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Information Literacy Instruction and Assessment in a Community College: A Collaborative Design

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ABSTRACT

This article describes practical steps taken in the planning of an integrated information literacy instruction linked to a course assignment for community health majors at Kingsborough Community College of the City University of New York. The library sessions integrated the Association of College and Research Libraries Framework for Information Literacy for Higher Education and were based on faculty-librarian collaboration. A course outline was designed to support a step by step course project. Tools to collect evidence of student learning were designed and adjustments to the course plan and activities were made based on those assessments. Suggestions for using these tools in an iterative design process are made.

KEYWORDS

Information literacy;
assessment; librarians;
community college;
guidepost; framework

Introduction

20 It is generally understood that an information society in the 21st century requires an information-literate population. At the same time, technological changes are rapidly occurring and as a result students entering college bring very disparate computer skills and attitudes to information tasks. Some students are reluctant to embrace new technologies while others demand electronic resources for all assign-
25 ments. Although college students may arrive at our libraries with competent computer skills, their knowledge of information sources may be lacking.

Integrating technological competence and information source knowledge is the hallmark of effective information literacy instruction. Integration raises the bar through utilizing higher-order thinking abilities and demanding rigorous learning
30 outcomes for students. As White and Boling (2013) explain, integration is the best vehicle to provide meaning and connections that deepen a student's comprehension. It is understood to be a multi-stage process, through which an ability performance develops, so it is important to integrate information literacy with a course

assignment. This process facilitates the student acquisition of the competencies
 35 required to seek, find, evaluate, integrate, and apply knowledge towards solving an
 information need, and as a result it enhances their learning outcomes.

Collaboration between librarians and faculty is an important step toward inte-
 gration. The process implies that librarians act as innovators willing to take risks
 to create best practices for integration. Librarians also act as agents of change in
 40 leading a collaborative work with faculty.

Students require information literacy (IL) competencies to integrate and apply
 knowledge toward solving a research problem. This composite ability (novice to exper-
 tise) requires that students be able to work with technology, critically think about issues
 of media and subject content, and navigate through a vast array of information tools
 45 and sources to retrieve information for decision making. Informed decisions require
 that students be able to adequately access, understand, and process information to
 meet their needs. "Usage is very important; therefore, it is essential that users not only
 have access, but also have the necessary skills to use these resources" (Argüelles 2012).
 Access refers to both the ability and quality of using information resources.

50 Library instruction in this context must be multi-session with specific learning
 outcomes and provide teaching and learning activities relevant to student's expect-
 ations. This dynamic includes assessing student learning outcomes both to find
 out what skills they have acquired and as a mechanism to improve the library's
 instruction program.

55 Integrating an IL program into this process implies that the learning outcomes/com-
 petencies must be assessed. "Through assessment academic librarians can demonstrate
 how information literacy instruction contributes to student learning and development"
 (Oakleaf 2009). Librarians sometimes feel unprepared to measure information compe-
 tencies and this is why many consider this activity to be in crisis. Academic institutions
 60 need to assess learning outcomes as a step to adjust their academic profiles and be in
 line with the accreditation mandates. The Association of College and Research Librar-
 ies' *Framework for Information Literacy for Higher Education* (FRAMEWORK) forms
 the backbone of any information literacy (IL) plan. An assessment tool maps those core
 concepts giving data on how the library is complying with the goals of an IL plan and
 65 helps establish a multi-library session syllabus.

The purpose of this article is to explain how an information literacy program
 was constructed by librarians and faculty to increase student competence and to
 improve learning outcomes in a community college-base Community Health
 Department. It will describe the design process and the assessments that were cre-
 70 ated to both demonstrate student learning and to further enhance the design of the
 information literacy program.

Literature review

Teaching and learning take place in a system environment embracing classroom,
 department, and institutional levels. Biggs (2001) explains that an integrated

75 system is one in which teaching and assessment are coordinated to reinforce learning. In order for an instructional system to be aligned it should consider Tyler's (1949) proposition that "learning takes place through the active behaviour of the student: it is what he does that he learns, not what the teacher does." This is the reason why Biggs (2001) insists that teaching and assessment practices should be
 80 in line with the outcomes. Creating teaching/learning activities and assessment should be based on constructive alignment between activities and outcomes. In constructive assignments students build meaning through learning activities. When learning activities are constructively aligned, students build meaning in concordance with the planned learning outcomes.

