

University Libraries
Librarian Publications

Roger Williams University

Year 2008

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Session Using Problem-Based Learning

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Revitalizing the One-shot Instruction Session Using Problem-Based Learning

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Introduction

While the templated library “one-shot” is probably the least effective instruction experience both for students and librarians, it continues to be the model with which classroom faculty are most familiar. Librarians continue to receive requests for traditional library orientations that can no longer adequately address the breadth of services and the depth of resources available to our patrons. Describing a laundry list of resources and services by lecturing and demonstrating is the antithesis of information literacy instruction which emphasizes user-centered, active learning and identified outcomes. Reliance on the lecture “does little...to foster development of process skills to complement content knowledge.”¹ Problem-based learning (PBL) provides the theoretical framework for a learner-centered, active instructional experience that relies on collaboration, critical thinking and hands-on interaction with resources. When used in a one-shot session, PBL challenges the instruction librarian to strengthen and renew their pedagogical skills by developing an instruction plan that focuses on the process of finding, evaluating and using information resources in the context of a relevant, real-world problem. Sessions are lively, students are engaged, and faculty are pleased with the results.

PBL is particularly useful when collaboration is not an option, and when the 50- or 80-minute “one-shot” demands a streamlined approach to library instruction. When asked to provide an “orientation” or “library tour,” librarians can introduce specific resources and services within the context of the problem-solving activity. Using PBL,

students become responsible for their own learning by being engaged with the resources in pursuit of a solution to the problem. The tour is transformed into a user-centered activity that relies primarily on the interaction among team members, with guidance and structure provided by the librarian. While many librarians provide worksheets and exercises for an instruction session, PBL raises the instructional bar. Working together, students must strategize to solve a problem and provide evidence to support their proposed course of action. The librarian is the facilitator who guides the search by asking relevant questions, clarifying concepts and direction, and providing support and guidance for the activity. The groups are motivated to find a solution to the problem because the problem is based on a classroom assignment or related to the course material. In the best of situations, the problem is designed around a course objective identified by the classroom instructor. It is in the students' self-interest to find the solution to the problem and present the evidence to support the group's decision because each group will present their findings at the end of the class. The research that is shared in the debriefing becomes the foundation of the research for the classroom assignment. The instruction librarian designs the activity around specific resources to be searched and the student groups or teams must collaborate and mentor each other by virtue of expediency.

Why PBL?

The use of PBL as an instructional model for teaching medical students was pioneered at McMaster University, whose website defines PBL as “any learning environment where the problem drives the learning.”² The learning outcomes for PBL are a reiteration of the Association of College and Research Libraries *Information Literacy Competency Standards for Higher Education*³, and “include the ability to think critically

and be able to analyze and solve complex, real-world problems; find, evaluate and use appropriate learning resources; work cooperatively in teams and small groups; demonstrate versatile and effective communication skills, both verbal and written; and, use content knowledge and intellectual skills acquired at the university to become continual learners.”⁴

Students, working in groups, are introduced to the problem which they then analyze in order to identify what they already know about the problem, and what further information they may need to find in order to solve it. With the guidance of the librarian, team members develop a strategy for solving the problem, locate the information they need within the specified resources, evaluate what they find, collaborate on the solution, and review their own performance with respect to the overall activity. How does all this happen in a 50-minute session? By creatively designing an instruction plan that relies on defined goals and objectives based on a problem that captures student interest. PBL is a “teaching strategy that takes everyday situations and creates learning opportunities from them.”⁵ Problems can be as simple as finding the best deal on a new car, to the more sophisticated evaluation of a piece of legislation. Daily newspapers and reports are rich with “problem” topics. Given the time constraints of the session, it is important to set realistic goals and outcomes, and carefully design the instruction in accordance with the ACRL Information Literacy Standards. Adding PBL to one’s teaching repertoire necessitates a significant change in how librarians view the 50 or 80-minute class. To use a movie metaphor, a PBL class is the trailer for the full-length feature. The ultimate goal of a one-shot PBL session is to have students actively engage with the librarians and library resources in order to provide a glimpse into the many ways the library supports

student learning. In short, the librarians are building a customer base through a skillful marketing enterprise.

