Qualitative and Quantitative Methods in Libraries (QQML) 4:879 –890, 2014

Implementing Critical Thinking in Cross Disciplinary Programs: a Framework for Global Literacy Instruction

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Abstract: In order to enable students to reach their full potential in increasingly complex environments, a literacy model that can adapt both to the curriculum and to the boardroom environment is becoming increasingly evident. The globalization of the Internet has driven critical thinking beyond the realm of libraries, classrooms and boardrooms. Global literacy, or internationalization, is needed now more than ever before if the complex problems of humanity are to be solved in a reasoned and rational way. Accordingly, model programs designed to inform critical thinking by engaging the components of information literacy as a vehicle to encourage problem solving and conflict resolution in a global environment are needed. Increasingly complex research projects that examine both domestic and international debatable research in manageable frameworks can be developed over the length of the course. Because this model is broad, it is easily adaptable to literacies ranging from financial literacy to military literacy. A model program for developing global literacy is presented in this paper.

Keywords: Active Learning; Assessment; Course Design; Global Literacy; Information Literacy; Librarian-Faculty Collaboration; Process Guided Inquiry Learning; Qualitative Analysis

1. Introduction

For librarians, one of the most striking changes made to higher education assessment programs was introduced in the 20th Century when The Association of College and Research Libraries (ACRL) introduced Information Literacy Competency Standards. These standards were endorsed by the American Association for Higher Education in 1999 and provided a framework for the implementation of literacy programs in schools and institutions of higher education. In response to these Standards, regional accreditation agencies in the United States implemented information literacy programs in both K-12 and

Received: 1.3.2014 / Accepted: 14.12.2014 ISSN 2241-1925

Higher Education programs. Other knowledge based literacy standards were integrated into academic programs world-wide; these programs and standards are well documented including those of the International Federation of Library Associations (IFLA) whose information literacy guidelines were established in 2006.

While information literacy programs have become established in programs institutionally across the globe, a recent harbinger of a shift in emphasis, away from libraries, gathered momentum. This shift was announced by the Middle States Commission on Higher Education (MSCHE) in a draft statement that omitted information literacy from the standards for higher education. Since the standards comprise a large portion of the present missions in libraries, what are the implications for the roles and responsibilities in the future? Would librarians see this as a weakening of their established practice or an opportunity to expand and re-engineer their policies and practices beyond instruction in retrieving and evaluating information? By introducing standards that are designed to address literacy institutionally on a broader scale, MSCHE actually was echoing the American College and Research Libraries (ACRL) shifting emphasis when they formed at task force in July 2011 to review the information literacy standards. Accordingly, Stephen Bell announced in June of 2013 that:

ACRL's Standards are the de facto definition of information literacy. Though they have served the academic library profession well over the past thirteen years, the current standards are showing their age. It is time for our association to engage in a process to rethink and reimagine them for the next generation of academic librarians, college students and the faculty".

The tools librarians have to engage in the process, present an opportunity for developing models that reflect the issues confronting business and industry.

Why develop a global literacy model?

As employers are beginning to note their frustration with the lack of problem solving skills and intellectual curiosity in their employees, it is becoming increasingly apparent that librarians can position themselves to take information literacy further into the intellectual life of their institutional partners. As the Harvard University labor expert Lawrence Katz (2009) explains:

"If you think about the labor market today, the top half of the college market, those with the high-end analytical and problem-solving skills who can compete on the world market or game the financial system or deal with new government regulations, have done great. But the bottom half of the top, those engineers and programmers working on more routine tasks and not actively engaged in developing new ideas or recombining existing technologies or thinking about what new customers want, have done poorly. They've been much more exposed to global competitors that make them easily substitutable."

