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Using an information literacy curriculum map as a means of communication and accountability for stakeholders in higher education

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Abstract

Many academic libraries are coping with limited library staff, a burgeoning student population, and constantly evolving curriculum. How can academic librarians ensure that students are receiving a systematic and hierarchical set of information literacy (IL) competencies that will make them agile and adept information seekers and users who can cope with changing modes of information delivery and access? How can they be accountable to students, themselves, and to their institutions? Creating and implementing an information literacy curriculum map (ILCM) can provide a cohesive delivery of IL across the curriculum. A map aligns IL competencies with core courses, specific courses in a discipline, and assessment points. This article will describe the creation and implementation of an ILCM in addressing the needs of stakeholders at colleges and universities. The process of creating and use of the ILCM has facilitated and increased communication among teaching faculty, administrators, and academic librarians at Berkeley College. It has allowed the librarians to be more intentional in their teaching and assessment strategies. Furthermore, an ILCM used in conjunction with an assessment plan has served to make the IL programme and activities more transparent to the institution, thereby ensuring accountability to internal stakeholders and external reviewers.

Keywords

curriculum map; information literacy; library instruction; assessment; faculty; collaboration; communication; academic libraries; higher education; USA

1. Introduction

1.1 Today's information age and higher education landscape

Today, institutions of higher education must cope with the characteristics of the information age: easy access to information, the deep web, the number of websites available, the inability to regulate the quality of information, the democratisation of the availability of information, the ubiquity of Wikipedia, student learning and information seeking preferences, and standards and proficiencies to which academic institutions and libraries should adhere and aspire. Librarians have been diligently working on strategies to assist students to succeed in this environment. Information literacy (IL) instruction is an integral part of these strategies.

Additionally, libraries must demonstrate their contribution to the institution's effectiveness while coping with limited library staff, a burgeoning student population, and constantly evolving curriculum. The Middle States Commission on Higher Education (MSCHE) is the organisation that oversees accreditation of institutions of higher education in the Mid-Atlantic regional states of the United States. Its mission in part, is to "instil public confidence in institutional mission, goals, performance, and resources through its rigorous accreditation standards and their enforcement" (MSCHE 2015). In its 'Characteristics of Excellence', with regard to Standard 7, which addresses institutional effectiveness, MSCHE has stated:

The effectiveness of an institution rests upon the contribution that each of the institution's programmes and services makes toward achieving the goals of the institution as a whole. This standard on institutional assessment thus builds upon all other accreditation standards, each of which includes periodic assessment of effectiveness as one of its fundamental elements. This standard ties together those assessments into an integrated whole to answer the question, "As an institutional community, how well are we collectively doing what we say we are doing?" and, in particular, "How do we support student learning, a fundamental aspect of institutional effectiveness?" Because student learning is a fundamental component of the mission of most institutions of higher education, the assessment of student learning is an essential component of the assessment of institutional effectiveness and is the focus of Standard 14 (MSCHE 2006).

In light of the information age and the current higher education landscape, implementation of an information literacy curriculum map (ILCM) can provide structure for librarians and faculty to work together in providing a systematic and hierarchical set of opportunities for students to gain and practice IL skills. In this way the librarians can be intentional and strategic in IL instruction while providing concrete documentation on its impact on student learning. Stakeholders within the library and the wider campus administration might thereby increase their accountability to external stakeholders such as accreditation bodies. A map aligns IL competencies with core courses, specific courses in a discipline, and assessment points. This article will describe the creation and implementation of an ILCM in addressing the needs of stakeholders at colleges and universities. The process of creating and use of the ILCM has facilitated communication among teaching faculty, administrators, and academic librarians at Berkeley College. It has allowed librarians to be more strategic in their teaching and assessment activities. Furthermore, an ILCM used in conjunction with an assessment plan has served to make the IL instruction programme and activities more transparent to the institution, thereby ensuring accountability to internal stakeholders and external reviewers. In fact, at Berkeley College, in its periodic report to MSCHE, the ILCM was a key document in the self-study on institutional effectiveness. This was especially critical because IL is one of the college-wide learning goals of Berkeley College (Berkeley College 2015).

Berkeley College librarians were able to leverage the fact that the institution's accreditation agency, MSCHE, had identified IL competencies as integral to the curricula of all academic disciplines of colleges and universities, charging libraries and faculty to account for said competencies in periodic institutional self-studies. Using the following statement to highlight the degree of accountability expected from faculty and the administration, librarians were able to make a case for stronger and more strategic collaboration among librarians and faculty in providing opportunities for students to acquire IL competencies:

Many aspects of information literacy are essential components of general education...It is the role of faculty members to define the desired student outcome, to outline where in the curriculum certain skills are developed and practiced... [and] that information literacy is an essential component of any educational programme at the graduate and undergraduate levels... [and] applies to all disciplines in an institution's curricula (MSCHE 2003).

In the United States, employers have identified IL skills among the learning priorities that are necessary for college students to succeed in today's economy. 72% of those surveyed indicated that colleges should put more emphasis on "the ability to locate, organise, and evaluate information from multiple sources" (Hart Research Associates 2013). Additionally, a 2012 report from Project Information Literacy (PIL), stated that employers seek college graduates who possess a range of research skills including the ability to use tools beyond search engines (such as social media) as well as the ability to use critical thinking in applying the best information to address the task at hand. Moreover, employers reported that many college graduates did not go beyond the scope of what they could find online. Employers are seeking graduates who can use various information tools and sources, including non-digital formats (Head 2012).