85 Curriculum-integrated library instruction is a pedagogical innovation that has experienced continuous and rapid changes over the past decade. Biggs and Tang (2007) denote that integration is about aligning with a specific college course or unit by identifying what are the intended outcomes (objectives) of the course and choosing the teaching/learning activities that lead to the accomplishment of the
 90 objectives in collaboration with the disciplinary faculty. Bruce (1997) argues that "information literacy cannot be learned without engaging the discipline specific subject matter." Therefore according to studies made by Milne (2004), and Welker et al. (2005), students need to learn about course content as they enhance their abilities in seeking and using information. Sanborn (2005) notes that "faculty col-
 95 laboration provides an opportunity to create a library instruction uniquely suited to individual class needs." After a successful collaborative program Nerz and Bullard (2006) concluded that, "By linking information competencies to existing (or new) assignments related to class material, instructors and librarians have moved beyond the decoupled instruction which is quickly forgotten, to 'just in time',
 100 need-based content." Kobzina (2010) states that working in a faculty-librarian partnership incorporates the "teaching of analytical skills along with research skills for specific subject areas."

Information literacy (IL) as a competency for lifelong learning has gained importance in higher education bringing both librarians and faculty to understand
 105 that in order for students to be successful they should acquire the necessary competencies to be information literate. To accomplish this goal librarians and faculty must accept that they can't teach the research process independently and should start a collaboration process (Raspa and Ward 2000). The challenges of a librarian-faculty collaboration can be difficult and barriers exist that can hold up the process.
 110 Some describe collaboration as "uncomfortable and confusing" (Kovalik et al. 2010), others point out that it can be problematic if librarians and faculty misunderstand each other's responsibilities in relation with IL (Given and Julien 2005). Another problem arises when faculty think that librarians have no knowledge of teaching and learning and therefore are not capable teachers. Farmer (2007) identifies the biggest barrier to collaboration is when information literacy is seen as solely
 115 the librarian's responsibility. Floyd et al. (2008) and Dakshinamurti and Horne (2006) suggest that collaboration should be initiated by librarians and they should

keep in mind that institutional culture influences how information literacy is perceived by faculty.

120 Recognizing the many barriers that can jeopardize a collaborative project to integrate IL in the curriculum, many authors offer models and strategies that can facilitate librarian-faculty collaboration. Brasley (2008) recommends:

- a- librarians acknowledge and understand that faculty have purview over the curriculum.
- b- avoid developing a library-centric program. c- work with faculty to craft mutually
- 125 agreed objectives (73–74).

Curzon (2004) suggests that librarians must set the information literacy conversation to a level of significance and importance to faculty and align it with the educational goals and the mission of the institution. Effective collaboration between librarians and faculty should involve a shared vision, a mutual agreement on learning outcomes, and a participative process in curriculum planning and assessment activities to measure the success toward the achievement of IL goals.

Q2

Curzon (2004), Travis (2008) and Brasley (2008) suggest that collaboration with faculty has been an ongoing process blended with different forms of IL instruction according to specific needs. Merging several features of collaboration we can identify several models: (a) The introduction model when students are taught basic IL competencies through one or two session presentation, or “freshman seminars, orientations, first-year composition courses” (Curzon, 38). The outcome is often to assist students to complete a research-based assignment. Curzon (2004) “cautions that this model may lead to a false sense that information literacy is complete” (39) and that students are information literate. (b) The learning outcomes model is an outstanding example of collaboration, in which librarians and faculty work together to create discipline-based project IL learning outcomes. Most of these initiatives begin by agreeing on a definition of IL, identifying student IL needs, and then planning the types of assignments and competencies needed. (c) Information literacy course model promoted by librarians is a credit-bearing course to boost IL at an institutional level and enhance student’s IL competencies. Collaboration is shown by faculty and administration through the approval and support of these courses. Consider that faculty are influential in obtaining curriculum approval for these courses. The trend of this model is to select a “co-requisite approach” to tie the IL course to a discipline-specific parent course (Goebel and Neff 2007). (d) Faculty focus model works with other models and is based on the fact that librarians designed supportive material link to a specific discipline and faculty promotes IL development. The innovation consists of transforming the curriculum and shifting the primary responsibility from librarians to faculty. (e) The on-demand model “prevailing in most libraries today” (Curzon 2004) is driven primarily by faculty who request a library session for a course involving a specific assignment. In some occasions the librarian as a liaison initiates the process. Faculty who teaches the course for many years will request a session every semester. This allows librarians and faculty to improve the IL outcomes, customize the assignments and evaluate

160 the products. These models involve some level of collaboration and they are best used in conjunction with each other in order to influence a larger group of students at every level in the college and have an impact on lifelong learning (Travis 2008).

The Association of College and Research Libraries (ACRL) Board approved the document *Framework for Information Literacy for Higher Education* (FRAMEWORK) (2016) and started a two year plan to support the learning and use of the core concepts. The FRAMEWORK integrates principles and performance indicators making it instrumental in the assessment process and in the analysis of growth in students' information competencies. The different models of collaboration delineate a clear set of frames and learning outcomes from which instruction can be shaped, and at the same time assessment can be implemented.

The FRAMEWORK in 2015 has shifted the focus of library sessions from teaching standards to teaching students. It has unveiled an opportunity for a more meaningful and expansive discussion around IL. Librarians have to capture the essence of the core concepts, break them down into teachable moments and share it with faculty to reinforce the collaborative process.

