

Collaborative action research to develop a problem-based learning approach to library research instruction

I. Introduction and background

My design is a collaborative action research project that aims to enlist a constituency group to help me develop and eventually implement, evaluate, and promote an addition or alternative to the traditional one-shot library orientation. The project I envisage will require that I venture outside the library walls in order to recruit both students and instructors willing to try out a problem-based learning variant of the library orientation. I imagine a three-fold audience for this project: students, my fellow instruction librarians, and faculty who bring their classes to the library for orientations. The benefit to students who participate in the project will be the experience of making explicit their need to think critically about information needs – be that for a PBL scenario, a research assignment, or a personal information need. The project will also provide an opportunity for other instruction librarians to learn about problem-based learning, see it in action, and perhaps help to open up a dialogue about our instruction practices. Faculty will be involved either directly or indirectly as their students report back on the PBL sessions.

My interest in this topic is driven by disillusion with what we offer students in the “one-shot” library orientation and my personal belief that a more effective and “real life” alternative exists (e.g. the problem-based learning approach) that could do a better job. There are a number of reasons why the standard ‘one-shot’ library orientation does not resonate with students in any meaningful way: 1) there is a failure to see the relevance of the content of the library orientation to the course content and future assignments; 2) a non-engaging chalk-and-talk presentation; 3) timing (most instructors bring their classes in to the library early in the semester before any major assignments are due); 4) lack of experience in libraries to begin with, i.e. no frame of reference for how to integrate the information they are being given or how it might eventually be used. By utilizing problem-based learning, however, “...the standard classroom procedure is turned upside down - no lectures, no demonstrations, no presentations. From the beginning, students engage in activities through which they develop skills and acquire concepts” (Cooperstein, 2004).

Library research instruction or “information competency” is something to which most instructors give lip service; however, an interesting dichotomy can be observed between instructors who believe in the importance of research skills (in terms of their subject) and instructors who believe that their subject has no need for research skills. In this latter category are those who reflect that, because the subject (say, welding or CAD) is more vocationally than academically oriented, students will have no need for information competency skills – something they equate with research in a library. Librarians have been at pains to promote the idea that information competency is a much broader concept that has just as much applicability to everyday life as to academia. In life as in academia, people need to decide which kinds of

sources to consult; formulate effective search strategies to identify concepts, keywords, and subject terms that will lead to the desired information; choose relevant and appropriate items from an index, table of contents, results from a database or web sites; and read, synthesize, and integrate the information into their existing knowledge base.

I first tackled the idea of using a PBL approach to library instruction in CCT 698, the Practicum course (Coe, 2004). At that time my emphasis was on developing curriculum that included elements of critical thinking, information competency, and problem-based learning. I utilized theory and practice from all three frameworks to design a 3-session PBL workshop which I subsequently demonstrated to my fellow librarians and one instructor from Counseling. We were not able to complete the whole demo because there was a long discussion about the difficulty of the items I had chosen for the pre-test and post-test. I used the PBL scenario again during our spring faculty professional development day. Around 14 instructors attended my 1-hour session in which I gave a short description of problem-based learning, revealed the scenario, and had them go through the first couple of KNF steps (what do I already **K**now, what do I **N**eed to know, how will I **F**ind out the information that will help solve the problem in the scenario). Faculty participated enthusiastically and there were many questions at the end of the session. Despite this show of interest, I did not succeed in getting the instructors to send their students to me for the 3 sessions I felt were necessary to conduct the problem based learning approach.

In CCT 693 Evaluation of Educational Change, I have been introduced to the theory and values underlying action research, and I now hope to incorporate these principles into my design project. Rather than making the assumption at the outset that a PBL approach is "better" or "more effective" than the usual one-shot orientation, I want to take a step back and establish a constituency group (composed of students and interested faculty) that will work with me in this quest for a more meaningful library orientation. Before continuing on to a description of how I intend to accomplish this goal, I want to provide a rationale for making the transition from an investigator-led evaluation to action research, particularly collaborative action research.

II. The path to action research

My first title for this project was "Participatory Action Research to develop a problem-based learning approach to library research instruction". Some judicious reading in Greenwood and Levin (1998, p. 174) has since amended the title as well as my understanding of the difference between action research and participatory action research. Action research has a long tradition in the social sciences and is usually associated (but not always) with development issues, particularly in its "participatory" mode. Its outstanding characteristic is that it is research practice with a social change agenda. The definition given in Greenwood & Levin communicates this emphasis well:

AR is social research carried out by a team encompassing a professional action researcher and members of an organization or community seeking to improve their situation. AR promotes broad participation in the research process and supports action leading to a more just or satisfying situation for the stakeholders. (p. 4).