Librarians have long offered instructional services, but in recent times have increased, intensified, and diversified approaches. Some librarians embed themselves in courses that have an online

presence, using course management systems like Blackboard, Sakai, and eCollege. This enables students to interact asynchronously with librarians via discussion forums. Additionally, librarians create and teach credit bearing courses, create learning objects, conduct workshops, and deliver in-class instruction. Despite the focus on IL and research at academic institutions, the survey by PIL (Head 2012) reveals that recent college graduates state that they are unprepared to meet the information needs toward problem solving in the workplace. Could it be that it is only after graduation that students realise the value of the IL instruction sessions that they received via the library?

No, some students *do* recognise the need to acquire these skills while still enrolled in college. In seeking to investigate what it is like to be a student in today's digital age, PIL surveyed over 10,000 students (starting in 2008) from over 50 US colleges and universities. Students expressed frustration with research and stated that it is more difficult than ever before. Most of these students stuck to a consistent information seeking strategy and so used tried and trusted methods of research such as using library databases (Head 2013). Yet, 80% of these students indicated that they did not approach librarians for help. This dichotomy of acknowledging frustration and the difficulties they experience with research, yet an unwillingness to approach librarians for assistance suggests a need for a different approach to teaching IL skills: a strategic movement away from stand-alone IL instruction sessions to that of integrating these competencies into coursework.

Today's academic environment presents an opportunity for the creation and implementation of an ILCM that is aligned with discipline specific content, tools, and research methods and is integrated into coursework so as to demonstrate value to students. Also, the librarian-faculty partnerships can demonstrate to students that their instructors endorse research instruction. Moreover, if learning outcomes directly address research skills and appear in the syllabus, students will see research and IL as an integral part of the course and this may diffuse any apathy on their part. Implementation of an ILCM is an opportunity to address all of these concerns at the undergraduate level.

1.2 How valuable is an ILCM?

Curriculum mapping has been identified by Bester and Scholtz (2012) as a process and tool that helps to illuminate the pedagogical relationships within a curriculum, while attempting to capture interactions with relevant stakeholders. The ILCM can also be seen as a process and tool toward accountability for stakeholders in higher education. It facilitates the integration of IL competencies into the existing curriculum; it is a tool of communication and a process toward assessment of student learning. It can help strengthen a library instruction programme, supply departments with reliable data for self-studies, and ensure accountability to students, librarians, instructors, and administrators. As Harden (2001) describes it, a curriculum map is "a diagrammatic representation of the curriculum displaying the different elements of the curriculum and the interrelationships between these different elements" (p. 125). Thus an ILCM can bring more structure to a library instruction programme because activities will be more strategic.

At Berkeley College, successful partnerships among librarians and teaching faculty resulted in steadily increasing numbers of IL instruction sessions from 2007-2010. IL reports documented the large numbers of student attendees in these sessions and the variety of courses within which the librarians worked. In 2010, a closer look at these accomplishments revealed, however, significant duplication of efforts. Librarians were teaching the same competencies to the same students in different courses. They were mostly able to work with the freshman (first year) and junior student cohorts rather than the graduating students and seniors in their capstone or final year of study. There was a risk of student apathy to these instruction sessions where there was unintentional repetition of instructional content. The ILCM provided an approach to instruction catering for organised, meaningful repetition of skill building opportunities. Whereas some strong librarian-faculty partnerships had been forged over time, much more faculty buy-in across the disciplines was needed if the librarians were to reach more of the students through their coursework. The process of creating the map served as a catalyst for greater faculty buy-in. The ILCM itself became a communication tool to articulate what skills were being taught at different stages in the curriculum. It became a useful tool that deans and chairpersons of academic departments could use when hiring new faculty to explain to them the needs of the curriculum. It also conveyed to

students the importance of acquiring IL competencies, giving them opportunities to incrementally build knowledge using applicable concepts in their disciplines and related information seeking. Within the IL programme it allowed librarians to align instructional activities with institutional goals.

Uchiyama and Radin (2009) found the process of curriculum mapping to be a means toward collaboration and collegiality among faculty stating that it: “fosters respect for the professional knowledge and expertise of all instructors. It allows all participants to examine, or re-examine, their individual and collective beliefs about teaching and learning in a structured and safe setting.” During the creation and implementation of the map, schools, academic departments, librarians, and instructors created the content collaboratively. Assessment points along the curriculum were identified and teamwork among librarians was also enhanced. As librarians teach students to develop teamwork skills and work collaboratively with diverse groups, a skill that 67% of employers state colleges should place more emphasis upon (Hart Research 2013), this collaborative approach might be valuable. Thus, IL skill building via a curriculum map could enhance collaboration among stakeholders in an academic institution.

How valuable is an ILCM? Harden (2001) suggests that possible groups whose questions can be answered using a curriculum map, (and by extension, an ILCM), should be identified. Instructors might ask, “What research skills have my students learned before they got to my class?” Instructors might be able to think of a certain IL skill as a ‘pre-requisite’ to taking their course. Having such an expectation can even influence their syllabus. Administrators might ask, “What contribution does the library make to student learning?” “Where do students learn IL skills?” “What role does the library play in the IL competencies of our students?” “Are the resources allocated to library instruction worthwhile for the institution?” Considering these questions can help to answer the question posed by MSCHE (2006) under ‘Standard 7: Institutional Effectiveness’: “As an institutional community, how well are we collectively doing what we say we are doing?” The ILCM facilitates cyclical assessment of student learning. The academic department could have articulated its assessment methods and points (courses in focus) along the curriculum in a discipline and thus have the data to show accountability to relevant accrediting bodies if needed. The library could align its instruction efforts appropriately with existing standards within the profession and thereby have a systematic approach to assessment. The institution could have departments, including the library, that can articulate their sound assessment cycles and strategies and thus have the ability to be accountable to itself and external accrediting bodies. It is clear how far reaching and impactful an ILCM can be as it can provide answers to all the aforementioned questions.

