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Library instruction for first-year students

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Abstract

Purpose – This paper aims to discuss the background, design and implementation of the new library instruction. When a new core curriculum for first-year students was adopted at the City College of New York in the fall of 2008, the City College Library took this opportunity to establish a new approach to teach library research to freshmen. Two library workshops were embedded into a six-credit combined content and writing course.

Design/methodology/approach – This paper documents the process by which the City College Library successfully transitioned to the new system and also reflects on the theory and practice of teaching information literacy in an academic setting.

Findings – Library workshops embedded within the new core curriculum have clear advantages over previous library instruction. By designing and implementing library workshops to blend with the new course, the Library has become a partner in an innovative first-year program.

Practical implications – This study will provide useful information on the teaching and assessment of embedded library instruction and stimulate further thought on the role of information instruction in furthering the mission of undergraduate education.

Originality/value – This paper presents opportunities to expand library instruction to the first-year seminar, the most commonly implemented curricular intervention designed for freshman students. By taking part in this important project, the Library becomes an integral participant in the initiative for retention and success for undergraduate education.

Keywords Research, Information literacy, Bibliographic instruction, First year seminar, Flipped classrooms

Paper type Case study

Introduction

When a new core curriculum for first-year students was implemented at The City College of New York (CCNY) in the fall of 2008, the City College Library took the opportunity to establish a new approach to teaching library research to freshmen. Two library workshops were embedded in a six-credit combined content and writing course. These workshops were to include presentations and hands-on exercises. This case study documents the process by which the City College Library successfully transitioned to the new system and also reflects on the theory and practice of teaching information literacy (IL) in an academic setting. The study also focuses on library instruction within a first-year writing seminar, one of the most common curricular interventions for first-year students. We hope that our experience will be useful to other institutions in improving library instruction for first-year students and stimulate further thought on this increasingly important topic.

The authors thank Jacqueline Gill and Ana Vasovic for information on FIQWS and the history of library instruction at the City College of New York.

Literature review

Literature in the area of teaching IL in an academic setting falls into several categories. One approach focuses on librarian and faculty collaboration; another concentrates on best practices for integrating library instruction into the curriculum; and a third focuses on the first-year college experience and the general education curriculum.

Librarians have traditionally built relationships with faculty to align library instruction and research methods with course syllabi and content. This approach is encouraged by accreditation agencies which make it clear that librarians and faculty need to collaborate to integrate library and information resources into the learning process (Thompson, 2002). (Knapp, 1966) was the first one to study this on a large scale. Her team worked with subject faculty to develop course-related library assignments and her report offers insight into the faculty–librarian relationship. A great deal of literature in the field covers collaboration between academic librarians and English composition instructors (Mounce, 2009). Partnerships between first-year writing teachers and librarians is also well documented (Birmingham *et al.*, 2008; Elmborg, 2003; Fister, 1995; Rohan, 2002). (Peary and Ernack, 2004) collaborated on teaching together and ensured that research was central to their courses, unlike many where research is peripheral. In their case, research constituted half of the course, thereby demonstrating equitable collaboration.

The second category of articles outlines the best format for delivering instruction, whether a stand-alone credit course or course-related or course-integrated instruction. Bruner (2009) has a theory that instruction should teach general principles applicable to a variety of situations. Others argue that teaching generic information-seeking skills focuses too much on information retrieval processes and not enough on content and critical thinking (Grafstein, 2002). The course integrated method is favored by Bowles-Terry *et al.* (2010) and LaGuardia (2011). According to LaGuardia (2011, p. 307), a librarian at Harvard, “the course-related library research guide has been one of the most eagerly sought-after and successful research tools I’ve ever done”. Students and faculty report that they continue to use a research guide years after the course is over because it gives them immediate access to resources they learned about. Alfino and Pajer write about teaching critical thinking and IL to first-year college students (2008). The teaching of critical thinking skills has also gradually been increasing in library instruction, as described by (Ellis and Whatley, 2008), who review the evolution of critical thinking skills in library instruction over the course of two decades.

First-year experience (FYE) courses are part of the larger freshman experience movement. These courses aim to help students transition to college and build skills to help them succeed in academic study. Such courses vary in curriculum but teach practical skills such as time management, test taking, responsibility, critical thinking, writing and academic research.

Library instruction models attempt to integrate research skills into the first-year seminar and into the general education curriculum. Several articles document library instruction in the FYE which is an excellent venue to introduce students to IL concepts. Boff and Johnson (2002) conducted a nationwide survey to determine whether FYE course curricula contained a library component and if so, to what extent. They found

that the majority of FYE programs contained some IL but the results varied considerably.

Jacobson and Mark (2000) write about library instruction in first-year seminar classes as it is being done at their institutions, SUNY Albany and Messiah College. They write about the implementation, objectives, assessment and problems encountered. Baker (2006) documents a longitudinal study over an eight-year period of how librarians used evidence-based practice to improve an IL unit integrated within a first-year seminar. Ulmer and Fawley (2009) write about integrating library instruction into freshman composition. They argue for merging bibliographic instruction (BI) with the composition curriculum to achieve desired outcomes. Duke University libraries began an instructional program to reach all first-year students. The program started as a simple library orientation but has evolved into two sessions. (Hull and Lawton, 2001).