One of the ways to engage the platform of information literacy and leverage those skills that will be needed is to extend the frontiers of thinking into areas where employers find gaps in the labor force. For example, a report commissioned by the American Colleges and Universities (AAC&U) (2013) concerning the expectations of employers regarding college graduates found that employers see a positive benefit in educational innovations that foster active learning and research skills. The following "high impact" teaching tools were viewed as the most beneficial by the companies surveyed:

84% Expect students to complete a significant project that demonstrates their depth of knowledge in the major AND their acquisition of analytical, problem-solving and communication skills

81% want to ensure that students develop the skills to research questions in their field and develop evidence-based analyses

- 84% Expect students to work through complex ethical issues and debates to form their own judgments about the issues at stake

In addition, 93% of business and nonprofit employers say that a demonstrated ability to think critically is more important than a college major and 74% say that a 21st Century liberal education would prepare students for a successful career in the global economy. (AAC&U, April 10, 2013. When asked about educational priorities for student outcomes, priorities were:

89% effective oral and written communication skills
81% critical thinking skills

When put into the context of problem solving, those people who can think strategically, problem solve and forward-think are those that most likely will make a positive impact. Friedman (2009), a writer for the New York Times and an advocate for keeping skills in the workplace in balance with changing frontiers, maintains that the new untouchables in the workplace will be those "who have the ability to imagine new services, new opportunities and new ways to recruit work are that ones who will be retained." (Friedman, 2009, para 4) If the changing landscapes demand that jobs be created because routine skills will be replaced by technological advances, the responsibility for preparing critical thinkers will, as ACRL's task force suggests, demand that faculty help to prepare workers for a global environment where change and challenge are the new norm. To meet this demand, strategic planning in program redesign can mean the difference between participating actively in the intellectual evolution of a more global society—one that reads actively, thinks deeply and is able to interpret information in any format that is delivered in any type of working situation—and one that is able to consider only basic competencies with limited engagement in academic curricula. These issues all encompass literacy. And literacy has become increasingly complex with the escalating amount of information available on the ungoverned landscapes of social media.

2. Literacy in a Global Society

Librarians have always emphasized the role of information literacy their teaching. However, delving deeper into the more complex application of learning how to think critically as a skill set or exercising metacognitive exercises have not been emphasized by library instructional programs as fully as they might be in the future. In the context of developing new programs, we define literacy as the "mastery of a particular vocabulary, of particular concepts and definitions, as well as a working knowledge of particular systems and a fluency in quickly reaching core knowledge or skills needed to exercise this literacy in a specific context. Literacy is a means to being competent in society (Nair, Norman, Tucker and Burkert (2012, para. 4)". Global literacy then would mean being competent in a global society. When we are globally literate we connect with the world from within the subjective world we have within us to learning and discoursing in worlds unfamiliar to us. (Shor, 1999). Constructing a class, a seminar or a course in a department or a course that crosses or applies across all disciplines requires both an understanding of basic retrieval, evaluation and feedback but also one that adds layers of complexity to the various diversity of meaning in different cultures.

The need for a broadening perspective across the curriculum is not new. In its Greater Expectations report, The Association of American Colleges and Universities (AACU) recommended that "students should have sustained opportunities to learn about the human imagination, expression, and the products of many cultures; the interrelations within and among global and cross-cultural communities; means of modeling the natural, social, and technical worlds; and the values and histories underlying US democracy" (AACU 2002, xii). In 2011, the AACU proposed that colleges and universities align student's lives with global issues as part of a community of global citizens. But how do we make this advice concrete within our learning and teaching settings? The constraints of time and mission can curtail the implementation of all five standards and the more than twenty performance indicators endorsed by American Association for Higher Education (October 1999) and the Council of Independent Colleges (February 2004). The ubiquitous availability of the Internet resources compounds the problems of accessing, evaluating, managing and applying information effectively in a complex and evolving global environment.

3. Global Literacy in the Classroom

Objective: **T**o provide the intellectual skill sets needed to meet the present and future challenges of a global society.