2. Creating an ILCM

The creation of an ILCM begins in the library. According to Hale (2008), “learning organisations often choose identifying gaps and finding repetitions as the focus of a desired review to aid in the design of a rigorous, vertically aligned curriculum” (p. 170). This process begins by using data collected on instruction to identify gaps, redundancies, and absences in the opportunities where students can acquire and practice IL competencies. A close look at the statistics of IL instruction at Berkeley College, gathered from 2007 to 2010, revealed an absence of focus on research that is specific to a discipline and a gap in the IL instruction coverage across the curriculum. Additionally the data suggested the librarians placed more emphasis on a particular IL standard or skill, teaching it much more frequently than others thereby creating a situation of redundancy.

Most of the opportunities that librarians were able to present to students to develop IL competencies were in courses in the School of Liberal Arts and Sciences. This represented the General Education curriculum that crossed all disciplines. There was great coverage in the numbers of the common expository writing course. Yet, there were a number of sections of this course that were not receiving IL instruction thereby revealing a gap, which was noted with several other courses across the curriculum. Further, the majority of the instruction sessions in the School of Liberal Arts and Sciences focused on the IL competency of evaluating information. Thus there was significant redundancy. In the Schools of Business and Professional Studies with the largest and smallest enrolments respectively, IL skills specific to areas such as marketing, healthcare administration, and criminal justice were lacking. In all three schools there were marked absences

in the opportunities presented in the senior level courses because librarians were mostly able to present opportunities at the junior levels or freshman classes.

Equipped with useful data and institutional or departmental accreditation requirements, librarians can seek out or create opportunities for collaboration toward creation of an ILCM. Houlihan and Millet (2013) have recommended perusing strategic planning documents to reveal possible opportunities to align library instruction to the institutional strategic plan. Participation on institutional committees can also provide information on initiatives where librarians can introduce the concept of an ILCM. Having concrete statistics and a solid rationale for recommendations and suggestions can drive change but so too can the use of small-scale pilots to gather further evidence of what works (see Appendix A: ILCM guide).

2.1 Gaining buy-in from stakeholders: administration, faculty, and librarians

At Berkeley College, it was determined that a quarterly meeting of the deans and chairpersons of academic departments would be the ideal venue to recommend the creation of an ILCM at the administrative level. In order to move this forward, an IL Steering Committee, a team of librarians, was established. The committee roles included mentoring librarians in the curriculum mapping process, creating IL outcomes for courses on the ILCM, creating the IL statement for all course syllabi, and the marketing of the ILCM. This committee adapted the assessment template (an excel file) already in use by the Office of Institutional Research, to address IL competencies. The template included categories of 'target courses', 'IL standards', and 'assessment cycles'. The goal was for faculty to work with librarians to complete their own map for each discipline, using the template. The Provost placed the 'State of IL at Berkeley College' presentation on the agenda for the next meeting scheduled for February 2011. Of note, library liaisons had already had some success communicating the concept of IL to the top administrators and faculty. In 2008, an IL logo was created by librarians and was being used on all communication regarding IL from the library, including PowerPoint presentations. At the 'State of IL at Berkeley College', the Coordinator of Information Literacy Instruction (CILI), presented the 2007-2010 statistics of IL instruction using graphs. The gaps, redundancies, and absences were clearly seen. Further, the CILI introduced the ILCM template, the format of which was familiar to the attendees since it had been adapted from an already existing template. It was recommended that, in order to increase accountability to the institution and to external parties, like MSCHE, an ILCM should be created and implemented. There was collective agreement.

A yearlong timeline of events, goals, and responsible parties was created. Among the key entries were meetings between the CILI and various faculty groups to identify courses for IL integration and assessment strategies. It was agreed the first faculty group would be the School of Liberal Arts and Sciences who would focus on the core curriculum. The timeline identified reporting intervals on the progress of the creation of the ILCM. For example, the Vice President of Library Services reported to the Provost's Council at several meetings during the year. Thus, top administrators were kept abreast of the progress being made. This buy-in at the administrative level was critical. Members of the Provost's Council included deans so they were kept informed of the progress being made in their schools. This reporting kept the momentum going. The timeline also covered the time period when IL Steering Committee members would begin to mentor library liaisons. This also helped to keep the lines of communication open among the librarians allowing everyone's concerns to be heard.

Within the library, institution wide events were planned to target the community. These included a librarians' summer workshop, a faculty forum, and the creation of an online faculty workshop. Librarians also took advantage of an internal institutional conference where one of the breakout sessions addressed the ILCM. At a workshop in July 2011, the IL Steering Committee presented the gaps, absences, and redundancies to fellow librarians. This allowed the librarians to see how inroads could be made to reach students in the senior or final courses. It became clear that the ILCM presented an opportunity for a more unified voice from the library, and a more structured approach to the IL instruction programme. Librarians welcomed an opportunity to reduce the redundancies that, they all agreed, were causing some students to be disinterested in IL instruction. In preparing IL lesson plans, the librarians would select from among the performance indicators aligned to specific ACRL IL standards. These became learning outcomes and informed

the assessment strategies to gauge student learning. During the workshop, librarians observed that most of the instruction focused on the skills of the evaluation of information and the ability to determine the information needed. Furthermore, they recognised this as an opportunity to meet national standards such as the ACRL (2000) Information Literacy Competency Standards for Higher Education in a more consistent way.