The first year of college is becoming an increasingly important part of the national conversation in higher education. In the past few decades, there has been considerable institutional interest in improving the first year of college. In 1987, only 37 per cent of American colleges and universities were taking measures to improve the first year of college but by 1995, 82 per cent were (Barefoot, 2005, p. 47). Each institution is different and implements this according to its context and needs. Some institutions offer a single course that attempts to initiate the most important values of the college experience, while other colleges attempt more systemic changes.

The City College first-year seminar: context, history and rationale

In keeping with the national conversation about the FYE, CCNY (also known as City College) implemented a New Student seminar in spring of 2004, a semester-long course to introduce incoming students to the resources of the college. This was the first attempt to formally integrate library instruction into the structure of the first-year curriculum at the City College.

Before the implementation of this seminar, freshmen received classroom library instruction only if their instructor for English 110, the freshman writing course, took the trouble of requesting a library orientation session. The New Student Seminar was a mandatory course with a textbook specifically developed for it. In this Seminar, one week (two sessions) was devoted to library resources taught by City College librarians. Around 30 sections of this Seminar were offered each year. Transfer students were not required to take these courses and were, therefore, inadvertently left out of library instruction.

While the New Student Seminar provided an opportunity to reach freshman students, its format was ineffective for library instruction. The course, designed for college readiness, included topics such as time management and effective study. Most students found them of little value. Stuck in a course generally perceived to be boring, the library component struggled to engage the students.

The library session within the New Student Seminar was essentially taught in a vacuum. The timing and content – time management and effective study – had little to do with student needs at that time. Students came without a research topic or assignment and could not relate to the instruction. There were no hands-on exercises or assessments. In the words of one City College librarian, “one lost them eventually” (J. Gill, personal communication, January 2013).

In an attempt to overcome these shortcomings the general education committee at City College discussed various solutions and, in the fall of 2006, proposed a new writing course model, the Freshman Inquiry Writing Seminar (FIQWS), a six-credit discipline-specific writing course to replace English 110. Every first-year student would be required to take this course, which would be team-taught by a topic instructor, usually a full-time faculty member, and a writing instructor, typically a graduate student of English or writing.

The idea behind the creation of FIQWS was, first, that linking specific content to a writing assignment would engage students better than the New Student Seminar, which, in turn, would help students think critically and write more effectively. The faculty committee in charge of the core curriculum recognized that it was difficult for students to relate to and to write in some depth about the arbitrary, general topics often used in English 110. In FIQWS, students would be immersed in a topic, engage with it, discuss it and write about it. There would be a range of courses to choose from, including topical subjects such as “Narrative Medicine”, “Cancer and Society”, “Italian Cinema, History, and Society”. The topic instructor would focus on a discipline-specific subject. The writing instructor would use content from the topic section to teach college composition (Moltz, 2009). Around 60 sections of FIQWS would be offered every fall.

This model was also designed to improve retention. The CCNY is a commuter school in the metropolitan New York area where students travel long distances to get to school. Many of them also work and this tends to minimize their time on campus. They have few opportunities to engage closely with the campus, with each other, or with the faculty. By linking the two courses and limiting the number of students in each class to 22, a learning community is created (A. Vasovic, personal communication, July 2013). Students form bonds by working with a faculty team and with the same students in an intimate setting for six hours a week. FIQWS could, thus, become an anchor for the students’ academic and social life in their first semester on campus.

Also pertinent to retention is the development of college readiness skills, the impetus for the New Student Seminar. However, the New Student Seminar had not worked well. It carried zero credits, had no academic context and was often viewed as boring and useless by students. FIQWS, on the other hand, incorporated skills essential for succeeding at college such as time management, study habits and attendance into the academic context itself. The small class size of FIQWS allowed instructors to pay close attention to student progress, including following up on absences and late or missing assignments. As frequent absences indicate poor study habits and increases the risk of drop out, the absentee record was monitored by the professor and entered in the college system at midterm. Unique to FIQWS was the mid-term review, when both instructors met with each student to discuss his/her performance and submit a formal report. School services such as the Writing Center, Tutoring and the Advising Offices had access to this mid-term report and could intervene to address issues identified therein.

At its best, FIQWS was hoped to be more than the sum of its parts. Central to FIQWS was the notion that the FYE must not only incorporate more than a mastery of skills but also the creation of a learning community, development of college readiness skills and close interaction with faculty members. It hoped to do more than

teach students how not only to use the writing process to think critically but also to light the spark of curiosity and interest in the larger world of ideas fundamental to a discipline.