Although the literature with respect to this new trend is scarce because the movement only started in 2015, there are several examples where the assessment is not limited to multiple choice questionnaires, but rather uses many innovative ways of gathering data on student learning. Rae (2015), using a combined method for gathering evidence from usage statistics and performance measures (surveys, focus groups, and interviews with faculty, tutors and other stakeholders), identifies students' satisfaction and an increase of confidence in using information. Oakleaf (2015), in considering the Framework, suggests that "research logs, reflective writing, 'think alouds,' self or peer evaluations, research drafts or papers, open-ended question responses, bibliographies, presentations, posters, performances, portfolios, worksheets, and concept maps" as possible assessment methodologies. Mullins (2016) implements formative and summative assessment in academic courses and also includes informal interviews with the instructors as a way to collect evidence on student learning. Scott's (2016) exploratory study using an open-ended pre-test questions at the beginning of the semester show that students are able to make sense of the complexity and richness of the FRAMEWORK.

Academic librarians find it essential to assess information literacy sessions for such generally accepted purposes as "to increase student learning, to respond to calls of accountability, or to improve library instruction programs" (Oakleaf and Kaske 2009) New trends in assessment are now part of the instructional process and librarians should team with faculty to use the results to improve teaching and learning.

Overview of instruction at KBCC

Background

Since 1986, Kingsborough Community College (KBCC) of The City University of New York (CUNY) and the College Council adopted Six Goals of a Liberal

Education. One of the goals was the “ability to use the tools and resources to acquire learning.” Faculty participated in best practice workshops, but as they point out “... only recently has there been a renewed focus on this goal” (KBCC 1986). In 2006, KBCC’s self-study for the Middle States on Higher Education
 205 points out the importance of IL:

To develop students’ competence in written and oral communication, quantitative skills, critical thinking, research, and technological literacy and to promote life-long learning opportunities in credit and non-credit programs for the traditional and non-traditional student. (KBCC 2006).

210 Before research was determined to be a major competency and included in the college goals, the self-study recognized that greater attention to building IL skills was required and instructors needed to incorporate IL into the assignments by creating projects that require students to use a variety of relevant and quality information sources.

215 The Council of Chief Librarians and the University Dean established in fall 2004 the Library Information Literacy Advisory Committee (LILAC) to promote IL across CUNY. The KBCC Chief Librarian created in 2009 the Information Literacy Committee (ILC). One of the goals of this committee is to assess the learning outcomes for a library-instruction session. During 2015, the committee discussed the
 220 FRAMEWORK with the idea of structuring guideposts that would outline the topics, knowledge practice and the threshold concepts of a library instruction session for different levels (novice through expert), different courses, and disciplines.

In 2011, CUNY started the Critical Thinking Initiative with the idea of “strengthening students’ academic readiness and critical thinking skills through
 225 information competence.” Teaching students how to locate, retrieve, evaluate and use information was expected to have a positive effect on students’ success and increase critical thinking skills.

The KBCC Library has two strong one-shot instruction programs: (a) Collaborative Instruction targeting first-year students in Opening Doors Learning Communities (ODLC). This is a one-hour session which is part of an ODLIC cohort
 230 with three linked courses: English, Freshman Seminar (SD-10), and a General Education Discipline with a joint assignment. (b) A one-hour instructional outreach session target to a discipline-specific course on the basis of a research assignment. Faculty request the session which is designed to help students learn how to engage
 235 in the research process. It uses hands-on instruction on the type of information resources, an introduction to database search, the organizing and structuring of a research question with keywords and criteria to evaluate information on the WWW.

The librarians’ primary purpose for assessing this comprehensive instruction is
 240 the need to identify those elements of the library session that are most effective, and those that demand some reinforcement or more hands-on. At KBCC, the Information Literacy Committee created an assessment following the four steps

proposed by Mueller (2009): “a) What should students know and be able to do? b) What indicates students have met these standards? c) What does good performance on this task look like? d) How well did the students perform?”

Collaborative design: IL instruction for community health

Q6 The first step in collaborative design is to define goals and commitments to promote collaboration. Establishing goals like supporting student learning, making faculty aware of the expertise and services available, and advocating for IL programs must start with librarian commitment to learning about the institution. A collaborative librarian should learn the institutional culture, policies, and disciplinary language. In this way a librarian is ready for collaborative efforts when a departmental curriculum is undergoing reform.

The second step in collaboration is the use of a multifaceted approach to connect with faculty. Presenting the library services at the Community Health Department semester meeting and having a conversation with the department director opened a new pathway to connect with faculty. This led to a more informal approach in which we were able to meet and assist students and work with faculty that had specific information needs and/or were also planning to integrate IL into their courses by requesting a library session.

During the design phase, the Community Health Department was in the process of designing and writing a new syllabus for COH 12—Critical Issues in Community Health. Faculty decided to contact a librarian in order to get ideas on how information literacy would fit into the course syllabus.

