in common, they are not identical. Evaluating information and developing strong search strategies are "higher level cognitive activities" built on critical thinking, and without those abilities a student's information competencies will be limited (Albitz, 2007, p. 100). Because information is reasonably tangible, IL is often taught as skills-based, while "reason, logic, and assumptions are abstract concepts" and are categorized as the more theoretical critical thinking abilities (Albitz, 2007, p. 101). The relationship between the two is symbiotic, though; one cannot be information literate without critical thinking skills, but one does not have to employ IL to think critically. This "disconnect between the definitions . . . foreshadows the differing opinions" over whether it is the librarian or the faculty member who should be teaching these "overlapping skill sets" (Albitz, 2007, p. 101), as is addressed by Lori Baker and Pam Gladis (Chapter 16, this collection), through the term of "agency" in determining responsibility for teaching IL.

In the experiences of McCall and Gregory, both faculty and librarians are responsible for the meaningful inclusion of IL in higher education. This echoes the experiences of Meggan D. Smith and Amy B. Dailey (2013) of Gettysburg College (a small private college committed to the liberal arts), who found in their faculty-librarian collaboration that students' IL expertise was significantly improved by Smith and Dailey's careful joint planning, deliberate incorporation of specific IL objectives, and the gradual introduction of the skills throughout the semester. Joyce Lindstrom and Diana D. Shonrock (2006) also noted the importance of bringing faculty and librarians together to integrate IL into programs in ways that truly bolster student learning and the development.

McCall recognized the lack of information competencies within her students not only at the introductory level, but also at the upper level courses. The Lycoming College sociology-anthropology department has a two-course research methods series that is the capstone experience. The first of the courses (SOC 330) is utilized to teach students how to write a literature review and

to understand statistical analysis while the second methods course (SOC 430) has students conducting their own original research. After several years of this approach, student papers still demonstrated a lack of skills in finding good information, and showed an inability to clearly address a research question while considering the previous work in the field. Similar to what Karen Gocsik, Laura R. Braunstein, and Cynthia E. Tobery (Chapter 8, this collection) note, though students could organize the material to make it appear they knew what they were writing about, it was clear that they were not able to create truly coherent knowledge about their topics. McCall and Gregory determined that the best way to assure that students were properly prepared for the methods course sequence was to implement a vertical curriculum focusing on research and information competencies across other courses within the major.

Scaffolding assumes that one course leads into the next with a simple review in the higher level course of the skills previously learned. The dilemma, however, is that few of the 200- and 300- level sociology and anthropology courses have prerequisites. In fact, a majority of the students in these courses have not had any other sociology or anthropology course. So, to scaffold IL learning it almost had to be done from the starting point for each course. McCall faced in her courses what Gregory faced in her library sessions, teaching the same foundation material for every class while attempting to build transferable research competencies.

The collaborative efforts began in SOC 110 "Introduction to Sociology," the gateway class into the major; enrollment is open to any student and the majority of the students are non-sociology majors. The collaboration began by working with the course assignments that McCall already had in place, but it left Gregory trying to teach too many subject-specific databases during a single hour in the library. The library workshops incorporated active learning whenever possible, but the sessions were still very tool-oriented and did little to ask students to think about source quality or how the resources they were finding fit together. McCall and Gregory began to hone the assignments to bring in one element at a time and developed an incremental project that required students to first decipher a provided article to identify the common elements of a research article in sociology. This exercise was completed, evaluated, and returned to the students prior to a library session. For the library workshop, students identified a topic of interest and were given basic instruction on how to obtain one research piece on that topic. The assignment required students to "dissect" this article that they located on their own, identifying and labeling the research article elements. On the article deciphering worksheet (see Appendix B), students also had to cite the articles using the American Sociological Association (ASA) style. There was a hands-on activity during the library session to introduce students to the ASA citation style, as none of the students had used this citation style previously.

