Effective Methods for Incorporating Problem-Based Learning into Library Instruction

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Problem-based learning (PBL), as developed at McMaster University in Canada, is used to train medical professionals and is succinctly described on the McMaster website as "any learning environment where the problem drives the learning." PBL is ideal for library instruction because it creates an active learning, team-based, assignment-related instruction experience that takes advantage of what students already know, and builds on that knowledge. The main components of PBL are:

- The Problem
- Students work in groups to define and analyze the Problem
- Groups generate ideas: what they know, what they need to know
- Groups develop a strategy to collect information in order to solve the Problem
- Groups analyze information and generate solution(s)

Though not training future doctors at Roger Williams University, we are using the principles of PBL in our Writing for the Professions and Introduction to Speech classes with very good results. In what sometimes appears to be a frantic relay between the instruction classroom and the library's public-use computers, students engage in a learning experience that provides a hands-on introduction to the resources they will need for their research assignment. Working together, students and librarians explore a new territory where the learning experience is more about problem-solving and less about demonstrating resources.

Advantages, Challenges and Early Efforts

PBL and information literacy share the same intellectual terrain and rely heavily on critical thinking. The advantages of using PBL for library instruction are improved student engagement, active learning and peer support, with defined objectives and outcomes. Time constraints, which are always an issue in a one-shot session, can be dealt with by creating a fixed agenda for the class. The librarian takes the role of collaborator in problem-solving with demonstrating kept to a minimum. The tone of the class is active and it is important students know that passivity is not an option. Expectations on the part of the librarian set the mood for the session, and the librarian expects *the groups* to solve the problem by the end of the class. PBL requires a different attitude on the part of the instructor and, therefore, this approach is not effective for all classes and may not suit the temperament of all teaching librarians.

Our first attempt at PBL was a thoughtful and creative response to this scenario: *I'd like to bring my students in for a library orientation. They need to know how to find a book, use the library databases, find articles, cite same, learn about plagiarism and do you think you can cover that in about 20 minutes*? Frustration with this kind of request, one most teaching librarians are faced with, led to the creation of our first learning problem and activity. The result was "The Senator Brittany Aguillera" problem below. A visit with a friend, who is the Chief Counsel to a US Senator, coincided with an upcoming Speech class. I thought about my friend's job and his responsibilities and how I could use that to drive the instruction session. The scene was easy to set and derived from a real situation and a current issue. Focusing on the Children's Internet Protection Act provided the basis for a very lively discussion at the end of the class.

Problem: You are the senior advisor to Senator Brittany Aguillera from New York City. In **one hour**, she needs to give a **two minute presentation** on the **Children's Internet Protection Act (CIPA)** to her constituents, but she doesn't know if she's in favor of it or against it. Your job is to find reliable, authoritative information from at least **five different sources**. The Senator

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is up for re-election and your job depends upon your getting accurate information fast.

Most of the students were in their first and second-year with little library experience or instruction. I focused on Deb Gilchrist's (Dean, Library/Media Services, Pierce College, and ACRL Immersion faculty) mantra:

- What do you want the students to be able to do? (Outcome)
- What does the student need to know? (Curriculum)
- What's the learning activity? (Pedagogy)
- How will the student demonstrate the learning? (Assessment)
- How will I know the student has done this well? (Criteria)

For this assignment, the objective was simple: to have students use multiple library resources in order to develop an opinion/speech/presentation on a specific topic. The curriculum was a brief introduction to several library resources: the library catalog, two databases, a government web site and an advocacy web site. The learning activity had students work in teams of two or three, dividing teams into those in favor of the Act and those against it. The process was outlined in a worksheet (see Appendix) provided by the librarian. The assessment came in the form of a debriefing with each group providing evidence in support of their position either for or against the legislation. The exercise addressed ACRL Standards 2 and 3. The problem was good, the pedagogy sound, but the worksheet was too directed: I told the students where to look, which keywords to use, what to look for in the articles, directed them to specific sites. It was all too programmed. I hadn't achieved my goal of having the students work together to solve the problem with less direction and more engagement.