An essential ingredient of a PBL session is the facilitator, a role that presents a challenge and a new mindset for many seasoned librarians. In her informative article describing the process of integrating PBL into the curriculum, Snaveley cites “revolutionizing one’s own teaching style” as a significant challenge in being successful with PBL.⁶ The traditional role of demonstrator who provides lengthy explanations of how particular databases work and the library’s processes of support, morphs into the role of a guide who helps focus students’ problem-solving activities by shepherding them to the resources and asking pointed questions in order to keep them on task. In this drama, the students are the actors and the librarian is the director. To truly move “from sage on the stage to guide on the side” may prove to be the most challenging aspect of incorporating PBL into one’s teaching repertoire.⁷

Developing the Problem

Decisions for the design of the PBL session flow from an analysis of the instruction request. From the first contact with the classroom faculty member, the librarian-instructor will decide whether the course, assignment and instructor provide an opportunity to use PBL in that session. Considerations include whether the faculty member has requested specific materials or processes be covered; if so, can those materials be used as PBL resources. Another factor is whether the classroom instructor is providing an assignment, and if so, whether that assignment can be transformed into a learning problem. If the request is simply for a “tour” or orientation, PBL provides the perfect opportunity to showcase the evolution of library instruction and the value of

student interaction with the resources during instruction. Having a prior relationship with the faculty member that is based on mutual respect and a common understanding of library instruction goals and student outcomes, will provide the ideal environment for experimenting with PBL. If the faculty member is amenable and learning outcomes for the session are established, then a problem can be developed that captures student interest while addressing the goals of the session. Macklin provides excellent and explicit directions for creating an action plan with specific learning goals and objectives that relate to information literacy, including an assessment tool.”⁸

The problem topic is best situated within the discipline, course or assignment. Criteria for good problems include subject matter that is engaging and adaptable. “The main idea for PBL to work effectively is to write problems that require enough interaction among group members that everyone needs to be fully engaged.”⁹ For example, a request for a “library class” from a professor in Speech Communications provided the opportunity to develop the following problem:

*You are the senior advisor to Senator Brittany Aguilera 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.*

This problem was inspired by a casual conversation with a friend who is the senior advisor to a United States Senator, and was a straightforward, real-world dilemma with a built-in time constraint that suited the 80-minute time-frame for the class. Situating the problem in a communications environment presented the opportunity to select resources that the students would find useful throughout the semester, as well as in other

classes. Limiting the number of resources is necessary and does not compromise the effectiveness of the session. Developing the problem enables us to draw from a world of topics to create unique, stimulating and enjoyable sessions that will invite students to see us as advocates for their academic success by actively engaging with them in the learning process.

Sources for viable problems abound and can be drawn from the news, everyday life experiences and reference tools such as *CQ Researcher*, which provides an excellent overview of current events and hot topics. Whether the topics are course-driven or interest-driven (e.g. “MySpace” and privacy, global warming, immigration reform), the pedagogy is best approached using the Standards for Information Literacy developed by the Association of College and Research Libraries (ACRL). The ACRL Standards, Performance Indicators and Outcomes provide the framework for the session design. Designing problems and pedagogy that are congruent with students’ academic development will keep sessions fresh and challenging. The complexity of a problem can be developed based on students’ prior experience with the library as well as their academic level.

Developing the Lesson Plan

Designing a PLB experience is challenging and time-consuming, but can also be creative and fun. Once the problem is defined, an outline for the structure of the class is developed. It is not always necessary to have specific direction from the classroom faculty; however, a pre-session conversation with the classroom faculty can be useful to ensure that the problem design flows from the course curriculum, and the instruction session can accommodate the activities of PBL. Whether the instruction session is a true

collaboration, or simply the traditional pre-instruction discussion that clarifies the instructor's goals, communication with the instructor will ensure a better session in terms of expectations and outcomes.