Many of the examples given in their book deal with cases of community or organizational development but the chapter on educational strategies helped to clarify my thinking by cataloging a number of the different approaches and contexts in which AR is being practiced. I saw an immediate affinity with andragogy, or, adult education. A definition by Mezirow (as cited in Greenwood & Levin, 1998) resonated quite strongly with my conception of the intended outcome of information competency:

Andragogy has been defined as an organized and sustained effort to assist adults *to learn in a way that enhances their capability to function as self-directed learners* (p.222). [my italics]

Further reading about andragogy revealed it to be a contested notion, however. Mark K. Smith (1999) emphasizes that "we need to be extremely cautious about claiming that there is anything distinctive about andragogy. In his reference to romantic and classic notions of curriculum Jarvis (1985) brings out that what lies behind these formulations are competing conceptualizations of education itself. Crucially, these are not directly related to the age or social status of learners."

Smith makes similar cautionary remarks in his piece on action research:

One of the legacies Kurt Lewin left us is the 'action research spiral' – and with it there is the danger that action research becomes little more than a procedure. It is a mistake, according to McTaggart (1996: 248) to think that following the action research spiral constitutes 'doing action research'. He continues, 'Action research is not a 'method' or a 'procedure' for research but a series of commitments to observe and problematize through practice a series of principles for conducting social enquiry'.

This is a timely reminder as I begin my action research project that action research in the "strong sense" must include not only the three requirements of research, participation, and action, but also the critical reflection and dialogue epicycles that will make it authentically collaborative. I also acknowledge that the collaborative action research I propose contains an inherent contradiction/tension in that it does not spring from the group affected – i.e. the students. Carr and Kemmis (1986) observe that this places the person who intervenes into a special category which is paradoxical, given the commitment of critical educational science and educational action research to participatory, collaborative forms of critical self-reflection. It appears to elevate the person intervening to the status of someone with superior knowledge to impart to potential participants in the action research process (p.201). Brookfield (as cited in Greenwood & Levin, 1986) points to "...an important contradiction between using power to have students see and reflect on specific issues and then letting go of control over the learning process when the critical thinkers are ready

to take over (p.223). It will be illuminating to see how this plays out in practice, given my a priori belief that PBL will contribute to better information competency outcomes.

III. Methodology

Using the *Cycles and Epicycles of Action Research* framework as a planning tool, my intention is to begin the process at the Proposing and Planning actions cycle. It is necessary to begin at this stage because I have a practice I would like to try out in order to see whether its effect on students will produce better outcomes than are currently the case with our standard one-shot orientations. The broad outcomes I am concerned with include the ability to think critically about an assignment or topic and the development of a repertoire of research steps that can be utilized (gained from the problem-based learning approach) to address the assignment or topic.

Descriptions of actions to be taken, including constituency building

There are several ways that I can go about forming a group of students and possibly interested instructors to help me pilot the PBL model.

- Start with the instructors -> I know several English and Reading instructors who would be interested in this kind of pilot project. The English instructors regularly schedule orientations for their students and, in some cases, schedule an additional session with hands-on exercises for a particular assignment.
- Approach instructors who have taught in the so-called "learning communities", i.e. paired-courses taught by a 'content' instructor and a 'skills' instructor. (This approach was being advocated a few years ago.)
- Start with students -> Try recruiting students who already come to the library by means of posters and handouts. Use the student newspaper as a recruiting tool. Sponsor a mini-open house at which food is served and attempt to find students who will agree to come to pilot PBL sessions.
- Re-institute library workshops. These were hour long presentations on topics like "Evaluating Web sites", "Finding articles in ProQuest", etc. that were originally offered during the no-contact hour (during which no classes are scheduled so that faculty can attend committee meetings, etc.). Promote the idea of the PBL model at these workshops until there are enough students willing to commit to a three session pilot program.
- Write original curriculum to be used as an "add-on" module for courses in various disciplines (this was how I marketed the PBL sessions to faculty at the professional

development day) OR as a stand-alone short course, for example, a 2-month short course with an opportunity to repeat several times for credit.

How the sessions come to be structured may depend upon the time frame that I can adopt, i.e., the length of time (number of sessions) that I can persuade students to commit to. I feel strongly that merely exchanging the traditional "one-shot" for a PBL "one-shot" would do little to enhance students' critical thinking and information competency skills. Moreover, collaborative action research demands or at least implies contact that is ongoing and reflexive. Once I have assembled a core group of students – by whatever means - I will need to build in some introductory activities that will help everyone become comfortable around each other and to start functioning as a group.

During the first session, the PBL approach will be minimally explained and the students will jump right in with a scenario (in Appendix, p. 14) that - although not quite meeting the requirement of being "ill-structured or murky" - will highlight the goals for the remaining sessions which are, ultimately, to practice thinking critically about an information need and to formulate a systematic plan to solve it. All of this will need to be thoroughly planned on my part even though it may look on the surface to be spontaneous. My reasons for adopting this approach is that I know from experience that a long, introductory lecture on the philosophy and mechanics of PBL is likely to be met with the same glazed response as the standard "talky" orientation. Following the initial PBL experience, I will reveal more of the pedagogical and philosophical underpinnings of PBL and ask for their support in collaboratively working on and testing out the next problem or scenario. I hope that this process will have at least three iterations, leading toward comfort in using the PBL approach and greater facility and skill in using search tools and strategies.