Library instruction

Guidelines for library instruction

Librarians who develop effective instructional programs turn for direction to the guidelines created by [The Association of College & Research Libraries \(ACRL\) \(2011\)](#). The guidelines recommend that each library has a clearly articulated set of learning outcomes that are aligned with the “Objectives for information literacy instruction” which expand on more generic competency standards ([The Association of College & Research Libraries, 2001](#)). One or two outcomes may be used in a one-shot class. These objectives are designed as a supplementary aid for librarians to be used in conjunction with the Competency standards. These broad guidelines help generate discussion about “Information literacy” among different stakeholders at the university, as does the New Framework ([Association of College & Research Libraries, 2014](#)). However, for practical suggestions, librarians often turn to their local university, college or office of undergraduate studies. Most academic faculty acknowledge a huge gap where students need to be in terms of information and where they are. The most pressing question at the local level often turns out to be that of what to include in a 75-minute class? In this vast sea of theoretical possibilities at the national level, there is little guidance on the absolute essentials that should be covered in a very tight time frame.

At our university, City University of New York (CUNY), the Library Information Literacy Advisory Council (LILAC) customized the above goals and objectives and proposed four IL learning goals for CUNY students to achieve by the time they complete 60 credits:

- (1) how information in various formats is organized and how to locate it;
- (2) how to define and refine a topic and how to search for information related to that topic;
- (3) how to evaluate information and its sources; and
- (4) how to use information responsibly.

The purpose of this document is to ensure that efforts at IL instruction fully articulate within CUNY, which has 24 campuses ranging from community and senior colleges to professional schools with an array of specializations. These learning objectives have been approved and endorsed by the CUNY University Librarian and CUNY Council of Chief Librarians, who agree to work with campus leaders, faculty and administrators to ensure that the learning objectives are met ([Appendix 1](#)).

IL encompasses specific general education skills and is primarily taught by faculty and reinforced by librarians. According to the characteristics of excellence in higher education ([Middle States Commission on Higher Education, 2009](#)):

[...] general education skills are not necessarily distinct and apart from each other. There is an inherent relationship among these skills. This interrelatedness is evident in the concept of “information literacy”, which embraces all of the specific general education skills (p. 47).

So, in addition to the generic ACRL and LILAC guidelines, we are directed by an IL rubric developed by the general education committee at City College. This committee oversees the execution of FIQWS and recommends use of this rubric in FIQWS instruction. The rubric was developed by a joint faculty and librarian committee at CCNY. The first outcome listed in this rubric is closely related to the ACRL outcomes and states that a student “Demonstrates a clear understanding of information needs and is able to search efficiently” (Appendix 2. The City College of New York, CCNY, 2013a, 2013b).

Adapting the guidelines for local use: what to keep?

From its inception, the Library worked closely with the office of undergraduate studies to build a library component within FIQWS. The Chief Librarian initiated the conversation with the Provost, who then referred the matter to the college-wide “general education implementation committee”. The Library jumped at the opportunity when the review committee proposed two library sessions taught by librarians within every FIQWS course.

While the Library was very excited about being part of this new core requirement, it was not easy to get every FIQWS instructor onboard. Some instructors did not understand the value of library instruction for their students; some did not see the need for devoting class time to something seemingly unrelated to their subjects; and some saw the mandatory library sessions as an imposition that infringed on their control of the course. It took a few semesters to implement the library component smoothly. Librarians learned to explain and promote the need and benefits of classroom library instruction, and the office of undergraduate studies learned to establish clear procedures and offer orientations to FIQWS instructors on the philosophy and requirements of the seminar.

Before the start of term, FIQWS instructors were notified that they needed to contact the library to schedule two library sessions for their class, one for the subject component and the other for the writing component. The first library session was to be scheduled four weeks into the semester and the second session from two to three weeks later. The first workshop typically presented a general introduction to the library and its services. The second workshop provided opportunity for hands-on exercises tailored to the research questions the students are working on. A library coordinator kept track of all the requests (and nudged those who didn’t respond in time), reserved computer classrooms and assigned librarians to teach the sessions. Instructors were required to accompany the class to the library workshops and asked to send their syllabi and establish contact with the librarian assigned to teach his/her class.

Given that IL is interwoven into the entire undergraduate curriculum and that the total instruction time is 150 minutes, the foremost questions were: what can be covered in 150 minutes? How can it be assessed meaningfully? And is it possible to assess accurately without taking away valuable class time?

Each library instructor was given an outline of the curriculum for the two sessions. The aim was to expose students to the world of information – different information sources, how they are organized and how to locate them. The specific outcomes were:

- (1) Find appropriate resources in print and online (This includes the free Web, online library catalogs and subscription databases):
 - *Related activity*: Find a book related to the research topic (from the CUNY catalog).

- (2) locate background information on their topic of interest (Show an awareness of subscription encyclopedias):
 - *Related activity:* Distinguish between a free Web-based encyclopedia and a subject related or subscription encyclopedia, e.g. Wikipedia vs Gale Virtual Reference or Oxford Reference (or another subject related encyclopedia).
- (3) Select and search the appropriate database or information source based on their specific information need. E.g. locate an article relevant to their research paper from a database appropriate to their subject:
 - *Related activity:* Find an article (relating to an area of interest) from a subject appropriate database.

The above outcomes and activities are consistent with the conclusion reached by Oakleaf and VanScoy:

[...] that first semester, first-year students have required research needs: they must be able to find articles, Web sites, and books to complete their assignments. For some incoming students these skills are mandatory. Therefore, the basic tier of Classroom Integrated Instruction should include, at a minimum, instruction on finding articles, Web sites, and books (2008).