This first approach pushed the development of a comprehensive library instruction module tailored to course needs. What followed were a series of meeting between faculty and librarians to establish the type of information sources needed for the different assignments on the syllabus. This process started in fall 2011 with the idea that the multi-session library instruction was the best fit to support a course project. The result is a session-long course project that combines IL, critical thinking, writing, and peer review into one and supports skill development and learning. Because it was a subject-specific content course, the team of librarians and faculty decided that in order to provide students with the necessary competencies to use information, it was convenient to emphasize the use of different information sources which are explained in the course syllabus (Figure 1).

The next step was a discussion about assessment and it was defined as a continuous and ongoing process that pictures a variety of aspects of student learning, conceptual development, and competencies acquisition and application. It was also agreed that the process of developing and using a classroom assessment method would follow Badder’s (2000) model (Table 1).

The assessment would consider concepts explained in Suskie’s (2009) guidelines for assessing student learning and the division into baseline and formative made by Mueller (2009). Baseline is where a librarian assesses students’ prior knowledge

Topic	Knowledge Practices (Students will ...)	Framework (Core Concepts)
1. Types of information resources	a. Understand where and how information is published b. Recognize that information has different formats and their implication with static and dynamic information c. Know that sources of information differ in content and format and have relevance and value depending on the needs and nature of the search d. Contexts of the different types of information sources can change	Information Has a Value Information Creation as a Process Information Creation as a Process Information Creation as a Process
2. Identify and Evaluate Authority	a. Define different types of authority, such as subject expertise (e.g., scholarship), societal position (e.g., public office), or special experience (e.g., participating in a historic event) b. Use research tools and indicators of authority to determine the credibility of sources	Authority is Constructed and Contextual Authority is Constructed and Contextual
3. Formulate Research Questions	a. Formulate questions for research based on the exploration of possible topics b. Formulate questions for research based on pre-research of a topic	Research as Inquiry Research as Inquiry
4. Determine the scope of Your Research	a. Determine the initial scope of the task required to meet their information needs b. Deal with complex research by: breaking complex questions into simple ones, limiting the scope of research and performing subsequent steps	Searching as Strategic Exploration Research as Inquiry
5. Strategies for Effective Searching	a. Use sources to find new sources b. Understand that more than one resource/source is necessary c. Utilize divergent (e.g., brainstorming) and converge (e.g., selecting the best source) thinking when searching d. Match information needs and search strategies to appropriate search tools e. Design and refine needs and search strategies based on search results f. Review search results g. Understand how information systems (collections of recorded information) are organized in order to access relevant information h. Use different types of searching language (e.g., controlled vocabulary, keywords, discipline-specific terminology)	Searching a Strategic Exploration Searching a Strategic Exploration Searching a Strategic Exploration Searching a Strategic Exploration Searching a Strategic Exploration Searching a Strategic Exploration Searching a Strategic Exploration
6. Critical Thinking about research	a. Organize information in meaningful ways b. Synthesize ideas gathered from multiple sources c. Draw reasonable conclusions based on the analysis and interpretation of information	Research as Inquiry Research as Inquiry Research as Inquiry
7. Cite Sources	a. Give credit to the original ideas of others through proper attribution and citation b. Cite the contributing work of others in their own information production	Information Has Value Scholarship as Conversation

Figure 1. Instruction content guidepost.

(3)

on the use of information gained from written responses based on individual experience. This type of pre-assessment can be used to plan the curriculum and develop certain activities to enhance students' competencies in searching and using information. Formative assessment, also called post-assessment, provides data on student acquisition of knowledge and concepts to guide a future instruction process.

The process of structuring the library sessions considered three phases related to the development of a course-based project that would indicate information literacy. The three phases are: (1) Planning the course project; (2) Implementing and assessing the course project; and (3) Responding to the results.

Q7

Table 1. Issues for an assessment method.

Purpose and Impact	What is the use of the assessment method? <i>Identify recurring difficulties or gaps so that adjustments can be made to instruction and course design</i> What impact does it have on teaching and on the selection of content for a library instruction session? <i>Impact in setting goals, select teaching activities, and prepare learning materials</i>
Validity and Fairness	What does it identify? <i>Students' self-reflections</i> Does it allow a holistic picture of students learning? <i>Feedback giving to students.</i>
Reliability	Considering the data collected reliable, can it be applied to a library instruction session? <i>Use of information to make better decisions,</i>
Significance	Does the assessment address skill acquisition and application? <i>Measurement based on criteria, activities and standards.</i>
Efficiency	What type of assessment is consistent with time availability during the library instruction session? <i>Pre-instructional and end of instruction qualitative assessments.</i>

Source: (Methods of assessment, 2000).

Phase 1—Planning the Course Project: The first part in planning was the selection of COH12—*Critical Issues in Community Health* as a course that integrates multi-session library instruction with the syllabus linking directly to a course project. This selection was also based on two additional criteria: (a) the library instruction sessions are taught several times during the same semester. (b) the library sessions will be taught in the future to all COH-12 courses at KBCC.