The IL Steering Committee submitted a proposal for a faculty forum to the Provost asking that it be qualified as a professional development activity. This designation would encourage instructors to attend the session. This was granted and the forum was sponsored by the Center for Excellence in Learning and Teaching, the official faculty professional development arm of the institution. The first forum in November 2011 was titled, 'Success Stories from the IL Frontlines: Integrating IL Competencies into the Curriculum' and took the form of a faculty panel and workshop. A faculty member representing each school and a librarian served on the panel that was moderated by the CILI. Each instructor shared successes and challenges in integrating IL into their course work. The librarian shared IL from the perspective of the library liaison. The intention was for faculty members to think of IL in their discipline and to see how the student progressing through the curriculum would be better served with IL opportunities offered in a more structured way.

At this first forum, the Provost provided opening remarks and the key speaker was the Vice-President of Assessment, from the Office of Institutional Research, the department responsible for institutional assessment. His presentation helped attendees to see how IL and assessment should be a general conversation among faculty and emphasised that the ILCM was an example of an approach to achieve a goal (Miller 2011). He also encouraged attendees to consider their place in the curriculum: what courses do students take before and after a specific course? This provided the perfect segue to the workshop portion of the day. This forum then became an annual event providing new faculty with opportunities to learn about IL and the ILCM and continuing faculty to share their expertise and experiences. Notably, most deans and chairpersons were in attendance, working side by side with their respective faculty members.

2.2 Collaborative process

The CILI first met with representative faculty from the School of Liberal Arts and Sciences who decided which common courses from the core curriculum should be on the map. For example, the expository writing course is one that all students must take toward their degree. It was determined that all five ACRL IL standards would be integrated into this course. An opportunity to collect student artefacts was available because of the final essay that was due. Representative faculty and librarians would, at a future assessment event, sit together to read a random anonymous sampling to determine IL competency levels (this assessment approach is discussed later on in this article). Therefore, a course that already had IL as a learning outcome was selected, the appropriate ACRL IL standard/s were identified, and an assessment strategy and cycle was determined in one meeting. Other common (General Education) courses were selected during this session and these would appear on all academic department maps. Having the common courses identified, meetings with various academic departments followed. The template was used to create a map respectively as faculty determined which courses should be targeted for the integration of IL competencies. They decided how many formal opportunities for IL competency building should be listed on the template, at the associate degree and baccalaureate degree levels. In most cases, courses that had already been targeted as assessment points in the discipline and which already had IL learning outcomes were chosen.

The meetings were relaxed and they allowed instructors to talk about which assignments and learning outcomes already lent themselves to integration of IL competencies and where there was a need to enhance a course to accommodate IL. They were an opportunity for library liaisons to closely work with faculty in populating the ILCM with target courses. The meeting also sparked creativity and candid conversation as faculty members talked about what IL looks like in their discipline.

Meanwhile, the IL Steering Committee created an IL statement that could be inserted in all course syllabi, and follow the statement of academic integrity. It was made available in the master syllabi template from which specific course syllabi would be created. The statement meant students might see IL as a part of their coursework, and not as a separate learning outcome or activity. Working

with librarians to develop these skills would not seem disconnected. During meetings with each academic department, the statement was endorsed unanimously.

Creating the ILCM was a collaborative process involving administrators, librarians, and academic faculty. It took multiple meetings of various stakeholders and the hosting of many events to allow attendees to ask questions and voice concerns. There was also a push to educate the community on the ILCM and using IL in coursework. In providing an online course, instructors could participate at a time of their choosing and the discussion board was an important feature, allowing them to talk about IL in their disciplines and to share ideas and to learn how to align learning outcomes with assessment strategies. The CILI moderated these discussions and the course was offered every quarter to all instructors and to all librarians. This course was also granted the status of professional development by deans and chairpersons of departments. Consequently, IL and the ILCM thus became common terminology at Berkeley College.

In creating an ILCM it is recommended that the following activities be employed:

- Gain buy-in from library colleagues
- Gain faculty buy-in by hosting various faculty/librarian led events
- Create an IL steering committee as the vehicle to move the ILCM forward
- Create and stick to a timeline that is widely disseminated among stakeholders
- Work with the institutional research department for assessment alignment
- Collaborate with the faculty professional development office
- Provide professional development opportunities for librarians and faculty

2.3 The ILCM format and accessibility

The layout of the ILCM was kept simple as there were a variety of users. It lists the standards and is aligned with the various target courses already existing in the general and specific curriculum. The map can be seen as the knowledge base from which suitable learning outcomes and assessment strategies can be developed. At Berkeley College, the ILCM is accessed via the IL webpage, a link off the main library website. Users at the institution can easily access it by using their login credentials, however as the ILCM is not publicly available, it is also shared directly with individuals upon request.