The first 75-minute session was devoted mainly to library orientation (physical and digital) and starts with an overview of the library Web site and CUNY library resources. Our college has five campus libraries with different collections and students often need training on the library Web site and databases. Topics such as the library site, reserves, off-campus access, borrowing resources from other CUNY libraries and researching by discipline were covered. Because City College is one campus among many at the CUNY system, students need considerable support in navigating this system, both physically and electronically. The first session oriented them to the library system of the university, to the college and its libraries as well as useful functions of the library site, such as locating and renewing books, locating articles in encyclopedias and academic databases. The second session was more focused and research oriented.

In the second session, students came with a question they wanted to research, and the librarian gave an overview of databases relevant to undergraduate research as well as some technology applications useful for Internet research, such as the Libx toolbar, Google scholar and the advanced features of Google. Other related skills were reviewed, such as refining a topic, using keywords or subject headings and any other helpful strategies for locating and evaluating information. The librarian and content instructor both walk around the class helping students refine their topics, brainstorm keywords and find relevant articles. Students needed this help for their research paper and are, therefore, a lot more engaged than during a generic orientation. By the end of the session, students were able to find at least one book or article relevant to their research.

Creating and assessing library instruction

Creating the assessment

To test the efficacy of instruction, the library IL committee was tasked with creating an appropriate assessment. In the past, the library with help from the assessment office had created a case study to assess instruction. Analysis showed that this assessment was hugely unpopular with students, instructors and librarians because it took up half the

classroom time and more importantly was not related to classroom instruction. Also, it was paper-based and, thus, hard to manage.

In response to this analysis, it was decided to create a quiz directly related to instruction, to keep it short and to deliver it electronically. The committee agreed that the assessment strategy should be directly related to the learning objectives and discussed the most suitable method to evaluate whether the instruction achieved the desired learning outcomes.

The objectives for library instruction are not declarative but procedural and task based. They are not so much about “knowing about” but about “knowing how”. A multiple choice test was ruled out because we were not testing theoretical knowledge. It would be easy to administer, but it was not relevant to the given outcomes. We wanted to assess practical performance, not short-term memory recall of facts. The assignment needed to be task oriented to assess if students could do preliminary research for their paper.

A “satisfaction survey” or a “one minute paper” was ruled out as well. Most library assessments are in fact “satisfaction surveys”. Library “one shots” are often not truly assessed in the sense of measuring outcomes but are surveys that ask students if they feel the workshop was useful. Feelings are measured and not objective learning outcomes. Additionally, a case study was ruled out because it had been tried in the past but took up too much class time and was only marginally related to class content.

Students need to practice finding books and articles to develop these skills for research. A formative assessment would help students identify what they did not know and what they needed to work on. In addition, it would also help instructors recognize where students were struggling and so address problems immediately. It would be a good use of time because students could practice the skills they needed and instructors could gauge if the activities were working well and use this knowledge to improve instruction. It was decided that a short formative assessment relevant to a two session general education first-year class would be appropriate.

A quiz was designed to test if a student “Demonstrates a clear understanding of information needs and is able to search efficiently” ([The City College of New York, CCNY, 2013a](#), [2013b](#), [Appendix 2](#); *FIQWS Library Quiz*: [Appendix 3](#)). This was consistent with best practices recommended by assessment expert Megan Oakleaf who suggests assessing not more than three or four outcomes at a time. The four related activities in this case are:

- (1) find a book related to the research topic in the City College or CUNY catalog;
- (2) select and search the appropriate database or information source based on specific need - locate an article relevant to their research paper from an appropriate database;
- (3) locate background information on their topic of interest (to show an awareness of subscription encyclopedias); and
- (4) distinguish between a free Web-based encyclopedia and a subject related or subscription encyclopedia, for example, Wikipedia vs Gale Virtual Reference or Oxford Reference (or another subject related encyclopedia).

Some librarians wanted the ability to customize the quiz to the specific subject they were teaching. To do this a generic testing instrument needed to be created. The committee

wrote to Oakleaf who affirmed that, as long as we were assessing outcomes and not “specific questions” we were on the right track. Assessing outcomes would allow a different librarian to substitute the exact question that was relevant to her/him. Oakleaf suggested that:

[...] all you have to do is keep track of how many (or what per cent) of students can achieve these outcomes. You could subdivide by major, classes taken, whatever. But basically, you just count. How many students were able to find a book related to their research in the catalog [...] (email communication, September 2010).

The college subscribes to Blackboard and it was an obvious first choice to administer the quiz. Blackboard has a very robust assessment feature and it was felt that delivering the quiz on Blackboard may integrate it better with the student curriculum and also allow for a more “customized” quiz. However, librarians at the CUNY do not have access to Blackboard. Only course instructors teaching a credit course with enrolled students have access. Administering a library quiz could only be accomplished by close collaboration between a subject instructor and a librarian or between the campus Blackboard administrator and a librarian. Neither of these options was feasible at this time.