The second part of the planning phase was the construction of the learning outcomes and the learning activities in connection with a learning behavior growth. “Considering the FRAMEWORK the process should be laid out as a novice-to-expert continuum in which the curriculum, the assessment, and the instruction should interconnect and function as a permanent cycle interacting with students in a two way communication channel” (Argüelles 2016). This collaborative model led to the design of a lesson plan (Figure 2) based on the FRAMEWORK and interconnecting core concepts. This was the source for the construction of an Instruction Content Guidepost (Figure 3) for this project. The lesson plan (Figure 2) for this multi-session instruction and the assessment program evaluates student learning outcomes and serves as the foundation of a future programmatic planning. The learning outcomes established for the library session are congruent with the FRAMEWORK, including the ability to think critically, obtain elements to analyze and solve complex real-world problems and be able to find, evaluate and use appropriate learning resources. This iterative process needs a follow-up using a pre- and post-assessment to be able to make basic adjustments on the content and the pedagogy of the library sessions.

The learning outcomes established for this library session are detailed in Figure 2 under “Knowledge Practices—Student will” and are based on the information literate abilities described in the FRAMEWORK. The learning outcomes are written based on the FRAMEWORK to fit the library session and provide exceptional information for the development of instruction and assessment. Table 2 shows the relation between a topic of the lesson plan (Figure 2) and open-ended questions of the pre-assessment (Appendix 1). The answers to the questions on the assessment reflect the student’s level of understanding of the concepts and the language of the FRAMEWORK. The topic is also supported with the distribution of a worksheet (handouts) in the first library session that is evidence of student understanding of the core concepts.

The third part is the alignment of teaching methods with the learning outcomes (see Knowledge Practices in Table 1) to produce learning growth. Structuring the assessment, determining the purpose and the stage is part of the process. The evolution of library instruction from “resource-based” using the Standards to “problem-based” with the FRAMEWORK changed the approach of the assessment tool to a qualitative one. A description of a phenomenon is what is needed when trying to understand the student reflections on the FRAMEWORK. The assessment captures the concepts and language of the Frames and the open-ended survey was based on the FRAMEWORK and the guideposts (Figure 3). Agreeing that there was no single correct answer to the open-ended questions would encourage

(Excerpt from the original course syllabus)

Research Project

- **Choose a health issue or disease** that interests you, along with a health risk behaviour that plays a role in the prevention or management of the disease you have chosen. **Write a one page description of why you chose your topic ...**
- **Students will work in small groups** to support each other's success and to reinforce the need for the timely completion of all work for this assignment. Exchange contact information with the students in your group.
- **Collect and copy or print four (4) resources** from the past few years on your topic. Make sure you have the information you will need for your annotated bibliography. Include one article from a **reference book** that provides an overview with key words on your topic, **one journal article or journal abstract** that describes a program designed to address the health issue you have chosen, one **newspaper, newsletter, or news magazine article**, and one **web site** from a government or voluntary health organization...
- As you read your articles, use a highlighter to identify important information.
- **Create a worksheet** with the information on all sources and bring it to class.
- As you collect the resources, make sure you have the information you need to create an annotated bibliography, e.g. author, title, book/journal/newspaper, date and place or city of publication, name of publisher (if a book), and page numbers. We will discuss the format for the annotated bibliography with Professor Argüelles. Prepare a typewritten **draft summary/annotated bibliography (APA format)** of each of your sources. Submit the draft to Prof. Harry for feedback. Incorporate suggestions for improvement into your revision. *Due March 29, 2011.*
- Create a Brochure or handout using Microsoft Word or Microsoft Publisher. The brochure should be an overview of key concepts on your topic (stats, risk factors, treatment, management, prevention, etc). Identify five new **vocabulary words**. Using a dictionary, write down the definition and pronunciation, and include these in your brochure. Find a **table, graph, or chart** on your topic, ideally one that describes the prevalence of the disease. Save an electronic version of the table or chart, so you can include it in your brochure ...
- Prepare a **synthesis** of the key information from all four sources. Begin with an outline, and then fill it in with paragraphs. You will then use this synthesis to prepare your oral presentation. The final typewritten synthesis should be four to five pages.
- Use your outline and synthesis to prepare **index cards** for your oral presentation. Interpret the chart, graph, or table in your oral presentation.
- **Create 3 multiple choice questions** on your topic that will be used on the final exam.
- Using ALL your resources, prepare a 10 to 15 minute **oral presentation** for your classmates. Prepare index cards/PowerPoint to use for the oral presentation...
- Prepare 25 copies of a **brochure** you create to distribute to your classmates and your professor on the day of your oral presentation. In your oral presentation, and your typewritten synthesis, discuss your ideas for planning a community health program to address the health issue or problem using a theory of behavioural change.
- After you complete your oral presentation, write a **two page description of what you learned as a result of completing this project.**

Figure 2 COH 12—critical issues in community health—course syllabus Source: Arliss 2012.

students to respond in their own words and as a result obtain “unsuspected information” (Frery 2003). (See Appendix 1.)