Figure 1: Model of ILCM

STANDARDS TARGET COURSES	X	Y	Z	ASSESSMENT CYCLES
COMMON COURSE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		BIENNIALY
RESEARCH INTENSIVE COURSE			<input checked="" type="checkbox"/>	ANNUALLY
CAPSTONE COURSE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	BIENNIALY

3. Facilitating communication

The ILCM is designed to facilitate communication. It holds the sequential integration of IL competencies within a programme of study, thus, according to Bester and Scholtz (2012), “ensuring a spread and variety of learning experiences and assessment tasks at appropriate levels of complexity”. Its supporting documents convey the specific learning outcomes derived from the IL competency standards or departmental standards. At Berkeley College, each academic department built its own ILCM for its specific majors. The general writing course was present on each sub-map. Each department could click on its own tab to see which courses had been identified as target courses for IL. Accompanying documents presented assessment strategies and assessment cycles. All faculty and administrators have access to these documents. If an instructor was teaching a course on the map s/he could reach out to the library liaison responsible for that subject area. The library liaison also became involved in the assessment day activities.

Ideally, curriculum mapping occurs as a curriculum is being created, however, in reality, by the time librarians gain audience with a department, the curriculum usually already exists and in many cases, is firmly established. With the ILCM in place, however, IL becomes a part of the conversation as curriculums change over time. Librarians and instructors can match assignments, syllabi, and IL competencies. Admittedly, creating the map is easier if learning outcomes and activities that already exist in the coursework are found. Librarians and teaching faculty can collaborate to identify courses in a programme that already lend themselves to the integration of IL competencies. New learning outcomes can be created or existing ones modified to adequately align to selected standards. This will then populate the cells in the curriculum map for the particular department or major. This is a good exercise in collaborative decision-making that has enhanced library liaison-faculty relationship at Berkeley College. In fact, new collaborations were formed when instructors found that they were teaching a course on the map and, therefore, IL had been integrated into the course. Librarians and instructors who had not previously worked together found themselves working directly towards a common goal.

During this exercise, faculty misconceptions of IL can be addressed. There are opportunities to clarify library jargon so that librarians and faculty understand each other. Instructors are able to more accurately articulate to students the role of the librarian in a classroom. Sometimes instructors at Berkeley College referred to an IL instruction session as a 'library orientation'. While introductory sessions to library services do take place, the IL instruction needed to be accurately labelled in order to convey value to the faculty. Librarians and faculty can use this interaction to develop and agree on common terminology. Instructors will also have opportunities to reflect on and communicate what IL looks like in their own disciplines. Links between the skills students will learn within their discipline and real world application can be brought out here. Thus, creating an ILCM provides rich opportunities for communication.

In convincing Berkeley faculty to adopt an ILCM, librarians might provide samples of teaching they have done. This also gives an avenue to showcase library support services. As experts, librarians can provide sample interactive tutorials, handouts, worksheets, concept maps, rubrics, and quizzes. Thus librarians can demonstrate their value as colleagues and will solidify themselves as experts in their own field. This will also serve to reassure teaching faculty that librarians are neither encroaching on their time nor their turf but are adding value to the education process. When the map is being used, over time, a pool of assignments and methods can be gathered and maintained. As new instructors and librarians join the university or department, there will be tangible resources for them to use as they prepare for their own courses and instruction sessions. This will aid in sustaining ILCM.

As a tool of communication, the ILCM can allow librarians to engage with and win over students. By integrating IL competencies into the curriculum and working closely with teaching faculty, the needs of the job market can be communicated. Whereas many students learn after graduation that these skills are relevant in fulfilling their job responsibilities, librarians and faculty will be able to convey the relevance and value of these skills before they leave the institution. Instructors and librarians can articulate this when highlighting print and electronic resources specific to their disciplines and careers.

4. An ILCM links to pedagogy and assessment

4.1 Instruction strategies

Implementing the ILCM encompasses pedagogy and assessment. This includes active learning such as self-directed learning, discovery, and hands on activities. Some engaging activities that are listed by Abdal-Haqq (1998) are collaborative activities, and opportunities for self-reflection and experiential learning. In today's connected environment, the employment of emerging technologies such as wikis provide familiar tools and encourage collaboration among students as they build knowledge. For example, at Berkeley College, one common course on the ILCM in the School of Liberal Arts and Sciences included a reflection on the research process as a part of the IL component. It was developed in the form of a blog inside the course management system. 74% of US employers surveyed by Hart Research Associates (2013) have identified the ability to conduct

research collaboratively as a skill that will aid graduates in becoming successful employees. Incorporating emerging technologies in the instruction and learning process caters to both needs.

In addition to in-class instruction, librarians can provide brief tutorials or learning objects to allow self-directed learning. According to Krüger (2012), micro-learning is providing self-directed, problem-oriented, and life-oriented opportunities. This approach applies to teaching IL skills. She highlights the need for libraries to provide learning materials (learning objects) in micro formats and their use in formal IL courses. Krüger refers to the learning preferences of digital natives that can be matched with a micro-learning approach. Some of these include interactive learning and problem solving activities rather than learning theory first. Sweeney (2009) lists some of their preferences as being used to receiving information quickly, a preference for receiving graphics before text, functioning best when working in teams, and thriving on instant gratification and frequent rewards. These preferences of digital natives should influence how IL is taught and the types of tools that are employed. The changing landscape of education should be acknowledged by integrating current technologies. However, the instructional need should determine the selection of emerging technology and one should avoid selecting technology because of popularity. Using wikis cater to active and visual learners. Blogs cater to reflective, visual, verbal, and active learners. Learning objects and accompanying activities or quizzes can be integrated into the coursework of courses on the map. These preferences were considered in the creation of a three-module interactive IL tutorial for the common writing course on the ILCM. Interactive quizzes were also used to assess student learning in that course.