Next, three online applications were considered: Surveymonkey, Googleforms and Limesurvey. Google Forms was chosen because it has the functionality needed and is free. A quiz form was created using Google Forms and was located at www.fiqwsquiz.org. When a student completed a form the results would be time-stamped and collected in an online spreadsheet. Library instructors teach two classes of 75 minutes each as part of the six-credit Seminar. The quiz would be given in the second session.

Assessing library instruction

In fall 2010, the quiz was administered to 1,014 students. A random set of 100 was determined to be representative of the population of 1,014 based on a standard 95 per cent confidence level and confidence interval of ten. These parameters yield a requirement of 88 samples. Because 100 samples falls above the minimum requirement of 88 and improved the precision from a desired confidence interval of 10-9.3, 100 was chosen as the sample size for simplicity. To get a random (but representative sample) we used the Web site: www.random.org/integers/ to generate a 100 random numbers. We used these numbers to locate our samples.

It was decided that each instructor (in the IL committee) would be given 25 samples to get a total sample of 100. Before grading the 25 samples, each of the instructors was given five separate samples to grade. The committee met after a few days and compared their results and discussed these to ensure consistency and to calibrate their grading. They found that several samples were incomplete and instructors disagreed on how they graded these responses. It was suggested that the results did not distinguish between students who were unable to complete due to lack of time versus students who did not answer because they did not know the answer. Another major area of concern was that students could simply choose not to answer because the quiz is optional.

To eliminate any confusion about the grading process it was decided to hold another round of grading where each instructor would grade 25 completed samples. Each instructor would go back to their 25 random numbers and if a sample was incomplete

they would look for the next complete sample. It was decided to analyze both sets of results to compare the results.

The incomplete quizzes were a matter of concern. The assessment quiz is optional and there was some discussion on ensuring that students take it seriously and complete it. Most faculty seem to be in favor of it, but a few of them feel that the quiz takes away from classroom teaching time. Some library instructors expressed the need to customize the quiz to the course content for seamless integration. Instructors wanted the ability to tailor the quiz to the class they taught.

Overall, the results were satisfactory. Students were successful in achieving the outcome of IL being tested. They scored well on most questions. There was confusion about the wording on one of the questions and it was recommended that the wording be changed.

In response to the qualitative analysis of the optional open ended question, it was felt that more class time should be spent showing students how to access library databases off campus because of “computer problems” in the library (Please see [Appendix 4](#)). New computers would address most of the computer complaints.

Recommendations for the library

The following suggestions were made:

- A representative from the IL committee would present a proposal at the next meeting of the undergraduate committee that the quiz be mandated to ensure compliance by all students. This suggestion was made by the head of undergraduate studies and the IL librarian would present the proposal.
- We have been using Google forms to deliver the quiz and gather results. Librarians presently do not have access to Blackboard. It was felt that because Blackboard has a very robust assessment capability the librarians should attempt to get access to Blackboard to integrate the quiz with course content and improve its delivery.
- Some instructors want a quiz that is more directly related to the class and reinforces instruction more directly. It was decided that two instructors (psychology and architecture) will pilot a “customized version of this quiz”. This will be possible if instructors have access to the Blackboard assessment feature.
- The question about searching for an article would be re-written to make it clearer. The present question is confusing because the journal title and the article title sound similar. The question has three parts and all three parts are not really necessary.
- The fifth question was optional because it was not “directly” related to classroom instruction and also because we had technical problems in one of the computer classrooms. However, it was felt that this question relates to an important aspect of “information literacy” and should not be optional in the next version of the quiz.
- Increase the length of the quiz and include formative questions (for practice) – these questions will have directions on how to arrive at the answer. This will be followed by a summative (assessment) question which will not have any directions.

Bringing it to the present: learning and changing as we go

Librarians at CUNY have faculty status and meet to discuss what works well in instruction and what doesn't, as does the IL committee. However, they differ greatly in pedagogical expertise, teaching interests and academic discipline and it is not always possible to reach consensus. Because faculty have considerable latitude in what and how they choose to teach, it is neither possible nor desirable to mandate what is done in the classroom. Therefore, an outline of what needs to be covered is handed to them and they choose how the content is delivered. Initially, all instructors were asked to implement the quiz in the second session but now it is left to the discretion of the instructor. A few instructors rely extensively on PowerPoint presentations while others use the time for student practice and so are able to assess in the first session. Some instructors regard assessment as a necessary evil, while others use the time for student practice. The former have strong feelings regarding the appropriateness of the questions and whether this is the best use of time. An ongoing attempt is made to deliver uniform content without taking away from the academic freedom of the instructor.

Online information has continued to evolve and impact the way we work, study and entertain ourselves, and this has had wide repercussions on academia and on our students, many of whom are digital natives. Realizing the increasing importance of Web-based "non library" sources the 2010 quiz had a question about evaluating YouTube and Wikipedia. Ironically, this question has been removed in the latest assessment (2013-2014), in part, because the IL committee learned that we were trying to cover too much in too short a time. The gap between what the students know about reliable online information and what they need to know ([Association of College & Research Libraries, 2014](#)) seems to be growing, so is the difficulty of navigating vendor databases, for example, online encyclopedias offered by vendors are a far cry from the safe confines of a print encyclopedia and offer a baffling variety of choices. Teaching skillful use of a library encyclopedia takes up valuable class time but may help students navigate free sources when needed. An attempt is made to change questions every year in response to the analysis, vendor changes and instructor feedback.