The course project that was designed in the planning sessions requires the use of four (4) types of information sources for each student’s topic: a reference book article from an online reference ebook database, a newspaper article, a journal article, and a Web site of an organization or government health agency that relates to the topic selected. The results for the course project are a term paper, a brochure, and an annotated bibliography of the four sources in APA format.

Phase 2—Implementing and Assessing the Course Project: The problem based instruction has four steps: pre-assessment, instruction/modelling, practice, and feedback (Mueller 2009).

Step 1—A pre-assessment is set up on Survey Monkey with a link on the library’s Webpage and is answered online prior to or at the start of the first library session. The pre-assessment gives data on the ideas students have of the core concepts. The ideas expressed in the assessment by the students are discussed at the

KINGSBOROUGH
Robert J. Kibbee Library
Library Information Literacy Program

MULTI-SESSION LIBRARY INSTRUCTION FOR COH—12

Description The purpose of this session is to teach students the types of information resources and search techniques in order to retrieve on target results from the information resources available. These activities are best introduced once students have a research question or topic statement.

Knowledge Practices—Students will:

- Identify types of information resources.
- Identify and evaluate authority.
- Formulate research questions.
- Determine the scope of your research.
- Establish strategies for effective searching.
- Develop a Critical Thinking mind-set about research.
- How to cite sources

<p>Materials for this session:</p> <ul style="list-style-type: none"> • Computer with Internet access • Keywords worksheet • Power Point presentation • Hand-outs with learning activities 	<p>Time allotment: 180 minutes (Three sessions)</p> <p>Framework for Information Literacy</p> <ul style="list-style-type: none"> -Information Has a Value -Authority Is Constructed and Contextual -Research as Inquiry -Searching as Strategic Exploration -Research as Inquiry -Scholarship as Conversation <p align="right"><small>By the Association of College and Research Libraries</small></p>
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Learning Activity 1: Small group discussion of the information cycle and the types of information sources. Students participate on finding and locating books in the library catalogue. They will search for reference sources as well.

Learning Activity 2: A research discussion on the foundational purpose of conducting research. Each student will consider a topic to search; students will identify all keywords related to the topic of their interest. Several students will list some of the keywords found. (Note: it is imperative that all students participate in the process of listing the keywords in order to develop this skill.)

Learning Activity 3: An exercise to establish the different relations between keywords and to make emphasis on the purpose of the Boolean operators in an advanced search module- students will be able to design their own search strategy.

Learning Activity 4: Students will complete a search process using the keywords and reviewing the results. They will also print a relate article of interest.

Learning Activity 5: Students will select a Website from the list and complete the worksheet "What's in a Web page?" (a checklist to determine the authority, validity, and accuracy of the content of the Webpage selected)

Assessment: Students complete an open-ended question pre-assessment online prior to the first library session. A performance assessment will be conducted at the end of semester

Criteria:
 To complete the Learning activities, students will participate and fill out a work sheet given at the first session.

Figure 3 Library session lesson plan.

2

library session and each question would be explained to show the close relation with the lesson plan (Figure 3) and the knowledge practices established on the Guidepost (Figure 1).

Q10

Table 2. Relation between learning outcomes and pre-assessment.

Topic—Framework	Pre-Assessment
Topic:	1. What purpose does information have?
Type of information sources.	2. What does it mean to respect the original ideas of others?
Framework:	3. What elements you recognize in the information creation process?
Information Has a Value	4. What is the relation between the creation process and your information needs?
Information Creation as a Process	

do

Table 3. Competence growth—instruction.

Topic	Competence	Assessment question	Framework
<i>Knowledge Practices:</i> Know that sources of information differ in content and format and have relevance and value depending on the needs and nature of the search. <i>Learning Activity:</i> Small group discussion of the information cycle and the types of information sources. Students participate in finding and locating books in the library catalogue. They will search for material in the REFERENCE section as well.	Search in the online catalogue	Information Creation as a Process 1. What elements do you recognize in the information creation process? 2. What is the relation between the creation process and your information needs?	<ul style="list-style-type: none"> • Searching as Strategic Exploration • Research as Inquiry

Step 2—Instruction/Modelling—The instruction sessions were designed to both describe and illustrate the core concepts according to the learning outcomes and based on the information obtained in the pre-assessment. Table 3 shows the learning outcome (knowledge practices) as the study of the types of information sources and its appropriate use. In the example, students should be able to identify the online catalogue as an information source and have the competencies to search for books, ebooks, and government publications.