A well-structured PBL experience can be designed by asking the following questions provided by Deb Gilchrist in a presentation on instruction and assessment at ACRL's Immersion Program.¹⁰ The specific instructional goals for the Senator Brittany Aguilera problem are provided beneath the questions:

- *What do you want the students to be able to do? (Outcomes)*
 - *Use the library website and resources in order to find information.*
 - *Use specific criteria to evaluate the information found.*
- *What does the student need to know? (Curriculum)*
 - *The library website, a government website, a general database and evaluation criteria.*
- *What is the learning activity? (Pedagogy)*
 - *Short introduction to the resources;*
 - *Completion of a worksheet;*
 - *Students working in teams using pre-determined resources;*
 - *Teams pre-selected as being either in favor of or against CIPA;*
 - *A de-briefing to ascertain the teams' positions and what information sources they used in order to come to their decisions.*
- *How will the students demonstrate the learning? (Assessment)*
 - *Through their presentation and the evaluation of the resources;*
 - *Completion of a worksheet that will be graded.*

- *How will I know the student has done this well? (Criteria)*
 - *The students clearly articulate a viable answer to the problem with evidence from authoritative sources.*

Challenges

Developing a timeline for the instruction session and sticking to it, can prove to be a significant challenge. In designing the learning plan, it is critical to create focused chunks of time that delimit specific activities. For example, allow no more than five to ten minutes for the students to review the problem. Students will then be asked to define the problem clearly and concisely in accordance with Performance Indicator One of the ACRL Standards, “The information literate student defines and articulates the need for information.” If students see a “medical” problem when what they have is a marketing problem, asking focused questions allows their critical thinking skills to clarify the nature of the problem in order to shape the direction of the research and solution. In one Writing class, considerable discussion and debate was generated during the review of the Writing professor’s assignment. Identifying the nature of the problem and how that relates to the choice of resources is critical. The best PBL problems for library instruction are problems that have no clear answers; therefore, the librarian’s role of guide may require challenging students’ assumptions about the assignment in order to help them on the path of discovery. Keeping the discussion brief, yet illuminating, can push the limits of time. For the “Senator Brittany Aguilera” session, the 80-minutes were structured as follows:

- 10 minutes to review and analyze the problem;
- 10 minutes to introduce the pre-determined sources and databases;
- 30 minutes to locate and evaluate the information;

- 10 minutes for team consultation and decision-making;
- 10 minutes for class debriefing.

Keeping to a tight and controlled schedule allows for the complete unfolding of the session, with each step having significant pedagogical import. The schedule drives the collaboration and provides the class clear parameters and expectations for the session. By providing handouts that support the activity, such as evaluation criteria, and worksheets that enable students to keep a record of their results, students can stay on task and leave with the information they need for their classroom assignment.

Another challenge is changing the dynamics of the instruction session. The students will be doing the work of “discovery” while using the resources. The instructional balance of the session shifts from librarian to student. While engaged in the team activity of researching solutions, students are also co-learning and mentoring. The facilitator is the outside observer, monitoring the progress of the team and being available to assist as needed. Being accessible, but not intrusive, is key to being an effective facilitator. Preparing for a PBL session requires librarians to ask themselves some questions about their own teaching style and pedagogy. How do we use the ACRL Standards? To what specific Standards will we be teaching? Which resources will be used and which concepts will be emphasized? What part of the research process do we want to stress? When we have only 50 or 80 minutes and everything is important, what can we possibly leave out? How comfortable are we with organized chaos? Streamlining the session applies not only to the time-constraints, but also to the resources. In a PBL session, less is more. Concepts such as strategizing and evaluating may take precedence over mastering the logistics of a particular database. Teamwork is essential. Most of the

work of a PBL session is in the design and planning, and may take place weeks before the class.

Creating the teams poses another challenge. Depending on class size, teams of two or three members work best in this environment. If possible, identify students who have had library instruction previously, and who are comfortable using the databases. These students are “ringers” who can be effectively peppered amongst the teams to foster peer mentoring. Providing clear guidance for a breakdown of activities for team members is helpful in structuring the activity. Assigning the role of recorder and presenter enables students to take responsibility in their own groups and helps facilitate the final debriefing. Non-participation in the activity by a team member is not an option and it doesn't take long for a student to get onboard with a little encouragement from his teammates.

