Pirate Maps, Tattoos, and Flus: Using a Problem-based Format to Teach Information Literacy Skills

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Introduction

Pirate Maps, Tattoos, and Flus: Using a Problem-based Format to Teach Information Literacy Skills was an interactive session at LOEX 2011 in Fort Worth, TX. In keeping with the spirit of problem-based learning (PBL) the workshop itself was in PBL format. Presenters modeled PBL instruction by creating a flexible session format that included elements we believe are indispensible to any PBL class:

- Foundations

- Prompt

- Group work

- Debriefing

Attendees of the session worked in small groups and were provided with a choice of five scenarios with associated student prompts (Appendix A). Each group was asked to design a PBL session around one of the student prompts, using only the information in the scenarios.

Background

At Westminster College, we have a PBL program called Westminster Scholars that allows a select group of students to complete some liberal education requirements in PBL format.

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In addition, the group determines one overarching real-world problem to work on throughout the year. In the summer of 2010, the director of the Westminster Scholars program asked the instruction librarians to collaborate on a series of PBL workshops for information literacy (IL).

While this was an exciting opportunity, it presented a number of challenges. Each scholar was spending the summer working one-on-one with faculty mentors on a research project in their respective disciplines, meaning that no two students had the same major. This was problematic not only because IL can look quite different from one discipline to another, but also because it can be difficult to create meaningful group work for students with such widely varying academic frameworks and skill sets.

One luxury we did have, however, was time. We had decided, along with the director of the Scholars program, to hold four workshops over the course of the summer that addressed the ACRL Information Literacy Competency Standards of Defining, Accessing, Evaluating, and Using, respectively. Because of the amount of time allotted and the potentially conflicting projects of the students, we had to be very clear about our objectives. We came up with the following class goals:

- Provide students with basic IL skills

- Expand students' knowledge of IL in their disciplines

- Cover one ACRL competency per session

To accomplish these goals, we created a class structure that, while flexible, could meet the requirements of a PBL session, while still helping each individual student with their discipline-specific research. This structure consisted of a pre-research group activity, followed by individual research time

during which the students could apply the foundational skills obtained during the pre-research activity, and then bringing everyone back together for the debriefing.

After considering a number of potential prompts/issues for the pre-research activities, including co-ed dorms, 24/7 library hours, and local pollution, we settled on a New York Times opinion piece by Stanley Fish (2010), titled *A Classical Education: Back to the Future*. This article was particularly relevant to students in the decidedly non-traditional PBL environment.

The final project for the series of sessions was a class wiki where students reflected on their learning and research process and provided research tips for other students in their discipline.

LITERATURE REVIEW

A PBL session allows students to think creatively and requires them to be active learners (Munro, 2006). Christian Dalsgaard and Mikkel Godsk write that the goals of a PBL session fall within a social constructivist theoretical base. Social constructivism argues that knowledge can only be created through active learning and participation (2007). PBL requires that the students become responsible for guiding their learning.

PBL is a natural fit with IL sessions. Barbara Ferrer Kenney writes that the learning outcomes of a PBL session are harmonious with the ACRL's Information Literacy Standards (2008). PBL pairs a topic with learning how to do research. Cheney writes:

> Many educators, despite their best intentions, are not teaching students how to think, how to ask questions, or how to use strategies to gather information to answer questions. In addition, by asking for a session focusing on information gathering, many instructors are separating the topic from this process – a disconnect that is entirely opposite of what really takes place when researchers conduct their own research. For this reason, problem-based learning may be the better approach.

In PBL, research is embedded in the discipline and not an activity that is isolated and separate.

A PBL activity presents students with a prompt, a real world issue usually pulled from current events, local issues, or an issue relevant to students. Students working in groups have to decide what the problem is and how they would research it and present possible solutions (Kenney, 2008). Debora Cheney writes that a good PBL prompt "engage the students, because they are unstructured enough to require research and thought to develop a problem statement" (2004, p.499). A prompt should be ill-defined and have multiple solutions; in this way the prompt challenges students to problem solve in a scenario that is much like the professional world (Slattery, 2002). Moreover, the task or session should be located within the Zone of Proximal Development (ZPD), defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (Vygotsky, 1978, p 86). By placing the task within the ZPD students are challenged but not unable to perform the task.

PBL sessions can be difficult for students who may prefer the comfort of one "answer." Karen Slattery writes, "For these students, it is important to make clear…that some questions in life have no correct answer, and their job is to determine the best possible answer" (2002, p. 190). This becomes clear in the debriefing which ends every PBL session. This time provides students with the opportunity to hear how other students defined, interpreted, or solved problems. Students begin to realize that there is no correct answer but instead many possible solutions. This time also allows the instructor to close the loop and provide any necessary feedback.