Step 3—Practice—The library session has a high level of hands-on training on the use of information sources. In order for students to be able to find useful information, they must learn to identify the type of information sources, structure a search strategy and select the appropriate information resources. Table 4 gives an example of competence growth in which you can see the Knowledge Practices, the learning activities, and the assessment questions as they relate to the competencies of defining a topic, delineating and arranging a search strategy, and reviewing the search results.

Step 4—Feedback—Students are given the opportunity to apply competence and provide feedback in order to accomplish the knowledge practices. Good results in the search and organization of information confirmed the understanding of core concepts of the FRAMEWORK (*Searching as Strategic Exploration* or *Research as Inquiry*). Being able to observe the quality of the performance among students identified what needed improvement. In this step the core concepts are used as a guide and students' participation is important because they suggested improvements, new approaches to a knowledge practice, and pedagogy. Table 5 shows a specific case in which the task was a hands-on process supported by the librarian and through this action the librarian observed the student's growth.

Phase 3—Responding to the Results: After conducting the multi-session instruction we gathered evidence of student learning. Recognizing the FRAMEWORK as a guideline, Argüelles (2016) recommends a "performance assessment rather than the traditional survey or fixed-choice questions."

These library sessions support a course project that is ongoing throughout the semester so several phases of the project were considered to be evidence of student

Q11
Q12**Table 4.** Competence growth—practice.

	Competence	Assessment Questions
<p><i>Knowledge Practices (students will):</i></p> <p>a i. Utilize divergent (e.g., brainstorming) and converge (e.g., selecting the best source) thinking when searching</p> <p>b j. Match information needs and search strategies to appropriate search tools</p> <p>c k. Design and refine needs and search strategies based on search results</p> <p>d l. Review search results</p> <p>e m. Understand how information systems (collections of recorded information) are organized in order to access relevant information</p> <p>f n. Use different types of searching language (e.g., controlled vocabulary, keywords, discipline-specific terminology)</p> <p><i>Learning Activity 1:</i> A research discussion on the foundational purpose of conducting research. Each student will consider a topic to search. Students will identify all keywords related to the topic of their interest. Request several students to list some of the keywords found. Everyone's attention in the process of listing the keywords is important.</p> <p><i>Learning Activity 2:</i> An exercise to establish the different relations between keywords and to make emphasis on the purpose of the Boolean operators in an advanced search module.</p> <p><i>Learning Activity 3:</i> Students will complete a search process using the keywords and reviewing the results. Print an article of interest.</p>	<ul style="list-style-type: none"> Define the topic: choose an illness and behavior. E.g., diabetes and nutrition. Define and arrange a search strategy using keywords. Search, evaluate and retrieve four types of sources. Make sure to have the information needed for the annotated bibliography. Locate one article from a reference book, one journal article, one newspaper, newsletter, or news magazine article, and one Web site from a government or voluntary health organization. 	<p>Information Creation as a Process</p> <ol style="list-style-type: none"> What elements do you recognize in the information creation process? What is the relation between the creation process and your information needs?

- 385 learning. At the first session students' participation in the discussion of the information life cycle and their motivations for doing research was one approach for obtaining evidence. The second one was the distribution to students of a worksheet to structure their search strategy and explain the process to the class. The search, retrieval and evaluation of the different types of information sources were a third.
- 390 Other formative assessments that give feedback to librarians and faculty on the achievement of the learning outcomes are: a self or peer evaluation when students worked together in groups and evaluated the progress in their research, a research draft or paper presented to the course faculty based on the information sources retrieved, an annotated bibliography as a result of reading and evaluating the different information sources, and towards the end of the semester students gave a
- 395

Table 5. Competence growth—feedback.

Task	Type of Feedback	Framework
Search, evaluate and retrieve four types of information sources.	<ul style="list-style-type: none"> Follow up on the structure of a search strategy Analysis of the type of source and/or database used. Documents retrieved by students are analyzed for content and currency of publication. 	<ul style="list-style-type: none"> Searching as Strategic Exploration

presentation of their topic and distributed a brochure. The librarian is invited to view both providing an opportunity to collect more evidence of student learning.

The final step in this phase is the interpretation of the results and the formulation of a pertinent response. The librarian in this process is a participant observer and that allows an adequate observation and collection of data. Two important skills for this task according to Bernard (1988) are: (1) "Building explicit awareness" (364) which means that the librarian should learn to speak and understand the language used by the students, (2) "Building writing skills" (368) to have the ability to remember things that happened or are observed and write field notes.

In practice, assessments generate more questions than answers, and it is library faculty's job to illustrate the results. Review the whole picture before jumping to partial conclusions. This gives an objective picture of the total responses and the ability to formulate a course of action. For library faculty, analysis is an important step towards refocusing efforts on student learning and moving to a learner-centered approach to teaching. The communication of the results and the structuring of a response is made simple by sharing feedback with students and restructuring parts of the library session lesson plan. Most of the time a collaborative design of an information literacy program is seen as unfinished, because a complete assessment bears the seeds for many future projects through the clarifying of questions or the planning of a major course revision. Some also call it "open-endedness" and assume that it is a natural and highly desirable aspect of an assessment.