One possible model for global literacy instruction is that of a course of set length but there are several models in universities, many that focus on a particular literacy such as financial, or media literacy. Another model is one of the classes in Research/Writing/Composition. These classes are set up in 8-week sessions with three modules. Supplementary material, in addition to the readings, exercises and videos in each module are added by instructors. One of

the exercises initially required of students is to review, analyze and assess the course. As one student put it:

This is not the pick a topic, research and writes a report scenario that I am used to. I have realized that the normal four to six hours a week that I set aside for a class will not work with this one. I have to allocate that time to just stop and think about what the goal is so that I can focus and prevent any frustration. –Name withheld

To stop and think in a see and do society is not easy for students who have personal, professional lives and families. As this student noted, the time it takes to looking into someone else's perspective--what they are saying, what implications the issue may have, what biases exit and why--is a considerable task. However, thinking and responding to global situations demands that students look outside their own experiential background and observe, study, explore before bring backing back their own analysis. One successful strategy to engage dialog that explores the possibilities in a way that is more objective and flexible is the flipped classroom model.

4. The Flipped Classroom Model

The model for implementing the classes and courses that incorporate global literacy are based on the actual practice of classes taught in the Research/Composition/Writing classes at a large public university. These classes are structured in three ways:

1) Traditional classroom;
2) Hybrid classroom;
3) Online classroom.

The approach is to use the flipped classroom. The flipped classroom is basically having students view lectures, videos and text assignments before they come to class. As expressed by EDUCAUSE (2012), flipped classrooms require active learning and peer-to-peer inquiry with faculty oversight, mediation and challenges that are constructed to mirror the objectives for each week or activity. Pierce and Fox (2011) found that implementing the flipped classroom model in pharmacology improved student performance and student perceptions of teaching. Berrett (2012) discusses positive experiences in converting his traditional lecture to interactive learning sessions while noting the challenges that remain especially for students used to a more traditional format. Talbert (2012) documents several studies that show positive outcomes for the flipped classroom from several different disciplines. Armstrong (2012) from Vanderbilt University's Center for Teaching and Learning (2012) visualizes the process of the flipped classroom by using Bloom's Taxonomy. This model illustrates the building process that begins with the lower order skills of remembering and progressively moving upward to the higher order cognitive skills of analyzing and challenging information beginning with simple pro/con claims to the

assimilation of complex and debatable concepts. Discussions, peer reviews and group projects are designed to focus and incorporate the different perspectives students bring to class and those they investigate when reaching into multiple perspectives of an issue. To be successful, the flipped classroom requires active participation from both instructor and student, while shifting more of the responsibility for a deeper and more active learning process to the student. Central to active learning is the process of thinking critically.

4.1 Critical thinking.

One of the first skills that is helpful for students is to introduce them to exercises and videos that help formalize the process of learning how to read and think actively. Scheffer and Rubenfeld (2001) identify the components as identifying and challenging information, developing skepticism and exploring opposing viewpoints. By ensuring that discussions, activities and projects are integrating these components requires that they be embedded in each classroom encounter. Since web-based information is often a first-choice option for busy students, the value of information literacy plays a critical role in verifying, justifying and scrutinizing what may be assumptions or opinions brought to the classroom discussions. Creative thinking involves not only learning new intellectual skills, but also discarding old models, like web searching, of thinking and responding. At the same time, the web-based resources available on critical thinking exercises, research and other elements of the course are particularly engaging and can assist students as they respond and deepen the discourse surrounding complex issues. Online students frequently liken the use of videos to the familiarity of a traditional classroom.

4.2 Research.

Research is traditionally thought of as problem identification, hypothesis formulation, data testing and arriving at a conclusion. In the flipped classroom, the goal is to use critical thinking as a tool not only to search and evaluate but to transform knowledge, taking a student from point A in their experience, to point B or beyond. In one model classroom, students may be provided with specific modules, exercises, model presentations and instructional streaming videos for lectures but can be required to find additional supportive material for discussion. During the process portion of a unit, materials are read or viewed, discussed and researched, both online and in the library. Information literacy standards are an integral part of both the classroom discourse and the information gathering process. The discussion queries are most effective when designed to encourage critical thinking skills and challenge controversial materials by having students support statements with reliable evidence. The model places the instructor as the facilitator between message, messenger and interpretation of the responses. Students are held accountable for bringing intellectual curiosity, integrity and a multi-disciplinary perspective to the classroom. Conference sessions, whether on discussion boards, class sessions or group studies are actually peer review sessions where responses are challenged and analyzed. This active approach to critical thinking and research is designed to encourage world-mindedness and cultural sensitivity. For example, students may be investigating the impact of

outsourcing on various stakeholders or the challenges of dress codes across a range of countries.