PBL and Writing for the Professions: Developing the Pedagogy

Improving this model of instruction for the Writing for the Professions classes was made easier when Prof. Mel Topf developed a case-based problem for one of his writing assignments. Combining the basic principles of PBL with the Information Literacy Standards, the following approach was taken to develop the pedagogy.

- Define what the students need to know how to do in order to complete their assignment. What are the objectives for the instruction session?
- Identify the expected outcomes:
  - At the end of the session, students will be able to… ..(again, be realistic)
    - o Locate and navigate the library's website;
    - o Understand the purpose of using the library resources:
      - o Cost-effective: their tuition dollars at work;
      - o Efficient and accessible;
      - o It's what their instructors like (want).
    - o Know the contact information for a librarian;
    - o Use several library databases to locate articles on a topic;
    - o Evaluate the quality of a resource based on specific criteria.
- Be realistic: what can we teach in 85 minutes?
- Keep the ACRL Standards in mind: Locating, identifying, evaluating, using. Which standards are most appropriate for the class, the assignment and the amount of time you have?
- Decide which databases will be used. I usually specify three: Academic Search Premier, Lexis-Nexis, and ABI Inform.
- Develop the activity, breaking it down into specific time requirements and keeping to the schedule, i.e.:
  - o **10 minutes** to review, define and analyze the problem or case problem (ACRL Standard 1).
  - o **10 minutes** to demonstrate sources/databases, etc. Resist the urge to over-explain; it provides more opportunity to engage with students as they are doing the assignment. This is why it is important to limit the number of resources students will use (Standard 2).
  - o **30 minutes** to find the information.
  - o **10 minutes** for team consultation (Standard 4).
  - o **10 minutes** for debriefing (evaluating, Standard 3).
- Suggest work flow, i.e., each student uses one of the resources to find information that will be shared amongst them. This is very time-efficient. If there are four students on a team, they will leave with four sources.
- Provide handouts with criteria for evaluating sources.

Old Instruction Model v. PBL

Old model:

- Class met three times over three weeks.
- Instruction sessions were general, not always specific to an assignment.
- Covered catalog, research process, databases, ILL, popular vs. scholarly journals, web evaluation, all out of context. Boring and irrelevant from the students' perspective.
- Worksheets provided for each session covered too much material. Students dutifully filled out the worksheets, but were not fully engaged in the learning activity.

New model:

- A 10-minute class visit introduces the librarian, and the upcoming instruction session, with another brief feedback session after completion of the assignment.
- Focus on solving problem, not demonstrating resources.
- Students are in charge of their own learning.
- The worksheet, when completed, provides most of the research required for the assignment.
- We don't try to cover everything. The objective is that they know who we are and that the librarians are advocates for their success. They <u>do and will</u> return. Our statistics confirm that individual research consultations have increased.
- Capitalizes on students' competencies and peer support:
- We introduce the resources with brief explanations. We ask them to take notes and tell them why.
- We require a group report and give them specific questions they will be asked to answer, i.e.,
  o What did they find?
  o What source provided the best information?
  o Did what they find provide evidence in support of their position?
  o Did they encounter any surprises, problems, etc.?

CHANGES

Students are more enthusiastic about the process of learning to use the resources. The group environment provides the stimulus for involvement. The session is relevant to their assignment requiring teamwork and collaboration to reach a goal in a specified period of time. Worksheets are shorter and provide fewer directions. They leave with what they need in order to do the assignment. In the debriefing, the students provide the "solution" to the "problem," i.e., they collaboratively reach a recommendation. This is the most exciting part of the exercise.

ASSESSMENT AND FEEDBACK

After the session, students are required to send the librarian their list of references electronically by a specific date. The lists are graded and returned with comments. The grade becomes part of their overall grade for the assignment. The "Reference" sheet is expected to be in APA format, with a variety of at least five resources that provide evidence in support of their position. Their papers are returned during the feedback session by the librarian who provides a general overview of the class' work and specific examples of papers that have been well done. Anecdotally, Prof. Topf has seen a significant increase in the quality of the resources used and we are currently collaborating to revise the model. Students are asking for more instruction, more exploration of the available databases, and more time spent on citation format and more consultation with the librarians. More is a good thing!