Conclusion

Quotation

"I tell you and you forget, I show you and you remember, I involve you and you understand" (Quotes by Eric Butterworth 2013). The collaborative design was successfully applied to most of the Critical Issues in Community Health courses at KBCC. These library sessions were a rewarding experience because of a greater integration among students, the instructor and the librarian. The integrated instruction allowed a major involvement of the students and more dedication to their coursework. A single workshop would not be enough; librarians must immerse students into the use of information with multi-session instruction. The goal of a library session is to delve deeper into a particular subject area, and to develop concepts and competencies that can be used by the students during their academic careers. This goal can only be addressed through a partnership between librarians and faculty. Employing a variety of strategies to develop relationships, demonstrate competence, and enhance communication are actions librarians must take to inspire collaboration with faculty.

Framework

The purpose of collaborative design is to build a transformative library session focused on the interpretation of the ~~Framework~~ to create meaningful and expansive opportunity for information literacy discussions. The need for

FRAMEWORK

competencies in seeking, appraising, and applying lessons learned through the use of information resources is common across the curriculum and thus the potential applicability of a standard assessment methodology for gauging IL is high. Assessing how students use information allows for the identification of competence gaps and can better assist those with low levels to take advantage of the potential benefits that IL can afford. Doing so leads to the development of lesson plans that can identify these needs and aid in creating appropriate strategies for bridging the information sources and the information use. Only by increasing the understanding of the disparities between available contextual tools and resources and students' abilities to use information can the necessary steps be taken towards an information literate society. VanScoy and Oakleaf (2008) consider this approach as a flaw because it focuses on a discipline, but it is vital to understanding that information literacy is a metacognitive competency that is applicable across disciplines.

Students' evaluation and grades for this course exceeded the instructor's expectations and showed students' knowledge on the topics they worked on. This motivated them to deepen their knowledge as they move on in their careers.

Librarians must also work with academic library administrators to change their paradigm in relation to the instructional skills librarians should have. Shank and Dewald (2012) concluded in their study on academic library administrators that they prefer traditional skills such as presentation and teaching versus the use of new emerging instructional design and educational technology skills. The uses of educational technology in an era where online/Web-based technologies indicate the increasing importance of the Internet in the instructional role of the academic library is mandatory. Librarianship is in a process where change is a common factor and professionals must have the ability to innovate and remain relevant. The FRAMEWORK is showing us that information literacy is essential to the scholarly and work enterprise and administrators must move out of their comfort zone and realize that instructional design skills are part of higher education and is the path to assess the impact of instruction in student learning. This is why structuring learning outcomes and assessing should be part of the instructional process in a library environment and it's a way to demonstrate the contribution librarians make to student success.

Collecting student responses, about the core concepts of the FRAMEWORK, at the beginning of the library sessions and emphasizing the librarian's interest in learning what students know and understand about research practices is a very different approach than the one-size fits all set of skills and objectives to impart. Instead the librarian invites students to engage in co-analysis to determine what is collectively and individually understood and what concepts of the FRAMEWORK need more attention.

Oakleaf (2011) considers four relevant areas that represent challenges to librarians in the future. They can be summarized as follows: (a) commitment of librarians to student learning, (b) engagement of librarians in what students need to

480 learn and what is taught to them, (c) responsibility of librarians in documenting student learning (assessment), and (d) commitment to what librarians need to learn and how they document their own learning.

This article demonstrated how one community college library engaged in the collaborative design of a course and that a multi-phased process could be adapted
485 for other colleges and other disciplines.

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Appendix 1

595 (Scott, 2016); (Badke 2016)

- A. Information Has Value (Do we understand the different parameters of value that are attach to the information we use?)
 - 1. What purpose does information have?
 - 2. What does it mean to respect the original ideas of others?
- 600 B. Information Creation as a Process (How did the piece of information we are studying come into existence?)
 - 1. What elements you recognize in the information creation process?
 - 2. What is the relation between the creation process and your information needs?
- 605 C. Searching a Strategic Exploration (Do you have a strategy for to find information?)
 - 1. Why should searching be strategic?
 - 2. What strategies do you employ when you initially do not find the needed information?
- 610 D. Authority is Constructed and Contextual (Do the creators of information have the ability to make what they create worth paying attention to?)
 - 1. How does authority relate to research?
 - 2. How can you, as critical reader, evaluate and author's authority?
- E. Research as Inquiry (Do you have a clear research problem (question or thesis) related to your project?)
 - 615 1. What steps would you follow to formulate a research question?
 - 2. In what ways is curiosity evident in your writing?
- F. Scholarship as Conversation (Do you understand the positions and the players in the conversation around the issue which with you are struggling?)
 - 620 1. In what ways does your writing shows dialogue with other authors or information sources?
 - 2. Who participates in the production of scholarship?