4.3 Logic

Typically, an exercise in ethos, logos (logical reasoning), ethos (ethical appeal) and pathos (emotional appeal) are not formally given as a unit within a course or class although each one plays a part in informing decisions. Logical errors are part of the process of evaluating both process activities that lead to graded presentations and presentations/essays/reviews.

4.4 Foundation for Global Literacy Course Design

In order to establish a framework for the course design, critical thinking, research and logical reasoning should be \\woven into the activities and graded projects. The main objective is to approach each component with the overarching theme of global awareness. This multi-perspective approach is intended to establish connectivity and to demonstrate the benefits of a world view.

Figure 1. Global Literacy's Centrality

4.5 Course Objectives

Research challenges students to think and explore the selected concepts that stretch knowledge of them. These sessions can be single ones that work with cohorts or as full courses designed to examine increasing complex theory and practice in a series of essays, reviews or presentations that require exploration,, questioning, critiquing, analyzing and synthesizing the works of others examining multiple and global perspectives. All or a portion of these objectives can be practiced and applied in classes.

- Understand and apply critical thinking skills to determine strengths and weaknesses of arguments

- Locate, organize, and evaluate diverse sources in order to critique current research and determine gaps in a research problem
- Critically analyze and interpret multiple and global perspectives in research level scholarship in a field of study
- Integrate appropriate sources to construct unified, coherent, and well-supported paragraphs within complex arguments
- Question claims in the written, visual and oral presentations
- Challenge assumptions and biases
- Examine risks and opportunities when looking at a global issue
- Engage with classmates to expand on findings and find solutions to problems
- Explore real-life problems through the research method portal
- Develop a plan for adding insight into solving real-life problems
- Show a transformation from previous beliefs and attitudes to new ways of problem solving and insight
- Demonstrate accurate grammar mechanics and documentation style in writing

4.6 Course Framework

In a typical 8-week course, there are three modules in the course—each consisting of a two week process based on readings, discussions and videos that require critically formulated responses. Elements of the module's written projects are built into class discussions. For example, drafts of sections representing a portion of a presentation are posted for peer- and instructor-review such as the thesis statement, introductions and outline. Once a topic is selected and narrowed in the second session of the class, the investigation and analysis builds in complexity as the course progresses-each project using essentially the same thesis. The process, as the flipped classroom describes, is class collaboration and review.

Since students can waste time and effort searching for topics, it can be helpful to assist them by establishing a broad framework such as technology issues in a specific field or the impact of global finance on trade policies.

4.7 Conference Participation

Whatever classroom structure is provided for instruction in global literacy—online, single session-fixed week course—in the flipped classroom each session typically consists of 4-6 conferences which include a variety of reading and writing assignments. To encourage active reading and critical thinking, these conferences involve exercises, opinions, analyses or reactions to readings or videos. Discourse is central to the process of developing a project of any nature. According to Kuh, et. al. (2007), student engagement is defined as "participation in educationally effective practices, both inside and outside the classroom, which leads to a range of measurable outcomes" (Kuh *et al.*, 2007, 12). While participation in discourse can be difficult to assess in a traditional classroom where responses may not be recorded and empirical evidence is missing, group study sessions can by productive for most students. As Krause and Coates

(2008) note, "engagement in academic activities has been shown to be linked with high-quality learning outcomes" and Soules (2012) indicates that reverse transmission, that is the interpretation and processing of the message between sender and responder, is an effective learning process. Engaging critically and exploring other perspectives extends the active learning process while merging differing skill and experiential backgrounds into the learning process.

4.8 **Drafts and Final Papers**

There are four written projects in the model class discussed here. The first three written projects each have a draft stage and a final submission**.** Each written project except the final essay has peer-reviewed and instructor reviewed draft before a final grade is assigned. Each graded project builds on the previous work. Complexity and depth of research are increased as the course progresses. Successful presentation in the class requires that multiple and global perspectives are considered.