However, the basic structure of instruction and the assessment remain the same because at the practical level, students need to know the importance and availability of encyclopedia articles need to be able to find books and scholarly articles relevant to their research and be able to cite them. Individual librarians are encouraged to change the focus of instruction and connect the dots between what students do in the classroom to what they need in their own lived experience to succeed in the modern world. Toward this end, speakers who can inspire change in the classroom are invited and faculty are also encouraged to attend IL professional development at the university.

Refining and assessing FIQWS

FIQWS is a promising pedagogical platform for undergraduate education. Within the large CUNY system which consists of 18 colleges and 5 graduate and professional schools spread over the five boroughs of New York City, the City College is unique in implementing this intervention for first-year students. Considerable effort and resources

are expended by the office of undergraduate studies to make this program a success. Every year brings changes and improvements.

The program began in 2008 but was not fully implemented. A small number of courses were offered in the fall of 2008 but several were cancelled due to low enrollment. Students did not register for these courses because academic advisors sometimes overlook new courses. Another issue, which has taken longer to fix, is that topic instructors saw FIQWS as a regular course with the addition of a writing component. In the early years of FIQWS, the two components of the course, topic and writing, remained separate. It is an ongoing effort to encourage collaboration through training and workshops.

In fall 2013, CUNY implemented the Pathways initiative across its undergraduate colleges. Pathways establishes a new system of general education requirements across the University. The centerpiece of this initiative is a 30-credit general education Common Core. Considerable effort was expended by the undergraduate office to adapt FIQWS to the new requirements. Now, all FIQWS courses are required to fit into one of the five Pathways categories: World Cultures and Global Issues, US Experience in its Diversity, Creative Expression, Individual and Society and Scientific World. Beginning in the fall of 2014, FIQWS will be registered as two three-credit courses rather than a single six-credit. This has required a considerable redesign of the curriculum by the office of undergraduate studies.

Assessment of FIQWS courses was done most recently by the Collegiate Learning Assessment (CLA). The CLA was developed by the *Council for Aid to Education* to provide colleges with a means to measure their ability to improve the critical thinking, analytic reasoning, problem-solving and written communication skills of students from their first year to the year of graduation. Each year the CLA is administered to samples of freshmen and seniors at over 170 colleges in the USA. CUNY uses the CLA to assess student critical reasoning skills. A random sample of essays by CCNY students suggests that students who had taken FIQWS scored higher than students who took English 110. In fact, they scored even higher than the engineering students who had scored higher at the freshman level. That is, FIQWS students scored higher at the senior level than students who had higher SAT scores as incoming first-year students but had taken English 110 instead of FIQWS (Moy, 2012). The results indicate that students who have taken FIQWS show an improvement in thinking critically, which serves them well at college and beyond.

Thoughts for improving library instruction

Library workshops embedded within the FIQWS curriculum have clear advantages over those for English 110 or the New Student Seminar. As is well-documented in the literature, students benefit more from library instruction if it is related to a specific assignment (Badke, 2009; Van Epps and Nelson, 2013). With FIQWS, library instruction is taken more seriously because it is part of a credit course, the students come prepared with a research topic, and sessions are scheduled just before a major research assignment, that is, when students are most motivated to learn. It is exciting for the library to take part in an innovative first-year program that requires an evidence-based research paper. Built on the experience of participating in FIQWS, the library is exploring additional directions to improve and expand effective library instruction.

Reaching transfer students poses an urgent challenge to the Library. FIQWS courses are mandatory for first-year students. However, City College gets a large number of transfer students from within CUNY and outside. Those students do not take FIQWS, and may not get any library instruction at all. Therefore, they may go through college without adequate knowledge of the research process or of resources offered by the library.

For those transfer students, the popularity of online courses and the model of flipped classrooms offer a viable option (Rosenberg, 2013). In a flipped classroom, students view online videos or tutorials on their own and class time is devoted to working on projects or exercises with the teacher's help. Library instruction, with its emphasis on hands-on exercises, is ideally suited to this method. In addition, the flipped classroom allows students to work at their own pace, an important advantage in all subjects, but even more so for library instruction where the students' research experience varies greatly. In this model, students can watch videos of librarian presentations as an assignment and come to class to complete exercises targeted to their research topic. Instead of boring the advanced students and losing the beginners, librarians will be able to work with an individual student at his/her level.

The flipped classroom, in addition, will allow time for librarians to teach IL with some depth. Traditionally librarians taught BI, that is the ability to access sources for a research bibliography. With the prevalence of Google searches and improvement of library electronic resources, library instruction has transitioned toward teaching "information literacy". Whereas BI is more about the mechanics of finding books and articles for academic papers, IL attempts to incorporate critical thinking. In other words, librarians have traditionally been more concerned with how information is organized than with the content. The concept of IL, which encompasses the entire world of knowledge, attempts to deal with content and the process of evaluating it. It is a huge endeavor and involves the entire undergraduate curriculum.