In stages, McCall and Gregory were able to move students from understanding the basic elements of a research article, to being able to efficiently locate a peer-reviewed research piece, to noting the specifics of the research conducted in the published piece, to properly attributing the source. Students were required to identify the major components of the research article, including the author(s), title, journal name, specific cited works in the article's literature review, research question, methodology, dependent variable(s), key independent variables, statistical analysis, findings, limitations, and conclusions. The students had to be able to delineate qualitative and quantitative research. By focusing their attention (and ours) on one or two elements of IL, rather than trying to cover everything a student might need in the sociology major, we were able to make more meaningful connections for the students as they took incremental steps toward becoming information literate undergraduate students. By the end of the assignment, students were able to locate peer-reviewed articles and identify specific components of the research articles that would be the stepping stones for them to be able to include in a literature review in later coursework. While McCall and Gregory's work was in sociology classes, the practice of breaking research articles down into key elements can be applied to any discipline, and is indeed similar to the experiences of Donna Scheidt et al. (Chapter 10, this collection) who found in their collaborative work with a first-year composition study that it is important to deliberately move learners from "information grabbing to purposeful reading and sense making," which will improve the overall engagement with sources and thus one element of IL.

Building on the article deciphering assignment, McCall's 200-level courses require a short literature review. (Courses at the 200-level include "Introduction to Human Services," "Race, Class, Gender and Sexuality," "Mental Health and Illness," and "Sociology of Aging.") Students are provided with a worksheet on identifying components of research articles and are encouraged to turn in the worksheet with at least one of their selected articles for their literature review. The challenges here are three-fold: students in the 200-level courses are not required to take the 100-level introductory course, the majority of the students taking these courses are not sociology-anthropology majors, and, in order to provide the opportunity for a wider array of students, there is no prerequisite in place. As a result, many of the students taking the course have not yet mastered the IL know-how acquired by those students who took the "Introduction to Sociology" course. The research and library instruction by Gregory has some overlap, with the additional goal of assisting students in finding information that is relevant to their topic and can be synthesized well into a literature review. More often than not, in the authors' experiences, students do not write a well-synthesized literature review because they do not fully understand the research they have gathered for the review. McCall and Gregory have found that asking students to master an understanding of the

components of the research piece helps them to better integrate the articles into a well-designed literature review. For the 200-level courses, the outcome of the students' work is a short 4–5 page literature review on a topic of their interest that effectively integrates their new understandings of research competencies within their writing. McCall has found that those students who have completed the worksheet perform much better on the literature review. Students in any discipline could benefit from practice in identifying elements of published research articles, as these articles can then serve as models for students' own academic writing.

This specific writing requirement is replicated in the 300-level course with an additional caveat: students must develop an original research question as part of their paper. This fits the Research as Inquiry element of the *Framework for IL*, as students begin to develop the ability to identify research gaps and develop questions of appropriate scope. In the 200-level courses, the assignment is simply to write a short literature review on a topic of their choice, so students find articles that address that topic but do not necessarily answer a question they pose about the topic. In the 300-level courses, which include "Medical Sociology" as well as "American Immigration," students work to understand how to develop research questions. The library workshop with Gregory is similar to the earlier sessions, but the endeavor becomes very specific toward helping the students focus on how researchers ask questions and how students can ask their own questions. Students first complete the article deciphering worksheet for at least one article of interest to them, then they are provided 10 articles selected by McCall and Gregory; for each of these articles they must identify the research question. These are confirmed in a classroom discussion and then the students work in groups to brainstorm to generate other ideas for research questions that could be asked given the topics of the articles. Students then create their own research questions and write a short literature review based on that specific question.

All of these individual course-specific assignments are aimed at building research and information seeking abilities in order to successfully complete the senior-level capstone course. The ultimate goal of the capstone course is for students to be able to construct a research question, decipher what other research has determined about that question, and then devise and implement a plan that allows them to conduct their own research addressing their research question. This brings students into the scholarly dialogue by asking them to contribute to the discipline through these studies, which is one of the *Framework for IL* elements—"Scholarship Is a Conversation"—wherein learners recognize the ongoing nature of scholarly research and also learn to contribute to it at an appropriate level. The work involved in this endeavor is impossible to learn in one methods course; instead, it is best to teach the steps of the process progressively throughout the earlier departmental requirements. The partnership between the faculty and the library is

essential for imparting IL skills in a manageable way. The collaborative approach, between librarian and teaching faculty, works well in large part because "the faculty member defines the assignments and the librarian fits and molds the resources into the research process so that those assignments can be carried out, producing the best possible results, performance is improved" (Kenedy & Monty, 2008, p. 96). Regardless of subject matter, students can benefit from an incremental approach to building their research and information-seeking competencies.