Reflection and dialogue

The reflection and dialogue epicyle is integral to the action research design. Jointly conducted by the students and myself in a variety of ways and at a number of points throughout the three-session process, the tools of freewriting, focused conversation, perhaps supportive listening will be utilized, among others. For example, following the research phase in the initial scenario (which the students would conduct individually, i.e. not in groups or pairs), I might have the students take a few minutes to freewrite (first explaining that what they write is private and will not be read aloud) on the process they had just undergone, with the prompt "When I think about doing research, the following thoughts, feelings, reactions come to mind....." I might then go around the group and have each person comment on something that went well for him/her in the activity and something about the activity that could be improved upon (Plus/Delta evaluation).

The second session could begin by giving the students an informational handout on PBL, allowing them time to read it, forming pairs to explain to each other their understanding of PBL at that point, and then reporting back to the group. The scenario would be introduced (either using WebCT or on a handout) followed by group brainstorming the K-N-F (what do I **K**now about this, what do I **N**eed to know in order to address the problem, how will I **F**ind the information to help me solve the problem). Working in pairs or groups of three, the students would collaboratively research the 'learning issues'. In my role as facilitator I would be responsible for scaffolding the student learning through modeling and coaching, primarily through the use of questioning strategies.

At the conclusion of the final session, I might start with an ORID – by asking four open-ended questions:

- What did we do last session? (*Objective: getting the facts*)
- How did you feel when you were involved in the research process? (*Reflective, addressing emotional responses*)
- Describe what you think this process was for? (*Interpretation: considering the meaning or purpose of this experience*).
- What changes in how you research (if any) will you make as a result of this process? (*Decisional: next action*)

Ideally, this core group would have more time together to go through another PBL cycle, perhaps the second time focusing on specific individual outcomes associated with information competency standards – for example:

- Identifying the research topic or other information need.
- Formulating appropriate question(s) based on the information need or research topic.
- Using general and subject-specific background information sources to increase familiarity with the topic.
- Modifying the information need or research question to achieve a manageable focus.
- Identifying key concepts and terms that represent the information need or research topic/question.

A key goal of the action research will be to come up with a PBL model that is a genuinely collaborative product. It will start at the skill level and approaches novice researchers typically use but by modeling, coaching and dialogue become a method that students can use, not just in their courses but for lifelong learning.

----Implementation of the action----

By implementation of the action, I mean whatever the PBL model or format the students and I come up with will be offered to instructors in addition to or in lieu of the standard one-shot. It will

need to be conducted a number of times over several semesters in order to become something that I am comfortable doing and in order to adapt and improve it. During this period, I will also be giving thought to an eventual evaluation design so that I can collect appropriate data.

Begin evaluation cycle

The decision will be made at this point whether to do a formative or a summative evaluation. Weiss (1998) states that formative evaluations produce information that is fed back during the development of the curriculum to help improve it; while summative evaluation is done after the curriculum is finished and provides information about the effectiveness of the curriculum (p.31). In terms of whether the evaluation should be quantitative or qualitative, I follow Weiss's point that the two approaches can be complementary. A specific way to implement this is outlined in the book. *To study the different stages of the program* – In the early developmental stages when a pilot demonstration of the program is being run, qualitative methods can provide formative information that will help practitioners craft the standard version. Once the final version is implemented, quantitative evaluation can be conducted (p.269).

Measures to be used

A full range of measures will be determined throughout the active phase of collaborative action research and will almost certainly include the *ACRL Information Literacy Competency Standards for Higher Education*, which can be quantitatively assessed. The pre- and post-tests I devised for my PBL demonstration (in the Appendix) consisted of items taken from the Bay Area Community Colleges Information Competency Assessment Project. Additionally, I would like to design a qualitative assessment tool, possibly a rubric (developed in collaboration with the students and an instructor) to eventually evaluate the quality and depth of the research papers submitted by students who had received the PBL treatment with those who received the traditional one-shot orientation.

Data to be collected

At a minimum, I will need to document the number of students who attend the PBL workshops; the manner of their recruitment (e.g. volunteer or directed to attend by an instructor); whether they attended all or some of the 3 sessions; whether they volunteered for additional sessions; the length, timing, and composition of the workshops; the scores from the pre- and post-tests; number of instructors that worked with me; number of instructors that requested PBL workshops. In addition, I will keep the completed pre-and post-test surveys; scores from the *Information Competency Assessment Instrument*;

written evaluations from instructors and students; brief reports composed after each session composed by the librarian (myself); and formal results tracking/comparing the group that received the PBL instruction with the group that received the traditional instruction would be kept each semester, in whatever form they may take. If the same students participate for the duration of the action research project, I could ask them to keep a simplified journal of their experience with the understanding that anonymous information from the journals would also be used in the evaluation phase.