Library Instruction for FIQWS as it is presently taught, however, centers largely on BI for the simple reason that there is a strong need for it. Many of our students have little experience using the library. For students who do not even know how to locate a book in a library, it is appropriate to start with an overview of the library resources and their organization. Even experienced students benefit from instruction on how to access information using the continuously changing platforms. The onset of e-books is just one example of the evolution in the storage and retrieval of information. With the accelerating development of new products and platforms, BI will continue to be an essential part of library instruction.

IL, on the other hand, tends to get neglected, which is unfortunate because it is central to the librarians' mission as educators. Its scope reaches beyond the research process and critical thinking. In its most ambitious cast, IL encourages students to explore and understand how information is produced, disseminated and consumed. It trains students to be skilled users of information, an essential skill for success in today's information dominant world. It cannot, however, realistically be taught in one shot. The model of the flipped classrooms presents an opportunity to design library instruction that focuses on more than specific skills within a limited time frame. The City College Library implements FIQWS instruction with existing staffing and resources. We hope that our experience and thoughts on expanding and improving library instruction will invite interest and debate on this topic.

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Appendix 1. Information literacy learning goals

The Library Information Literacy Advisory Council proposes a set of IL learning goals and objectives for CUNY students to achieve by the time they have completed 60 credits. The purpose is to ensure that our efforts at IL fully articulate within CUNY. These learning objectives have been approved and endorsed by the *CUNY University Librarian* and the *CUNY Council of Chief Librarians*, who agree to work with campus leaders, faculty and administrators to ensure that the learning objectives are met.

Learning goals summary

The learning goals for every CUNY student with 60 credits includes:

- how information in various formats is organized and how to locate it;
- how to define and refine a topic and how to search for information related to that topic;
- how to evaluate information and its sources; and
- how to use information responsibly.

Learning objectives detail

The specific objectives/outcomes relating to each of these broad learning goals are described below.

- (1) How information in various formats is organized and how to locate it:
 - Students will be able to select and search the appropriate database or information source based on their specific information need.
 - Students will use their understanding of where and how information originates (i.e. information sources – government, news media, social networking sources and the scholarly communication cycle) during the research process to guide their selection of relevant and appropriate sources.
 - Students will find and navigate appropriate resources in print and online (including the free Web, online library catalogs and subscription databases).
 - Students will differentiate between scholarly, popular and trade publications and use the various types of literature appropriately.
- (2) How to define and refine a topic and how to search for information related to that topic:
 - Students will translate research questions into search statements by identifying key vocabulary terms, concepts and synonyms.
 - Students will determine whether a research topic is too broad or too narrow, given the guidelines for the assignment, and be proactive searchers by responding to results and revising or refining their searches.
 - Students will formulate effective search statements using tools such as keywords, subject headings and Boolean operators.
- (3) How to evaluate information and its sources:
 - Students will distinguish between types of information sources and demonstrate through their choices that not all information sources are appropriate for all purposes.
 - Students will apply basic evaluation criteria to Web sites and demonstrate an understanding of why information found on Web sites needs careful evaluation.
 - Students will critically evaluate information for usefulness, objectivity and bias, currency and authority and demonstrate the benefits of examining diverse opinions and points-of-view.
- (4) How to use information responsibly:
 - Students will demonstrate their understanding of ethical, legal and social issues surrounding plagiarism, copyright and intellectual property and apply principles of academic integrity in their use of information.
 - Students will identify the elements that go into a citation and create a correct citation using an online or print style manual for guidance.
 - Students will quote, paraphrase and attribute ideas correctly.

Table AI.
The City College of New
York: general education
rubrics

Learning outcome	Beginning (1)	Developing (2)	Competent (3)	Accomplished (4)
Demonstrates a clear understanding of information needs and is able to search efficiently	Does not define and articulate information needs, identify appropriate keywords for retrieval, identify which sources might be useful, and/or efficiently access the necessary information	Understands the research question but is not fully confident in identifying search term(s). Has knowledge of an information source. Needs assistance in interpreting the information collected	Understands the research question, demonstrates an understanding of 1 or 2 information sources and how to access them and can interpret the collected information	Creates original thesis statements or focused research questions appropriate to the assignment; demonstrates clear understanding of many different types of information sources and how to access them; uses appropriate information sources; and insightfully interprets the information collected
Effectively evaluates information sources	Does not demonstrate a clear understanding of the criteria for evaluating information sources in relevance to the research assignment. Uses unscholarly or unreliable sources	Some understanding of the criteria for evaluating information sources. Uses scholarly databases containing researched sources	Understands and reviews information sources, considers whether the amount of information is sufficient to address the issue	Comprehensive in the ability to evaluate information sources effectively for relevance to research assignment. Evaluates information thoroughly and effectively for reliability, validity, accuracy, authority, timeliness and point of view or bias
Articulates credibility of sources	No mention of credibility, such as authority, affiliation of author, timeliness or bias	Mentions one aspect of credibility, such as authority, affiliation of author, timeliness or bias	Mentions two aspects of credibility, such as authority, affiliation of author, timeliness or bias	Mentions all aspects of credibility, such as authority, affiliation of author, timeliness and bias
Uses information ethically	Does not demonstrate a clear understanding of acknowledging sources. Inaccuracy of citations, footnotes and bibliographies; inappropriate citation style; and does not understand plagiarism	Some understanding of acknowledging sources. Uses appropriate citation style; needs improvement in formatting the bibliographies and footnotes. Understands what constitutes plagiarism and does not plagiarize	Acknowledges sources and uses the correct citation style for formatting footnotes and bibliographies. Understands what constitutes plagiarism and does not plagiarize	Thorough acknowledgement of sources through careful incorporation of citations, footnotes, endnotes or other widely accepted documentation style. Includes complete bibliographic information formatted with near complete accuracy. Does not plagiarize