A typical class may follow the model below:

Activity	**Process**	**Product**
Critical Thinking	Peer Discussion/analysis/ Challenge Topic is debatable Plausible, consequential; multi-viewed current event	Presentation (essay, discussion, media presentation) with claims and counter claims
Locate, organize, and evaluate diverse sources	Librarian assisted search skill presentations Searching for evidence, facts, or knowledge by identifying relevant sources and gathering objective, subjective, historical, and current data from those sources	Critique essay/presentation using multi- perspective claims and counter claims using web and peer reviewed sources
Logical reasoning	Drawing inferences and conclusions based supported by reliable and valid information	Analyze conflicting views of cross-cultural significance in oral and written narratives.
Apply Standards	Discussing values, perceptions, professional and personal criteria for problem solving	Work effectively in class or group study to develop viable alternatives to global and/or national issues

Explore real-life problems through the research method portal	Selecting research area; identify an define multi-cultural problem; recognize key literature that explores problem in a diverse and multi-dimension way	Identify and discuss in class the challenges, risks and opportunities to be considered in the approach; plan unified approach to investigate; develop annotated bibliography.
Analyze and synthesize authoritative information	Developing problem statements, outlines and research tables showing inter-relationships among disparate approaches to solving a problem	Work in class or in groups to develop a draft presentation that covers all aspects of the above activities and research. Present a (research essay or a literature review
Inquiry; transformative problem solving	Identifying a plan for moving the research on problem solving forward.	Discussion of gaps in individual research projects; discussion for solutions and further research; benefits of the research; essay on research gaps.

Table 1. Global Literacy-Program Design including graded projects

4.9 Assessment

Assessment follows the threshold concepts proposed by Meyer and Land (2003). They offer a potential way of describing levels of understanding in a subject that could be used in assessment for learning. The authors define threshold concepts as having five characteristics:

1) Transformative, shifting perception of the subject
2) Irreversible, making it impossible to return to viewing the concept as previously
3) Integrative, showing the commonalities and differences of a concept or event
4) Bounded, which sets up a theoretical framework for development?
5) Counter-intuitive or leading to knowledge that is inherently counterintuitive.

As Meyer and Land state: "In grasping a threshold concept, students move from common sense understanding to an understanding which may conflict with perceptions that have previously seemed self-evidently true. Ultimately, the

intent is to provide a pedagogical framework to teach foundational concepts in a particular discipline" (Meyer and Land, 2003.p. 180). Grading, which is often standard at the undergraduate level consist of rubrics, peer-review and instructor feedback throughout the course.

5. Conclusions

Moving beyond the borders of library literacy to join in collaborative pedogological efforts to teach critical thinking and global literacy across the curriculum is needed now more than ever if the complex problems of humanity are to be solved in a reasoned and rational way. As universities become increasingly internationalized, competencies that show cultural awareness will increasingly be called upon to support these programs and their students. Regardless of disciplinary affiliation, librarians are positioned to demonstrate their flexibility and sensitivity to lead in and to assist with collaborative projects and programs in global literacy. This model is but one that can be used by librarians to help integrate global literacy into the curricula of universities and corporate training centers. While the role of librarians in institutional settings may be programmatic, as defined by the curriculum of the institution, or organizational definitions that loosely define and integrate the librarian's teaching role, information professionals can, by becoming actively engaged, effectively provide the tools that help students.

Questions remain about implementing re-engineered programs in the face of both library association standards and the changing environment globally. What enablers or supporting factors do accomplished librarians perceive in enacting the role of leader in global literacy instruction? What barriers or constraining factors do accomplished librarians perceive as preventing or hindering their enactment of the role of instructor in the global literacy programs? What is the association between accomplished librarians involved at a high level in global literacy programs and the identified enablers in comparison to the other participants? From a strategic point of view, librarians are positioned to step into the gap between theory and practice. By integrating the initiatives begun at institutions, librarians can construct unique and valuable programs that extend their options and those of their students.

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