Methods of analysis

Depending on the design of the evaluation, this could include qualitative data gained through participant-observation, interviews, notes from journals, conversations with instructors, and so on; as well as the quantitative data mentioned above. Qualitative analysis can begin early in the data collection phase. Through dialoguing with students and instructors, I will begin to get a sense of what is working and what is not and I can adjust the parameters of the research design as needed. When the PBL model has been implemented and run a number of times, there will be plenty of quantitative data to work with. Weiss (1998) suggests a number of analytic strategies that can be used for data interpretation: describing, counting, factoring, clustering, comparing, finding commonalities, examining deviant cases, finding covariation, modeling, and telling the story (p. 285).

Dissemination of results

At the end of the action research project, the process and results would be written up in an article to be submitted to a peer-reviewed journal such as *Research Strategies* or *Journal of Academic Librarianship*. A FLEX Day session would be designed to communicate results to faculty at the college. A personal web site/blog would be created to document the stages of the study from the librarian's point-of-view (all student and instructor details would be anonymous if the information was ever made public) and a wiki might be created as a vehicle for students to record their comments and insights on the process.

Integration of results into practice

Although it is difficult to foresee what information and knowledge will result from my action research project at this point in time, my hope is that it will change my approach to information competency and also make it more likely that students will become information competent critical thinkers.

References

- Carr, W.** and Kemmis, S. (1986). *Becoming critical*. Geelong: Deakin University Press.
- Coe, J.R.** (2004). 'Real World' library instruction for critical thinkers. CCT 698. Unpublished manuscript.
- Cooperstein, S.E.,** and Kocovar-Weidinger, E. (2004). Beyond active learning: a constructivist approach to learning. *Reference Services Review*, 32 (2), 141-148.
- Smith, M. K.** (1999, 2005) 'Andragogy', *the encyclopaedia of informal education*. Retrieved on May 5, 2006 from <http://www.infed.org/lifelonglearning/b-andra.htm>.
- 'Action research', *the the encyclopaedia of informal education*. Retrieved on May 5, 2006 from <http://www.infed.org/research/b-actres.htm>
- Weiss, C.** (1998). *Evaluation* (2nd ed.) Upper Saddle River, New Jersey: Prentice-Hall.

**Annotated Bibliography on problem-based learning,
information competency, and collaboration**

Byerley, S. L. (2005). Library instruction: online or in the classroom? *Academic Exchange Quarterly, 9*, 193-197. Retrieved April 14, 2006, from Expanded Academic ASAP database.

A small study that compared learning outcomes (as measured by pre- and post-test scores) for three groups of students: Group A completed an online tutorial, Group B attended face-to-face library presentation, and Group C completed both kinds of library instruction. They found that although learning occurred in all groups, Group C showed a significant difference in learning outcomes.

Carter, E.W. (2004). 'Doing the best you can with what you have:' lessons learned from outcomes assessment. *Journal of Academic Librarianship, 28*, 1, 36-41.

Discusses the generation and evolution of assessment at The Citadel Library. The authors developed pre- and post-tests that they applied to students in different disciplinary groups over time. Particular attention was paid to wording of the items. Makes the point that assessment doesn't have to be an instrument that is subjected to sophisticated multi-variant or other statistical analyses – you can start where you are with what you have. The authors also make the point that few people have tracked students long enough to know whether any of the information literacy instruction they received actually made a difference in the long term.

Cooperstein, S.E., and Kocovar-Weidinger, E. (2004). Beyond active learning: a constructivist approach to learning. *Reference Services Review, 32* (2), 141-148.

The article discusses constructivist learning by reference to four principles. It is helpful in describing the ways that these principles can be applied to actual library instruction sessions and contains a few sample exercises.

Hacker, D.J. and Dunlosky, J. (2003). Not all metacognition is created equal. *New Directions for Teaching and Learning, 95*, 73-79. Retrieved April 8, 2006 from Ebscohost EJS database.

This article reviews the use of metacognition as a learning strategy. It defines a framework of metacognition consisting of types of verbal reports and levels of verbalizations. The article was useful for giving examples of good "prompts" that one can use in the classroom or instruction session.

Hearn, M.R. (2005). Embedding a librarian in the classroom: an intensive information literacy model. *Reference Services Review, 33*, 2, 219-227.

A valuable article on how one professor/librarian dyad combined to teach a basic English course on writing and research. The librarian participated in eight sessions that covered topics like introduction to the library, using reference books, using online sources, constructing citations, etc. The presentations were done in class with Blackboard being used as a tool for grading, posting of grades, and access to handouts, PPT presentations, and other documents used in the course of the class. The article stresses the need for a good "fit" between professor and librarian in terms of style and personality.

Hung, W., Harpole Bailey, J. and Jonassen, D.H. (2003). Exploring the tensions of problem-based learning: insights from research. *New Directions for Teaching and Learning*, 95, 13-23. Retrieved April 8, 2006 from Ebscohost EJS database.

The article discusses several of the concerns in the literature about problem-based learning -- specifically, the depth versus breadth issue, the higher-order thinking versus factual knowledge acquisition issue, and the long-term effects versus immediate learning outcomes. The article is a small literature review in itself.