Many librarians have found success with PBL IL sessions. Barbara Ferrer Kenney praises PBL for creating a dynamic environment that is student-centered and student-directed (2008). Alexius Smith Macklin used PBL in IL sessions to combat the idea that students who are computer literate are information literate. Macklin provides examples of prompts used, an outline of how to create a PBL session, and important questions for reflection afterwards (2001). Debora Cheney writes about collaborating with a faculty member using PBL to integrate the IL session into the greater course theme (2004). Kathy Brock Enger et. al. provide two methods for librarians to use PBL. The first is similar to Cheney's method of collaborating with a faculty member. The other is to "develop an individual problem-based curriculum that can be used in a shorter library session" (2002). In their article "Problem-based learning: evolving strategies and conversations for library instruction," Enger et. al. provide a template for a one-shot instruction session (2002). Karen Munro provides a modified PBL IL session; in her modified session, students complete a list of tasks that guide them through the IL skills they need for their course assignment (2006). Finally, Michael Pelikan writes about his success with PBL and concludes that the PBL IL session provides students with the foundations for research in other fields and outside of academia (2004).

THE LOEX SESSION

Structure

Because this was a PBL session, we felt it was important to model the process for attendees. To that end, we came up with an interactive session with the following structure:

- Foundations: 7-10 minute presentation to provide PBL framework and provide an outline of the session. Ideally, this part of any PBL session should take no longer than 10% of the allotted time for the class (Pelikan, 2004).

- Groupwork: 20 minutes for groups to choose scenarios and create a lesson plan or session template around the

associated prompt.

- Sharing: 20 minutes for groups to share their ideas with the larger group.

- Debriefing: 10 minutes for the larger group to reflect on the process and discuss ideas, questions, concerns.

As with any PBL session, however, things don't always go according to schedule, and it is necessary to adapt and restructure based on the students' (or, in this case, session attendees') needs. Since the groups were engaged and working hard on their lesson plans, we decided to adjust the time frame to allow for more groupwork. Because that took away from the time we'd allotted for sharing, we decided to ask for volunteers to share, rather than having each table share. That allowed us to have 30 minutes for groupwork, 10 minutes for sharing, and 10 minutes for debriefing.

Scenarios and Prompts

Each group was given the choice of five scenarios with a variety of disciplines, class sizes, faculty contribution, and student skill level. The majority of our associated prompts were images, with one more traditional case study for nursing students. Interestingly, most groups chose to work on the case study. We speculated that this could have been due to it being the only text-based scenario, which might have made it seem more accessible, or because it was the only scenario in which the librarian only had one hour to teach, which more accurately reflects the amount of time many librarians have with classes. Because this was the scenario that was most used, we've chosen it as the one to discuss here. See below for the scenario and associated prompt:

Scenario: Nursing 390, Nursing Theory and Research
Corresponding Prompt: Flu outbreak case study

At the beginning of the semester, you're asked to orient a large group of nursing students to the library and teach them IL skills. Though the course is upper division, the students have not yet done intensive research in their discipline. The professor is a busy practitioner who is frequently away from campus and doesn't have time for collaboration. The students have no assignment at the time of instruction. The time allotted for the session is one hour.

Prompt: Nursing 390
Flu outbreak case study

A summer camp in a remote area has a confirmed H1N1 outbreak. A nearby camp has recently had success in containing a similar outbreak by quarantining the campers and treating them with Tamiflu. The camp counselor would like to successfully contain the outbreak, but is concerned about the potential of creating a resistant strain of the virus. Though the camp is secluded, most of the campers are from large cities.

When the time came to share lesson plans, there were several great ideas presented by each group. The first group created a plan for a class that would address ACRL standards 1, 2, and 3. The foundational knowledge students would need to complete the task would be: knowing what a database is and knowing how to do a basic search. Each group of students would decide what information is needed by identifying keywords and phrases like Tamiflu, H1N1, "resistant virus strain," then split up the research between them, which is how the attendees in that group approached their own scenario. They would also provide a handout with resources to help students during the research process. The second group built on that idea by suggesting each group could put itself in the role of the camp counselor and choose one question to research. During the debriefing, groups would present their plan of action and defend it by backing it up with evidence.

Debriefing

While most attendees expressed excitement about using PBL in their teaching, there were several understandable concerns. Many were concerned about the messiness of the process, stating that many librarians (and students) prefer a more structured teaching and learning environment. There were questions about how to give students the foundations needed to complete a given task: how much is too little and how much is too much? Some feedback received during the session and afterward indicated concern over lack of class time to conduct this kind of session. There were also concerns about assessing learning: do we assess individual learning, group learning, or both? Can we realistically do this if we don't see the students for more than one class session?

We will attempt to address these valid concerns from our own experience in working with PBL and from ideas that arose during the debriefing.