Perhaps the most challenging aspect of incorporating PBL into one's teaching repertoire is taking on the role of guide, facilitator or tutor. As the learning activity becomes user-centered, the librarian must step aside in order to allow the students to take responsibility for their own learning. Pelikan describes “a bias born of professional culture toward taking on the obvious role of the reference librarian, manifesting as an urge to provide solutions to the research problems faced by the teams.”¹¹ Our roles shift from providing answers in the form of information resources, to asking questions that help students stay focused on the problem. Spence describes it this way: “The tutor's job is to ask provocative questions that guide further research, reduce dead-end explorations, suggest resources, provide examples, and give precise appraisals of performance.”¹² This new role requires our becoming comfortable with silence, spontaneity and surprise. When we pose a question, there may not be an immediate and enthusiastic answer, so we must

learn to wait. It is not a role embraced by many instructors and may not suit the personality or temperament of all librarians. Once students understand that the responsibility has shifted from us to them, the stage is set for the peer mentoring that is a basic component of PBL.

Rewards and reflections

The most rewarding feature of engaging in a PBL session is having the opportunity to interact with students in a more dynamic environment. Roving amongst the students as they explore the resources, helping to focus their thinking, questioning their navigation strategies, and encouraging them in their choices, enables them to see librarians as their supporters and advocates. The debriefing, which is the culmination of the session, is the most fulfilling “chunk” of the session. Even in the short, 50-minute session, students establish a bond with their team members, a kind of team spirit which motivates them to find the best “solution” to the problem. In describing the characteristics of good PBL problems, Duch discusses the complex, ill-structured problem that “will challenge students to go beyond simple plug-and-chug to solve it,” one that has no one, perfect solution, with many information gaps.¹³ In the debriefing, acknowledging that there may be more than one solution to the problem speaks to the application of critical thinking in the PBL session. Often students self-identify the need for additional research.

The “brass ring” of information literacy instruction is faculty collaboration. A review of the Information Literacy literature clearly articulates collaboration with classroom faculty as the basis for the seamless integration of Information Literacy into the curriculum. A satisfying outcome of a PBL session has been the opportunity to collaborate with a member of the Writing Faculty. While observing his students’

engagement in the PBL session, this senior faculty member offered to create his own variation, a case-based problem that incorporates “the use of storytelling to engage students in the problems or dilemmas faced by the character(s) in the narrative.”¹⁴ The case is the foundation for their assignment in which students must advise their employer on the better of two approaches to solving a human resource problem – either mediation or arbitration. The session took on added significance because of the relevance of the activity. In the debriefing, teams came to differing decisions and the ensuing discussion helped students understand the need for additional research in order to come to a final determination. Assessment for this class included an annotated bibliography emailed to, and graded by the librarian instructor, with the grade incorporated into the course grade. While this kind of collaboration presents the ideal situation for incorporating PBL into library instruction, it is the exception rather than the rule. The challenge in collaboration lies in the process of preparation, due to “...the amount of time it will take for a librarian and an instructor to come to an agreement on how to approach an assignment using PBL.”¹⁵

At a recent conference of academic library instructors, a featured non-librarian panelist admonished librarians to “change your image,” and let everyone know what we librarians can do for them (the faculty and public), and to better market our services and expertise. After the session, a colleague commented that many of us came to the profession so we wouldn’t have to be engaged in the business of marketing and promotion. His point is well taken in advocating for the use of PBL in library instruction. While for many instruction librarians PBL presents the opportunity to re-energize one-shot sessions and experiment with a new pedagogical model, it is not an application

suitable for all classes or all librarian instructors. Designing a PBL instruction class can provide the ideal opportunity to understand, work with and implement the ACRL Information Literacy Competency Standards. While the process may require librarians to step out of their comfort zone in the delivery of the session, it does provide the opportunity for students and faculty to experience library instruction in a new and dynamic way. The outcomes include interesting and engaging sessions with dynamic student engagement. Students express an interest in exploring library resources and their use for other assignments, as manifested by a significant increase in requests for research consultations. One collaborator has seen citations to journal articles far surpass citations to websites as a result of the new model. PBL has fostered and strengthened relationships with faculty, and provided the opportunity to hone pedagogical skills through the planning and delivery of the sessions. PBL and Information Literacy are ideal partners with limitless possibilities for enhanced library instruction.

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