Johnston, A.K. and Tinning, R.S. (2001). Meeting the challenge of problem-based learning: developing the facilitators. *Nurse Education Today*, 21, 161-169. Retrieved April 8, 2006 from Academic Search Premier database.

The article is helpful with regard to discussing the role of the facilitator in PBL, but deals more specifically with the efficacy of using a "group reflective practice" strategy to ease professors from chalk 'n talk situations to that of facilitator. The article suggests that not all instructors will want to try PBL, but for those that do, developing a kind of support group -- the reflective practice group -- has value.

Johnston, A.M. and Jent, S. (2005). Library instruction and information literacy -- 2004. *Reference Services Review*, 33, 4, 487-530.

This is a selected annotated bibliography of recent work in instruction in information literacy. The top topics for 2004 included the use of course management systems like WebCT and Blackboard in library instruction, assessment, cognition, constructivism, and at least one series in a major journal on problem-based learning.

Malefant, C. and Demers, N.E. (2004). Collaboration for point-of-need library instruction. *Reference Services Review*, 32, 3, 264-273.

The article describes collaboration between an instructor and librarian in a course on "Issues in Science and Technology." It is particularly valuable because it recounted how the collaboration developed over time and how both the instructor and the librarian had to adjust their initial plans based on what happened with the students.

Nutefall, Jennifer, & Ryder, Phyllis Mentzell. (2005). Teaching research rhetorically. *Academic Exchange Quarterly*, 9, 307-312. Retrieved April 14, 2006, from Expanded Academic ASAP database.

This article deals with collaboration between writing faculty and librarians. There seems to be a particular affinity between the writing-across-the-curriculum movement and practitioners and librarians who 'teach' information literacy. The article describes a fairly new (2003) program that was developed at George Washington University and appears to be very successful.

Ondrusek, A., Dent, V.F., Bonadie-Joseph, I. and Clay Williams. (2005) A longitudinal study of the development and evaluation of an information literacy test. *Reference Services Review*, 33, 4, 388-417.

The article discusses the issue of testing or evaluating information literacy knowledge and skills. It was very instructive with regard to details of the test construction and the efforts the authors made to ensure its validity and reliability. The instrument is included in the appendix.

Portmann, C.A. and Toush, A.J. (2004). Assessing the effects of library instruction. *Journal of Academic*

Librarianship. 30, 6, 461-465.

Reported on the design of a quantitative study on the influence of library instruction on community college students delivered by a trained reference librarian. Sample was a so-called "convenience sample" – all the students in an upper division Sociology class (38 students). The librarians administered pre- and post- tests to measure the influence of the training/orientation on skills and usage. Results indicated that there as a significant change between the pre- and post-test scores on library usage, but not on library skills. There is a full discussion of the study design, methodology, and analysis of the study.

Segers, M., Van den Bossche, P., & Teunissen, E. (2003). Evaluating the effects of redesigning a problem-based learning environment. *Studies in Educational Evaluation*, 29, 315-334. Retrieved April 8, 2006 from Academic Search Premier database.

The article discusses a quasi-experimental comparative design, consisting of two randomized student groups: one experimental group and one control group.

Weiss, R. E. (2003). Designing problems to promote higher-order thinking. *New Directions for Teaching and Learning*, 95, 25-31. Retrieved April 8, 2006 from Ebscohost EJS database.

The discussion dealt with how to design effective PBL problems. Efficacy of asking: "What am I trying to accomplish by assigning this problem?"

Appendix

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Initial scenario – 1 hour session

Librarians ask for help from students quickly!

You are members of a task force helping librarians design research skills activities. Last week you heard that there were over 20 requests by students for information on “bird flu” (avian influenza). It looks like this is going to be a very popular topic for research papers so librarians need to quickly order more books on it and to pull together enough information for a new **subject guide** on the topic. While quantity is important, quality is what matters in the end – we can’t recommend information that comes from dodgy web sites! Please note that you are not being asked to actually research bird flu or become an expert on it. ***Your task is to quickly find sources on the topic of bird flu from as many formats as possible -- books, articles, reference books, web sites, government reports, etc.*** While you’re at it, make notes about what you did to find the information – this might also be of value to students. After 30 minutes we’ll do something as a group to talk about what we came up with.

Please indicate **what** your source is, **where** you found it, and **what steps** you took to find it.
Example:

Book	Bird flu: everything you need to know about the next pandemic by Marc Siegel, 2006	Found in Rio Hondo College Library catalog	Typed “bird flu” in Search Everything”
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Potential PBL Scenarios

Scenario 1

With its many secluded and isolated areas, the Rio Hondo College Board of Trustees is concerned for the safety of students on our campus. Although the college employs security guards, the fact is that they cannot be everywhere at once. In addition to the kinds of situations which may occur after dark, there is concern about the open areas of the college, such as the library, the quads, and the campus inn, where unstable persons may be able to threaten large groups of students. By proposing a video surveillance system, the Board feels that it is being proactive. It does not want a tragedy to spur efforts in prevention and safety for the college community.