The question of time: The amount of time instruction librarians have with students is highly variable and can be anything from a one-shot hour long session to semester length for-credit courses. While we can certainly do more when we have more time, as Enger et. al.(2002) discuss in their article, one hour sessions don't need to be the death of PBL. In fact, though PBL sessions may require more time and effort in planning, the sessions themselves can actually present a greater opportunity for learning as it frees up more time for activities when long lectures are removed from the equation. An IL session does not need to address every IL competency. It is helpful to determine ahead of time what Melanie Hawks described in her LOEX 2011 conference plenary talk as the "vital behavior." Perhaps the students only need to learn to define their information need, or they only need to learn how to access information. The PBL session can then be tailored to that one objective.

Foundations: It can be difficult for teachers to let go of lecturing as the sole method in providing IL foundations. With PBL, it can be helpful to determine the very least amount of information necessary to complete a task. For example, if the focus is on access, students should know that databases exist and where to find them, but may not need instruction on how to

search them. When they have enough foundational knowledge to begin, their questions can then drive the instruction further. This saves us from presenting them with information they may not require and allows us to present the right information at the time of need.

Assessment: Certainly we can continue to assess learning formatively by observing and interacting with students in the classroom. For more summative assessment, one attendee suggested providing students with a worksheet they could complete as they go through the research process, which could be turned in to the librarian at the end of the session. The idea of using screencasting to document students' learning processes, as discussed by Stephanie Wiegand in her LOEX 2011 presentation, also holds promise for assessing students' IL skills when we no longer have them in the classroom.

CONCLUSION

In order to conduct a PBL session one has to be adaptable and open to unpredictability. During the LOEX session, we had to make adjustments to our time schedule. These are things that cannot be predicted ahead of time. Likewise, PBL can be adaptable to teaching needs. If a full PBL session seems daunting, start with small PBL activities intermixed into the larger class. When you allow your students to be unpredictable you will find, as we have, that they will surprise you in a good way.

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For the Handout that was given to LOEX attendees, please see:

http://www.loexconference.org/2011/program/presentation_files/PirateMaps2.pdf

APPENDIX A

Scenario: Global 310, Introduction to Global & International Studies
Corresponding Prompt: Somalia Pirate Map
Source: http://unosat-maps.web.cern.ch/unosat-maps/SO/Piracy/UNOSAT_Somalia_Pirate_Attacks_Map_2007_Lowres_v4.pdf

You have been asked to conduct one two-hour information literacy session for Global Studies 310. This is for the new, interdisciplinary Global Studies major and will have 15 upper division students from a variety of disciplines. Having switched to this major from previously declared majors, the students will be at different places with regard to their research abilities and will be working from within multiple academic frameworks. The professor is a reliable user of the library, bringing her class in once a semester on average, but is not heavily involved in information literacy efforts. The students have no assignment at the time of instruction.

Scenario: Economics 105, Introduction to Economics as a Social Science
Corresponding Prompt: Case-Shiller 100 Year Boom and Bust Chart
Source: http://www.ritholtz.com/blog/wp-content/uploads/2011/04/2011-Case-SHiller-updated.png

You are scheduled to teach an introductory information literacy course for Economics 105. There are 35 students in the class, most of whom are not business majors. The students will be mostly freshman and sophomore level; some will have had prior information literacy training while some will be new to college-level research. The instructor is difficult to reach and not a frequent user of the library. The students will be researching their final project, which is a group presentation that summarizes what's been learned in the course. The time allotted for the session is two hours.

Scenario: History 202, Modern Europe: Revolution and Reaction in Modern Europe
Corresponding Prompt: Guernica Print

You have been asked to teach an information literacy session for History 202, a survey of European history in the 19th and 20th centuries. The course is taught by a new instructor who has become a frequent user of the library and is committed to information literacy. The students are currently studying the Spanish Civil War and will eventually turn in a large research paper on the subject. The professor would like to bring in his class for two full sessions (total 3.5 hours), once at the beginning of the semester, and once later when the students are working on their research papers. Most of the students will be sophomore or junior level, some history majors and some non-history majors. The class has 20 students.

Scenario: Sociology 470, Senior Seminar
Corresponding Prompt: Tattoo Photos

A sociology professor with whom you have collaborated before, has asked to work with you on a series of instruction sessions for her thesis students. There are 12 students who are all sociology majors and are familiar with the library's resources, but have not yet done thesis-level research. You will have the students for four one-hour sessions over the course of four weeks. Students will not have a specific assignment at the time of instruction, but will be working on their theses for the entire semester.

Scenario: Nursing 390, Nursing Theory and Research
Corresponding Prompt: Flu Outbreak Case Study

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Prompt: Nursing 390
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