In order to sustain the ILCM, creative instruction strategies can be used to enhance learning and to address scalability concerns. When appropriate, learning objects should support instruction allowing for possibilities of flipping the classroom. At Berkeley College, in one common business class, videos were created by librarians and were made available via a LibGuide so instructors could assign the viewing to students beforehand. Librarians can also seek out opportunities to work with students as an embedded librarian in an online environment or in a blended learning environment. This was commonplace at Berkeley College. Working with students in a discussion board via the Blackboard course management system provided an asynchronous environment for students, librarian, and faculty to join an on-going conversation. This provided a space for students to learn from each other and for the teaching faculty and librarian to gauge student learning via their responses to one another. This can also be seen as a case of knowledge building and application a discussion board rubric was applied as the assessment instrument. The results are then used to make appropriate changes to the questions asked or the learning objects that support the topic, thereby closing the assessment loop.

4.2 Assessment: strategies and cycles

Librarians are responsible to the students, the institution, and to themselves to investigate and document how and what students are learning via IL instruction. This can be done with a transparent assessment plan that is integrated into the ILCM. Zane (2009) outlines design principles for performance assessment. His three assessment plan specifications are that assessments should be designed to gather evidence across all facets of competency, integrated into the curriculum and sequenced to support a coherent pedagogy of learning, and situated in multiple contexts. They should also use multiple modes to account for differences in candidates, domains, and contexts (Zane 2009). He further advises that there should be proper levels of contextual support or scaffolding to allow the students to struggle enough with learning, but not so much that they are unable to move forward.

These statements support integrating or aligning the ILCM with an assessment cycle. Each level of learning and of development of IL competencies should be identified along with appropriate assessment strategies. Formative and summative assessment strategies should be used. At Berkeley College it varied. At times, it was appropriate to use the final grade or final paper or deliverable in the course as in the case of the common writing course on the ILCM. In other cases, formative assessment strategies were used to make adjustments or reteach concepts and strategies while in the process of teaching. Audience response systems were implemented. Some recommended assessment strategies that were employed while executing the map are: rubrics (including discussion board rubrics), research journals, pre and post-tests, concept maps, website

evaluation scorecards, audience response systems, peer-assessment, and bibliographies. These assessment strategies are aiding librarians in measuring IL competencies as skills or enduring traits, such as lifelong learning skills.

At Berkeley College, the Office of Institutional Assessment had already worked with each academic department to identify assessment cycles. Each department had identified key courses for assessment focus. This means that the department faculty had already determined the assessment points in a particular major, the types and numbers (sample) of student artefacts (examples of student work) to be collected. Further, 'assessment days' were scheduled on an annual basis. These days were set aside for representative faculty to work together in looking at the samples of student work and to allow the findings to illuminate changes that should be made to the curriculum and teaching strategies. If such a structured approach to the alignment of learning and assessment exists at an institution, librarians can leverage this provision by working with faculty to include IL competencies into courses already identified as assessment points. If this does not yet exist, it would be a good idea to partner with the department responsible for institutional assessment to develop such a cycle or to seek direction on how to do so.

For example, at Berkeley College in the case of the Justice Studies academic department, an assessment cycle was already in place with an assessment day carded annually in May. Courses that were already targeted as assessment points of that programme were identified as the courses for IL integration. Thus, the library liaison was included in the assessment day activities, where IL was also assessed using student artefacts. Librarians and faculty worked together on measuring student learning using the same artefacts or measures determined by that department. Courses on the ILCM will be assessed for suitability as time goes on. Curriculums change, accreditation requirements change, core courses per disciplines change so librarians will keep abreast of these and make appropriate adjustments.

A case in point of the ILCM facilitating communication, collaboration, and accountability is demonstrated with the creation of a new academic programme, Legal Studies at Berkeley College. The department chairpersons reached out to the library to discuss integration of IL into the curriculum: creating an ILCM for that programme. Working together, the appropriate IL learning outcomes were identified in the target courses. Interestingly, they had already been accounted for in the assignments and content of the courses and they aligned with the assessment points of the department. For example, the IL learning outcome in each course was aligned with the final projects ranging from case briefs at the lower level course to complex memorandum of law at the capstone/graduating level. This academic department, as a result of the previous experience of the ILCM process in other programmes of study within the department had created a new curriculum that integrated IL seamlessly. The meeting with the CILI was to ensure that goals and objectives of the library and the academic department were being achieved. Thus, the ILCM of the institution keeps changing as needed. Of note, the ILCM itself should be placed on an assessment cycle. The courses on the map can be changed or the number of opportunities presented to students in various disciplines can be changed.

Student-learning preferences are aligned to assessment strategies for the ILCM. For the learning preferences of millennials, outlined by Sweeney (2009), there are appropriate assessment methods. For example, since students like to receive feedback quickly, brief quizzes or audience response systems for formative assessment are being used in the class session. Since they function well when networked or in teams, blogs are being used. Discussion forums or wikis are used so students can build knowledge together. Rubrics are also used to assess their learning.