Meanwhile, a number of the faculty and student organizations on campus continue to oppose the video surveillance system. Your task is to identify the issues surrounding the use of this technology and to provide options concerning college safety that will help the Board - and the college community - make informed and democratic decisions in which everyone has a say.

Scenario 2

Advertising strategies are often aimed at teenagers or college students. From the food you eat, to the clothes you wear, to the cell phone you use - the invisible hand of advertisers and marketers is making sure that you choose their products, and there is much evidence to show that their techniques are successful.

Imagine that you are a team member of a small advertising firm that has just won a contract to develop a responsible advertising campaign (print, broadcast, and online) for a controversial drug -- the Emergency Contraception (EC) or "morning after" pill. What kinds of issues will you need to research in order to plan a successful campaign? How will your findings help you address the safety, health, and "moral and ethical" aspects that will inevitably come up?

Scenario 3

Wal-Mart, the world's largest retailer, is the largest corporation and private employer in the United States. Wal-Mart is consistently listed among America's most admired companies by Fortune magazine. At the same time, it is frequently the target of criticism for its employment practices and its effect on local economies.

You are a member of a task force on the [fictional] San Ramos City Council. San Ramos' somewhat depressed local economy is located in lonely stretch of central California. The City Council is made up of three local businessmen (one of which is the Mayor), a member of the clergy, two instructors from the local community college, a union organizer with strong ties in the community, an attorney, and representatives from the Department of Social Services and the Chamber of Commerce.

The Council has made it clear that they do not expect recommendations from the task force -- rather, they need help on thinking through the issues brought forward by the different stakeholders in San Ramos. Your task force is charged with assembling information about "Big Box" stores in the form of "briefs" that can quickly get the Council up to speed on the many issues likely to come up in this contentious project.

Info Comp Pre-Test

Number of questions: 11

Question 1 (2 points)

You are writing a paper for your ecology class. You first need information defining the term "watershed." What is your best choice for getting some brief background information?

- ☐ a. Find journal articles about "watershed."
 - ☐ b. Look up "watershed" in a general reference source like an encyclopedia.
 - ☐ c. Type "watershed" into Google.
-

Question 2 (2 points)

Your instructor has assigned you the following task: "Prepare a presentation about the gains achieved by women in the 1980's." You decide to search for articles in ProQuest. Which set of three terms is likely to get the best results for the topic?

- ☐ a. Women, gains, achieved
 - ☐ b. women, gains, 1980's
 - ☐ c. Gains, achieved, 1980s
-

Question 3 (2 points)

Typically, a library's online catalog contains:

- ☐ a. Information about books, videos, and other items in the library's collection.
 - ☐ b. The complete text of all the journal articles in the library.
 - ☐ c. Information about the college's courses.
-

Question 4 (2 points)

For your health class, you're writing a 5 page paper on the **benefits of aerobic exercise**. What is the first step you would take to research this topic using library resources?

- ☐ a. Ask an aerobics instructor.

- ☐ b. Get scholarly journal articles for very recent or specific information about the topic.
 - ☐ c. Get an overview of the topic from a current encyclopedia on exercise and health.
-

Question 5 (2 points)

Which of the following usually requires a password because it does not allow free access for all Web users?

- ☐ a. Library online catalog
 - ☐ b. Periodical databases like ProQuest or SIRS Researcher
 - ☐ c. Yahoo! Web directories
 - ☐ d. Bookstores' Web sites
-

Question 6 (7 points)

Match the activities below to the **step** of the research process. **Step 1** = Analyze topic; **Step 2** = Look for information; **Step 3** = Evaluate sources

- | | | |
|--------------------------------------|---|----------------------|
| Search for authoritative web sites | — | <input type="text"/> |
| Look for bias or a hidden agenda | — | <input type="text"/> |
| Think of terms to describe the topic | — | <input type="text"/> |
| Get books and articles | — | <input type="text"/> |
-

Question 7 (5 points)

Imagine you are researching the **latest** treatments for AIDS. Select **YES** or **NO** for whether you think the item would be helpful for this topic.

- | | | |
|--|---|----------------------|
| a book on the discovery of AIDS | — | <input type="text"/> |
| an article from a recent Journal of the American Medical Association describing research findings of a new drug study for AIDS | — | <input type="text"/> |
| children's book on immune diseases | — | <input type="text"/> |
| statistics that compare AIDS in Africa with the U.S. | — | <input type="text"/> |

Question 8 (2 points)

The Hastings Center Report, Sept-Oct 2004 v34 i5 p32(4)

Impatient proponents: what's wrong with the **california stem cell and Cures Act?** *Debra Greenfield.*

View other articles linked to these subjects:

California

View 2312 Periodical references

California - Health Policy

View 60 Periodical references

See also 69 other subdivisions

Stem Cells

View 3800 Periodical references

Stem Cells - Laws, Regulations and Rules

View 105 Periodical references

See also 77 other subdivisions

Stem Cells

View 3800 Periodical references

Stem Cells - Research

View 1282 Periodical references

See also 77 other subdivisions

For your sociology assignment you need to find information about the legal status of stem cells in California. Look at the **boxed example above** from an online periodicals database to answer this question:

Which of the **subjects** listed should you view to find related information about the legal status of stem cell research?