Note: Information literacy criteria is rated 1-4 or N/A

Appendix 3. The library quiz located at www.fiqwsquiz.org

- Search the Library catalog (CUNY+) for a book about globalization. Choose a book at City College. Write down its title, author and publication date. Does it have a call number or is it electronic? *Go to the CCNY library home page and click on "Books Videos and More" to see the catalog.*
- Search the library catalog (CUNY+) for the book, "The World is Flat". Does CCNY have it? What's the call number? *Go to the CCNY library home page. Click on "Books Videos and More" to see the library catalog.*
- Look in "Academic Search Complete" for a full-text article on globalization published in a scholarly journal. Give the citation, *Go to the CCNY library home page. Click on "Articles via Databases". Select "Academic Search Complete".*
- Locate the following article: Elfriede Penz, (2007) "Paradoxical effects of the Internet from a consumer perspective," Critical Perspectives on International Business, Vol. 3 No. 4, pp. 364-380. Is it in HTML or PDF format? This issue of the journal has a special theme. What is the theme? *Go to the CCNY library home page. To see if the library has an online copy of the journal: Click on "Articles via databases". In the right hand column, click on "E Journals A to Z" to see a list of electronic journals the library subscribes to. Look for this title".*
- Look up "Globalization" in Wikipedia, Gale Virtual Reference and on YouTube. What is the difference? Note your observations. NOTE: Please open YouTube/Wikipedia in a new tab or window so you don't lose your work.
- Is there anything else you would like to know about the library? This is your chance to give us suggestions. We are looking for ways to improve your experience with the library.

Appendix 4. Qualitative analysis

A qualitative data analysis was conducted to extract themes from students' responses for Question 6. It asked, "Is there anything else you would like to know about the library?" A total of 579 students responded to this question. A grounded theory approach was used to conduct this analysis. The grounded theory approach is a method of using empirical data without preconceived theories. Analysis continued until content redundancy and theoretical saturation of emerging themes were achieved. A total of five themes manifested from the data:

Ran out of time

Although this theme does not answer the question, it was an overwhelming response from students. Students took the opportunity to express their concern that they did not have enough time to complete the survey and wished they could have had more time to learn the material.

One student said, "I didn't have enough time to complete this".

Accessing the library database off-campus

Students wanted to learn how to access the library database off-campus. Some expressed their challenge in logging into the database off-campus or finding the appropriate database to conduct research at home.

One student said, "I can't access the journals from my house".

Locating books in the library

Students expressed an interest in learning how to locate books in the library. Some mentioned how they had a difficult time locating books and would appreciate a lesson on how the books are organized in the library.

One student said:

I would like to know where all the different types of books are located in the library. Along with learning about how to access things through the CUNY library Web site, we should

also have a tour of the entire library. This would help Freshmen know where all the different things in the library are located. I feel as if students only come to the library to do their homework, hangout with their friends, or surf the Web. Very rarely do I see a student actually accessing information through the library; I almost never see someone by the book shelves looking for books.

Helping with research paper

Students want to learn how to write a quality research paper. They want to learn different aspects of writing a research paper, from the search for articles to the construction of the paper.

One student said, "Writing a very good research paper [...] thesis statements introduction body". Another student said, "to understand how to do research using the CCNY library". Another student mentioned:

[...] i think what i have learned so far in the presentations are helpful and i believe for now is good but maybe along the way i would need to learn more depending on how my papers get and so on and so forth.

Working with the database

Finally, students expressed the desire to learn how to work with the database. Particularly, they wanted to know the best search engines for their research and know what computers in the library are accessible to this usage.

One student wanted to know "Specific purpose of each Database sources and their advantages". Another student said "Can we use any computer in the libraries located on campus to do research?"

Other themes. Two other themes that were not as robust still deserve mention. Similar to the first theme (i.e. ran out of time), these themes do not answer the question. Students, however, took the opportunity to write about issues that negatively affect their library experience.

Library environment

Students mentioned how some of the rooms are too cold, which negatively affects their library experience. In particular, one student mentioned how it was hard for him/her to concentrate in the study room because of the room's temperature.

Computers not working

Students expressed their disappointment with frequent computer malfunction at the library. Some students mentioned how some computers do not function, inhibiting them from doing research.

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