As aforementioned, leveraging the assessment strategies and cycles that already exist within academic departments can provide appropriate assessment strategies for specific learning outcomes. Working with the Office of Institutional Research allowed librarians to glean assessment strategies already adopted by different departments or schools. Means of collection of evidence of learning or student artefacts were highlighted and defined. Hosting of statistics was discussed. The ILCM can also define various assessment cycles of departments or that of a cohort of students. For example, in the case of the Writing Programme, which usually offers a common, cross-disciplinary course, librarians can work with teaching faculty to gain some documentation on

student performance as a cohort rather than individually. Then, the library can gauge the impact of collaborations with departments or programmes and integration of IL.

Figure 2: Sample cycles: collection of student artefacts for courses on the ILCM

	FALL 2012	WINTER 2013	SPRING 2013	SUMMER 2013	FALL 2013
COMMON COURSE		✓		✓	
RESEARCH COURSE	✓		✓		✓
CAPSTONE/ FINAL COURSE			✓		

Means of collection of evidence of learning or student artefacts were highlighted and defined. Hosting of statistics was discussed. Working with the Office of Institutional Research allowed librarians to glean assessment strategies already adopted by different departments or schools. For example, in the case of the English Department, which offers a common, cross-disciplinary course, librarians worked with teaching faculty to gain some documentation on student performance as a cohort rather than individually. Then, over time, the library will gauge the impact of collaborations with departments or programmes and integration of IL.

At Berkeley College, the common course to all students was the expository writing course. Working with the School of Liberal Arts and Sciences faculty to identify courses on the ILCM, this course was identified. Faculty and librarians decided that it would be a target course for all five ACRL IL competencies. The course already had an IL learning outcome that was broad enough to encompass all the competencies. Working with the English faculty, an assessment cycle was developed for this course. Sample random anonymous essays were collected in the fall quarter and each summer, a group of librarians and faculty came together to read them against a rubric that measures IL competencies. When the first reading was done, the VP of Assessment attended and took the lead in training the readers (librarians and faculty) to ensure inter-rater reliability. Similar to the model set out by Scharf et. al (2007) in assessing writing portfolios at the New Jersey Institute of Technology, there was a norming session to ensure that readers understood the ratings on the rubric and could thereby provide consistent scoring of the essays. Thus, an assessment cycle for a common course on the ILCM was established. Over the course of the assessment cycle, the student performance data could be used to inform changes to the course or the instruction tools and approaches used by librarians. In this case, an interactive learning object was made available via Blackboard as well as face-to-face instruction.

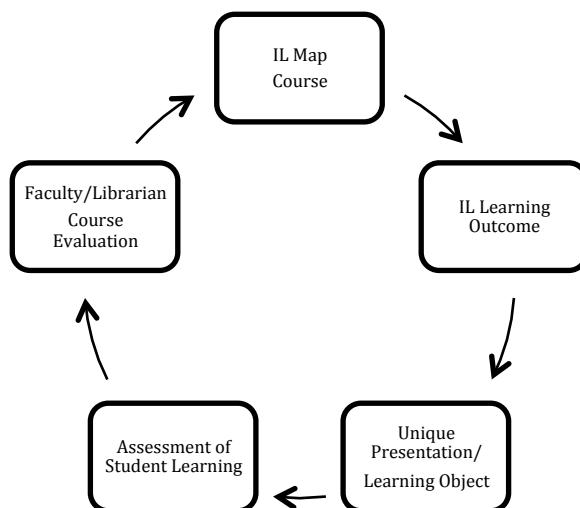
A lesson and assessment Plan using Oakleaf's (2009) template (which includes learning outcomes, learning opportunities, assessment strategies, and encourages librarians to document the results and to ponder the necessary changes illuminated by the results, or to 'close the loop') is a tool supporting the ILCM at Berkeley College. Such strategies measure student learning and also encourage librarians to objectively look at their own approaches. The ACRL (2007) Standards for Proficiencies for Instruction Librarians and Coordinators allows librarians to gauge their own instruction skills. Thus a robust assessment plan accompanies the ILCM. It is being used as an instrument of periodic institutional accreditation review.

4.3 Looking at a course on the ILCM in action

At Berkeley College, the ILCM was launched in January 2012. If an instructor is teaching a course on the ILCM, he contacts his library liaison. Together, they focus on the IL learning outcome in the course that aligns with the assignment. They then determine the delivery of instruction and the tools: will the librarian provide a learning object so the instructor can flip the classroom? Or will it be a LibGuide, a worksheet, or some other tool? Will the librarian be embedded in the course online? Or will the instructor teach IL, having been trained in a professional development activity offered by the library? Together, they will talk about assessment. They note that this class, a common writing course, is on a biennial assessment cycle, so the student samples will not be

collected this semester. They talk about other local measures of assessment in this class if preferred. Perhaps the librarian is curious to gauge the impact of a different active learning strategy. At the end of the semester, the conversation continues with the instructor giving feedback on the tools and instruction so that changes can be made if needed. Perhaps the instructor is thinking of changing the assignment next time. This is the course of the ILCM in action.

Figure 3: ILCM: course in action



This figure was used as a part of the following presentations: Meeting Challenges by Embracing Change: Creating and Implementing an Information Literacy Map at VALE Users' Conference, Piscataway, NJ January 2012 and Creating and Implementing an IL Curriculum Map at Quantitative and Qualitative Methods in Libraries, Rome, Italy June 2013.