- ☐ a. Stem cells
- ☐ b. California - Health Policy
- ☐ c. Stem cells - Research
- ☐ d. Stem cells - Laws, Regulations and Rules
- ☐ e. California

Question 9 (2 points)

In the initial stages of your research, you find this paragraph:

Many studies have shown that the more physical punishment is used in someone's childhood, the greater the chance that the adult will be violent. Physical violence to children can become a way of life. Moreover, family violence cuts across all socio-economic groups.

The above paragraph provides relevant information for which of the following topics?

- ☐ a. increase in adult violence
 - ☐ b. physical punishment of children
 - ☐ c. relationship between physical punishment of children and adult violence
 - ☐ d. violence and class differences
-

Question 10 (2 points)

As you collect sources for your project it is critical to:

- ☐ a. evaluate each source for accuracy and currency
 - ☐ b. print the full text out
 - ☐ c. record all bibliographic information for your Works Cited list
 - ☐ d. answers a. and b.
 - ☐ e. answers a. and c.
-

Question 11 (2 points)

You need information about **career opportunities in nursing**. What would you type in the Web search engine box to find the **MOST** information?

- ☐ a. nurses or nursing opportunities

- ☐ b. nurs* career* (where the * stands for any ending like nurse, nurses, nursing, etc.)
 - ☐ c. career opportunities in nursing
 - ☐ d. "nursing jobs or careers"
-
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**Bay Area Community Colleges
Information Competency Assessment Project**

10-03-03 Bay Area Community Colleges Information Competency Assessment Project www.topsy.org

Standards, Performance Indicators and Outcomes

Standard One - The information literate student determines the nature and extent of the information needed.

Performance Indicators:

P.I.1.1 The information literate student defines and articulates the need for information.

Outcomes Include:

- 1.1.1 Identifies a research topic or other information need.
- 1.1.2 Formulates appropriate question(s) based on the information need or research topic.
- 1.1.3 Uses general and subject-specific background information sources to increase familiarity with the topic.
- 1.1.4 Modifies the information need or research question to achieve a manageable focus.
- 1.1.5 Identifies key concepts and terms that represent the information need or research topic/question.

P.I. 1.2 The information literate student identifies a variety of types and formats of potential sources of information.

Outcomes Include:

- 1.2.1 Identifies the value and differences of potential resources in a variety of formats (e.g., multimedia, database, Web site, data set, audio/visual, book).
- 1.2.2 Identifies the purpose and audience of potential resources (e.g., popular vs. scholarly, current vs. historical).
- 1.2.3 Differentiates between primary and secondary sources, recognizing how their use and importance vary with each discipline.

P.I. 1.3 The information literate student considers the costs and benefits of acquiring the needed information.

Outcomes Include:

- 1.3.1 Determines the availability of needed information and makes decisions on broadening the information search beyond local resources (e.g., interlibrary loan; using resources at other locations; obtaining images, videos, text, or sound).
 - 1.3.2 Determines a realistic overall plan and timeline to acquire the needed information.
-

Standard Two - The information literate student accesses needed information effectively and efficiently.

Performance Indicators:

2.1 The information literate student selects the most appropriate investigative methods and/or information retrieval systems for accessing the needed information.

Outcomes Include:

- 2.1.1. Identifies the types of information contained in a particular system (e.g., all branch libraries are included in the catalog) and the types of sources indexed in a particular database/index (e.g. full-text vs. abstract; scholarly vs. popular).
- 2.1.2. Selects appropriate information retrieval system(s) for research question/topic based on investigating the scope, content, organization and help features of such search tools as opac, reference sources, periodical databases, Web.
- 2.1.3. Identifies other investigative methods to obtain needed information not likely to be available via information retrieval systems (e.g., need to survey or interview experts, participant-observation findings, etc.).

P.I. 2.2 The information literate student constructs and implements effectively-designed search strategies.

Outcomes Include:

- 2.2.1 Develops a research plan appropriate to the information retrieval system(s) and/or investigative method.
- 2.2.2 Identifies keywords, phrases, synonyms and related terms for the information needed.
- 2.2.3 Selects controlled vocabulary specific to the search tool and identifies where controlled vocabulary is used in an item record, and then successfully searches for additional information using that vocabulary.
- 2.2.4 Constructs and implements the search strategy using appropriate search features and commands for the information retrieval system selected (e.g., Boolean logic, truncation, field-searching, etc.)
- 2.2.5 Uses help screens and other user aids (e.g., reference librarians) to improve search results.

P.I. 2.3 The information literate student retrieves information online or in person using a variety of methods.