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Appendix 1: Activity for Freshman Speech September 2003

Exercise Objective: to have students use multiple library resources in order to develop an opinion/speech/presentation on a specific topic. Resources used will be the library catalog, two databases, a government web site and an advocacy web site. Students will work in teams of two or three, dividing teams into those in favor of the Act and those against. Exercise addresses ACRL Standards 2 and 3.

Explain: abstract; word search in catalog; why they can't use an article from American Libraries or Library Journal for #3. Briefly demo ASP and Lexis-Nexis. Assignment will be collected. Divide class into teams of two or three.

You are the senior advisor to Senator Brittany Aguillera from New York City. In **one hour**, she needs to give a **two minute presentation** on the **Children's Internet Protection Act** **(CIPA)** to her constituents, but she doesn't know if she's in favor of it or against it. Your job is to find reliable, authoritative information from at least **five different sources**. The Senator is up for re-election and your job depends upon your getting accurate information fast.

Working in teams, use the following resources to gather information to make your case:

1. Read the attached abstract of an article on the subject to help you understand the Act and the issues.

2. Using the HELIN catalog from the RWU Library Homepage (www.library.rwu.edu), conduct a *word search* for material on children and the internet. Fill in the bibliographic information on the material below (title, author, date published, publisher). Also note the location of the material (RWU, CCE, PC, etc.) and whether it is available (A) or not available (NA).

3. From the RWU Library Database Page (http://library.rwu.edu/articles/articles.html), click on Academic Search Premier under Frequently Used Databases. Locate an article about **CIPA. THE ARTICLE MUST NOT BE FROM AMERICAN LIBRARIES OR LIBRARY JOURNAL**. Write the complete bibliographic information below **AND** a sentence stating what the article is about.

4. From the RWU Library Database Page (http://library.rwu.edu/articles/articles.html), click on Lexis-Nexis Academic Universe under Frequently Used Databases. Click on "Guided News Search."
Using the Steps provided, conduct a search (using pull-down menus) in **U.S. News, Northeast Regional Sources for the "Children's Internet Protection Act" for the last six months in the New York Times**. Locate an article and read it. From what you've read, are you in favor of the act or against it? Why? Write the article citation (New York Times, author, if provided, date, page and column #) and answers below.

5. Visit the following advocacy web site: The American Library Association, http://www.ala.org/Content/NavigationMenu/Our_ Association/Offices/ALA_Washington/Issues2/Civil_Liberties,_Intellectual_Freedom,_Privacy/CIPA1/CIPA.htm
Does this site advocate **for or against** CIPA? How do you know?

6. Now visit the following government site: U. S. Dept. of Justice, FBI publication, "A Parent's Guide to Internet Safety." What kind of information is included on this site? How does the information provided help you to decide for or against the Children's Internet Protection Act?

7. Using the information you have found, prepare a very short paragraph, three or four sentences, for Senator Aguillera to deliver to her constituents on whether or not she is in favor of or opposed to CIPA.

B. Kenney 2003

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Appendix 2

Critical Writing for the Professions
Prof. Mel Topf – Spring 2006

Purpose: _____

Keyword/s or subject terms for searching: _____

Resources:
1. Database #1: ABI Inform (journal articles)
2. Database #2: HELIN (books)
3. Database #3: Academic Search Premier (articles)
4. Database #4: Lexis-Nexis Academic (newspapers)
5. Web page: professional organizations ONLY

Citation #1: *Title:* *Author/s:* *Publication information (date, place, publisher or source, volume, edition, etc.):*	*Citation #2:* *Title:* *Author/s:* *Publication information (date, place, publisher or source, volume, edition, etc.):*
Citation #3: *Title:* *Author/s:* *Publication information (date, place, publisher or source, volume, edition, etc.):*	*Citation #4:* *Title:* *Author/s:* *Publication information (date, place, publisher or source, volume, edition, etc.):*

Conclusion: _____
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