5. On-going activities that complement the ILCM

After the ILCM was implemented, collaborations and relationships with departments outside the library were leveraged. Research-intensive programmes such as the Honors programme and the Academic Support Center (a department supporting student writing and citing) provided rich opportunities for collaboration. These allowed thematic approaches to IL instruction. In the case of the latter, a series of workshops presented jointly with the library were developed at Berkeley College. These addressed bridging the gap of finding information, writing the research paper, and citing properly, with the goal of avoiding plagiarism. Creating and offering joint stand-alone programmes that addressed the writing and research process including attention to plagiarism contributed to a culture of awareness of IL. Such activities offered to students on a regular basis supplemented in-class or structured instruction.

The 'train-the-trainer' model of professional development is another characteristic of the ILCM in action. Having a team of librarians who are able to meet instruction schedules as well as a pool of teaching faculty who understand and can articulate the implementation of the map and the recommended assessment strategies will ensure that communication of the map continues in a uniform manner. Such training was accomplished by providing online tutorials for new faculty, adjuncts, and librarians. Recurring annual events that address information and how we use it were hosted in order to create a culture of awareness. The faculty forum on IL at Berkeley served as a professional development activity. Working with the Center for Excellence in Learning and Teaching produced valuable opportunities for training on IL integration and assessment.

6. Conclusion

The creation and implementation of an ILCM has served to unite librarians at Berkeley College as a team who now approach IL instruction tasks collectively, rather than each working in a silo. They harness skills and channel energies into more collaborative activities that facilitate the efficient and effective use of library resources. Use of learning outcomes, implementation of active learning

strategies, integration of emerging technologies and interactive tutorials into instruction designed around student needs and preferences, and much more targeted use of technology are activities of librarians executing an ILCM. The number of instruction sessions increased and redundancy has reduced because the courses on the ILCM have targeted learning outcomes that align with the ACRL IL competencies. The hosting of joint IL programmes between the library and other departments has become a fabric of the institution with IL becoming a common term across the institution.

Furthermore, communication, collaboration, and accountability have been enhanced through the process of working on the ILCM. Berkeley College librarians form a pool of trained and confident professionals with strengthened communication channels cultivated during the creation of the ILCM. This was achieved through the train the trainer approach that was realised through online tutorials and faculty workshops. The librarians convey a unified message to teaching faculty and administration. Collaboration with teaching faculty has influenced the position of IL as an integral part of curriculum design and change. An environmental scan of the state of an instruction programme can illuminate the need to create and implement an ILCM. As librarians cater to the requirements and expectations of institutional stakeholders, the needs, preferences, and experiences of students in this digital age, and various administrative responsibilities to the institution the framework of an ILCM comes into focus. Instructional data can reveal gaps, redundancies, and absences that can rationalise a pilot of a new approach. Following this, a pool of instructional tools: lesson plans, electronic learning objects, and appropriate assessment strategies can be created to sustain the ILCM. This can address scalability.

Alignment of an ILCM to an assessment plan can facilitate documentation of the impact of IL instruction on student learning, and, by extension, the contribution that the library is making to the institution. The ILCM and the assessment cycles can glean useful data for accrediting reports and self-studies. This was included in the periodic report to MSCHE. The ILCM was the catalyst for all these achievements. Thus, an ILCM can help an institution to answer the question: as an institutional community, how well are we collectively doing what we say we are doing? An ILCM is a tool toward communication and accountability for key stakeholders in higher education.

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Appendix A: ILCM Guide

1. List specific external and internal factors that influence your information literacy programme/instruction or liaison work.

Think about accreditation requirements, institutional frameworks, or departmental initiatives.
Is IL connected to an institutional goal?

2. Who are your existing partners?

Programmes/departments/instructors

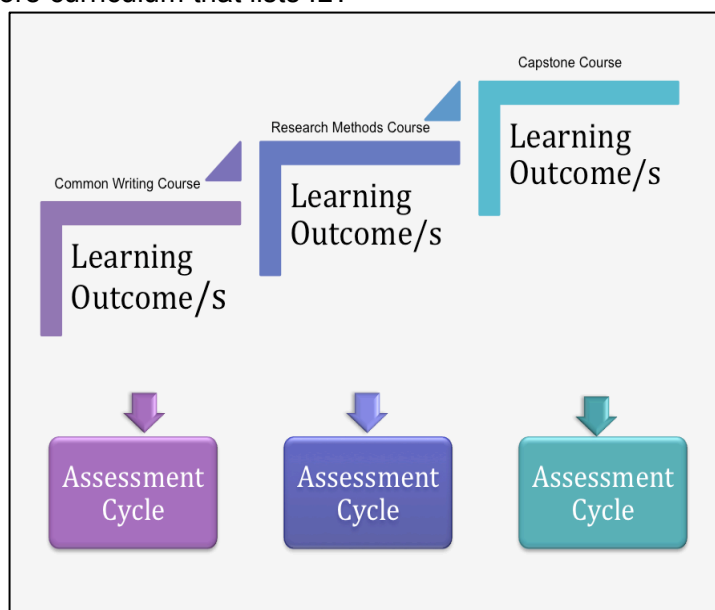
3. Identify gaps, redundancies, and absences in the IL opportunities that are presented to students

Think about special cohorts of students, academic programmes, orientations

4. What three courses present opportunities for IL integration into the curriculum?

a. Are there any courses with IL learning outcomes?

b. Is there a core curriculum that lists IL?



This worksheet was used to conduct workshops at Librarians' Information Literacy Annual Conference (LILAC), Sheffield, UK April 2014 and the IFLA Satellite Meeting on Information Literacy in Ireland, August 2014.