Outcomes Include:

- 2.3.1 Uses various search systems to retrieve information in a variety of formats such as online library catalogs, reference sources, periodical databases, Web search tools.
- 2.3.2 Distinguishes among citations to identify various types of materials (e.g., books, periodical articles, essays in anthologies).
- 2.3.3 Uses various classification schemes and other systems (e.g., call number system or indexes) to locate information resources within the library.
- 2.3.4 Uses specialized online or in person services available at the institution to retrieve information needed (e.g., reference service, interlibrary loan).

P.I. 2.4 The information literate student refines the search strategy if necessary

Outcomes Include:

- 2.4.1 Assesses the quantity, quality, and relevance of the search results to determine whether alternative information retrieval systems or investigative methods should be used.
- 2.4.2 Identifies gaps in information needed from the search results.
- 2.4.3 Revises the search strategy if necessary to obtain more information.

P.I. 2.5 The information literate student extracts, records, and manages the information and its sources.

Outcomes Include:

- 2.5.1 Records all pertinent citation information for future reference.

2.5.2 Demonstrates an understanding of how to organize information gathered (e.g. cards, file folders, etc.)

2.5.3 Differentiates between the types of sources cited and understands the elements and correct syntax of a citation for a range of sources.

Standard Three - The information literate student evaluates information and its sources critically.

Performance Indicators:

3.1. Demonstrates understanding of main ideas from information gathered.

Outcomes Include:

3.1.1 Selects relevant information based on understanding main ideas from sources.

3.1.2 Restates concepts in his/her own words.

3.1.3 Identifies verbatim information that can be appropriately quoted or paraphrased

P.I. 3.2 The information literate student articulates and applies initial criteria for evaluating both the information and its sources.

Outcomes Include:

3.2.1 Examines and compares information from various sources to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias.

3.2.2 Analyzes the logic of arguments in the information gathered.

3.2.3 Recognizes and describes various aspects of a source which may impact its value for the research project, such as how prejudice and cultural, geographic, and/or historical bias and/or age of a source may impact the value of the information.

3.2.4 Demonstrates the ability to find information about an authors and/or publisher's qualifications and reputation.

3.2.5 Demonstrates an awareness and ability to interpret bibliographic references in sources as a means to assess validity and accuracy of information.

3.2.6 Demonstrates an awareness of the need to verify or corroborate the accuracy and completeness of data or facts.

P.I. 3.3 The information literate student compares new knowledge with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information.

Outcomes Include:

3.3.1 Determines whether information satisfies the research or other information need.

3.3.2 Evaluates if information sources are contradictory.

3.3.3 Compares new information with own knowledge and other sources considered authoritative to draw conclusions.

3.3.4 Selects information that provides evidence for the research topic/question or other information need.

Standard Four - The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.

Most of Standard Four contains indicators and outcomes that are best assessed by discipline-based faculty, separately or with librarians, by means of assigned products, such as research papers, speeches, Web pages, and other types of products. The following, however, were determined to be within the purview of Information Competency programs where librarians may teach and assess these outcomes:

Performance Indicators:

4.1. The information literate student synthesizes information to complete the project or task.

Outcomes Include:

- 4.1.1 Organizes information, using outlines and drafts.
- 4.1.2 Demonstrates an understanding of when and how to use quotations and paraphrase to support ideas and/or arguments. (See also 3.1.2. and 3.1.3)

P.I. 4.2 The information literate student communicates the task or project effectively.

Outcomes Include:

- 4.2.1 Uses appropriate style and format for academic project. (See also 5.3.1)

Standard Five - The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

Performance Indicators:

5.1 The information literate student demonstrates an understanding of many of the ethical, legal and socio-economic issues surrounding information and information technology.

Outcomes Include:

- 5.1.1 Identifies and discusses issues related to free vs. fee-based access to information.
- 5.1.2. Demonstrates an awareness that there are national and international intellectual property and copyright laws; demonstrates an overall understanding of important aspects of U.S. copyright laws.
- 5.1.3 Defines and identifies examples of plagiarism.
- 5.1.4 Demonstrates an understanding of the community college's policy on plagiarism.

P.I. 5.2 The information literate student follows laws, regulations, institutional policies, and etiquette related to the access and use of information resources.

Outcomes Include:

- 5.2.1 Uses approved passwords for access to information resources.
- 5.2.2 Complies with institutional policies on access to information resources.
- 5.2.3 Preserves the integrity of information resources, equipment, systems and facilities.
- 5.2.4 Demonstrates an understanding of what constitutes plagiarism and does not represent work attributable to others as his/her own.
- 5.2.5 Obtains and acknowledges copyright permission for text, images or sounds included in the product.

P.I. 5.3 The information literate student acknowledges the use of information sources in communicating the product or performance.

Outcomes Include:

- 5.3.1 Uses an appropriate documentation style consistently and correctly to cite sources.
- 5.3.2 Identifies citation elements for information sources in different formats (e.g., book, article, television program, Web page, interview).
- 5.3.3 Demonstrates an understanding that the appropriate documentation style may vary by discipline (e.g., MLA for English, University of Chicago for history, APA for psychology, CBE for biology).