CONCLUSION

Improvement of student learning and performance was one of the goals of creating the *IL Standards* in 2000. The *Framework for IL*, with its conceptual "interconnected core concepts, with flexible options for implementation," will likely impact how information literacies are integrated at this liberal arts college. The Lycoming College's Faculty Library Advisory Committee will be tasked with revisiting the college's Research and Information Competencies statement to see if it still aligns its goals with the broader aims of ACRL and with the core concepts of the *Framework for IL*, and making revisions to the RICs statement as appropriate. The *Framework for IL* places value on contextualization of authority, knowledge creation, and research as an iterative process; this will align well with Lycoming College's mission and philosophy of building a foundation through the liberal arts that will lead to informed lives, and with the library's mission of fostering lifelong learners. The sociology-anthropology department will also continue to look anew at how the *Framework for IL* and the RICs can be best incorporated into its departmental goals, and McCall and Gregory will continually reevaluate research-related assignments to best meet the goals of both the department and the college.

Through their collaboration, McCall and Gregory hoped to impart both the broad concepts needed for thinking about information needs as well as the more narrow skills specific to the discipline of sociology. Ever a work in progress, this collaboration and the information competencies it strives to impart through a vertical curriculum or scaffolding approach has allowed for more targeted information literacy sessions, for immediate applicability to students' work, and for stronger lifelong learning and information seeking abilities.

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APPENDIX A: LYCOMING COLLEGE RESEARCH AND INFORMATION COMPETENCIES

The Faculty of Lycoming College endorses a research and information competency commitment across the curriculum that will enable Lycoming students to master the following skills:

> formulate and refine questions; acquire basic knowledge of where to begin the discovery process; know how, when and what kind of information defines effective research; synthesize, format, cite and reconcile diverse information; evaluate the quality and sustainability of information; and differentiate between types of sources and the relevance of each.

The goals of this curriculum-wide implementation of research and information competencies are to develop students who do the following:

- INQUIRE—Formulating and refining questions is a fundamental research skill. As a student's research advances, by adapting queries students can assess information more efficiently and effectively. Knowing how to frame inquiries is critical to pursuing information with the appropriate resources.
- NAVIGATE—Beyond the Internet and the World Wide Web, students should acquire some basic knowledge of where to begin the discovery process. Students should be able to employ a variety of information resources such as catalogs, indexes, and bibliographies in electronic and print formats.

- FIND—Knowing how and when to access information defines effective research. Often the inability to find data can be as frustrating as the overwhelming number of resources available.
- ORGANIZE—Appropriately synthesizing, formatting, citing and reconciling diverse information is logically an essential step in the research process. Students should be vigilant in avoiding plagiarism.
- REVIEW—Evaluating the quality and the suitability of information is what distinguishes legitimate research information competency. Students should be able to identify the place, context, and time in which the information was produced, the reliability and biases of the original source of the information, and whether the information has been reviewed by trustworthy referees.
- MAKE DISTINCTIONS—Students should be able to differentiate between primary, secondary and tertiary literature and know the relevance of each. Aware of various print and electronic formats of information, students should be able to see the difference between peer-reviewed and popular literature. Students should be able to identify trustworthy sources.

The Faculty Library Advisory Committee (FLAC) is charged with gathering information and assessing progress in implementing research and information competencies.

APPENDIX B: DECIPHERING RESEARCH WORKSHEET

Quantitative Research

Article Title
Author's Name(s)
Journal Name
Article Citation
List a citation for 1 article used in their literature review
Research question
Methodology
Study population and Sample
Dependent variable(s) and how it's defined
Key Independent variables and how they're defined
Statistical Analysis utilized
Results
Conclusions
Limitations

Qualitative Research

Article Title
Author's Name (s)
Journal Name
Article Citation
List a citation for 1 article used in their literature review
Research question
Methodology
Study population and Sample
Themes discovered
Conclusions
Limitations