

Exploring the Use of Problem-Based Learning in Psychology Courses

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“**M**y car will not start. I need to figure out what is wrong with it. Please help me.” This seemingly simple problem has confronted most people of driving age at some time. Solving such problems requires us to think critically, assess our own knowledge, consult with others, seek new information, and actively seek a solution. This is the core idea behind problem-based learning (PBL). In PBL, students grapple with realistic problems, collaborate with each other to activate prior knowledge, identify what they don’t know, construct new knowledge, and develop a plan for further study. The ultimate goal is to solve the problem and thereby learn a great deal along the way.

There are numerous definitions and instantiations of PBL. It is similar to other experiential learning, such as case-based learning (Eshach & Bitterman, 2003), in that it is student-centered and the teacher’s role is a facilitator, rather than a knowledge provider. Problem-based learning began over 30 years ago in medical programs, and our university’s PBL program has been heavily influenced by Southern Illinois University School of Medicine’s problem-based learning initiative (see <http://www.pbli.org>)

Why Use Problem-Based Learning?

The primary advantage of PBL is motivational. When students know why they are learning new knowledge (i.e., to solve the problem), it gives them a context to store the information that facilitates later recall. If the problem is authentic, then it is easy to get students motivated to work together toward its solution.

One of the most important tasks when using PBL is to develop an effective problem. A good problem should be authentic and engaging, in addition to being oriented to a specified *curriculum*. The term curriculum in PBL refers to the body of knowledge that you wish students to acquire. A problem should be formulated only after you have decided on your curricular goals. A good problem should also allow multiple views and inquiry, and establish clear student roles that result in a product or performance.

Since the fall of 2005, we have applied PBL to two courses at Belmont University: Introduction to Psychological Science and Junior Cornerstone Seminar. The university faculty had just reconfigured our general education curriculum, and one change was to add a laboratory component to our introductory course. Our Junior Cornerstone Seminar is a general education requirement for all Belmont students classified as juniors. Students in this class are not psychology majors, as students are expected to enroll in a seminar outside of their academic discipline. It is typically taught as a topical seminar where a particular problem or issue is addressed. This

course is designed to include an experiential learning component and Belmont adopted PBL as the required pedagogy for this course.

Suggestions for Problem-Based Learning

From our experiences teaching these two psychology courses using PBL, we have five key suggestions.

1. *Determine curricular goals at the outset*

Decide on your learning or curricular goals before you start to design any other aspect of the course. Although PBL is a teaching *method*, it still must be directed toward curricular goals. The problems you develop should have clearly defined goals. What the students need to know should always be the overarching guide to the problem.

We reasoned that conducting the lab in our introductory course in a PBL format could help reach a number of curriculum goals, such as increased collaboration and improved critical thinking skills. We quickly realized that our curriculum for the labs was primarily research strategies and issues, not psychology content. We decided to emphasize the methods of doing psychological science rather than the content discussed in lecture. Over a summer, we started developing problems that could be used in this introductory psychology lab.

One problem focused on a campus film series, which are common at universities. We developed this problem to expose students to the strategies and issues of descriptive research. Students were told that parents had complained to the college President that “compared to when we were in high school and college, films today depict far more violence and sex, and we are afraid that our children will be adversely affected by viewing these films.” The students’ task was to investigate claims of the parents and determine if there was increased sex and violence in films today as compared to when their parents were college-age. The problem required students to sample two films of their choice, one from the 1970’s and one from 2000-2006. They were to determine the amount of sex and violence in the films from both eras and make a meaningful comparison. They were to make a recommendation to the President as to whether the university should alter its current film policy. The assessed product was a written paper documenting their research and reporting their results.

We developed another problem to introduce concepts of relational research. We challenged student groups to develop a relational study in which groups would measure at least two behavioral variables and determine if they were associated. We informed students that they should also develop a reasonable rationale for why they expected the behaviors to be related. We provided a number of examples, but encouraged the groups to come up with their own behaviors. Some examples of the variables investigated by student groups included gender and exercise activities at the gym; gender and laptop brand; politics and alcohol groups on Facebook; and automobile stopping behavior, gender, and distractions.

2. *Create authentic problems*

Faculty should create authentic problems or those that students can own and find interesting. In other words, develop problems where the solution matters to students, not just a problem where their solution will please the teacher. Ideal problems do not

have a set answer, but can have many answers. Real-world problems are the easiest to transform into authentic problems. Think about why psychologists need to know something specific and how they would use that knowledge in the real world. Develop your problems to capture real world need. If students believe that this is your “made-up” problem, motivation may decline.

We attempted to set up authentic problems in our Junior Cornerstone classes. One example was entitled *The Psychological Development of College Students*. The course challenged students to use the tools of psychological science and a problem-based learning approach to explore issues and questions related to important dimensions of healthy psychological development in college students. Working together, students selected questions to investigate that were compelling, worth asking, and capable of being studied scientifically. The products of this course were three research posters based on three empirical studies conducted by the students in the class.

Another example we used in this course was entitled *Psychological Inquiry*. This course combined aspects of PBL and student empirical research. Small groups of students dealt with authentic problems using quantitative research techniques. Students collected and analyzed relevant data and used the findings to develop a final group paper and oral presentation at a public venue. The outcome of this class was a study on self-esteem and Facebook use, which was presented at Belmont’s Undergraduate Research Symposium.

3. Assess everything that is important

Students must be accountable for their learning. When they are not, it is too easy to let it go and attend to all the other demands of life. Assessment is an integral part of any teaching-learning process, and it is essential in PBL. Assessment is just as important for teaching process skills (i.e., collaboration) as it is for teaching course content matter. If learning to work within groups is a learning goal, then it must be assessed to be effective. As teachers well know, if you do not assess it, students will not value it.

Student responsibility for learning can be supported by challenging them to both assess themselves and their peers. Student accountability within a group builds authentic working relationships or teamwork. Accountability helps students improve skills within the group. Students’ praise and constructive criticism builds trust, respect, self-confidence, and community. We used two major types of assessment in this course, Peer Group Process Assessment and Group Product Assessment. The Peer Group Process Assessment consisted of students rating other group members’ work. The evaluation read: “This will be your only opportunity to reward the members of your team who worked hard on your behalf. (Note: If you give everyone pretty much the same score you will be hurting those who did the most and helping those who did the least.)” Students assigned up to 10 points per group member and were required to give at least one score of 11 or higher and one score of 9 or lower. The evaluation criteria consisted of three areas: self-directed learning/knowledge, reasoning, and group/interpersonal skills.

Along with a group product assessment, which consisted of grading the group paper and presentation, we developed a peer/self assessment. This consisted of multiple sessions in which each student was given 30 seconds to assess orally an assigned member of the group and that member was given an opportunity to respond to the evaluation. There were three criteria: self-directed learning/knowledge, reasoning, and group/interpersonal skills. After the student responded to her

evaluation, the entire group was allowed to comment. These sessions greatly improved group cohesiveness because members were able to offer praise, constructive criticism, and improvement plans. The instructor also assessed students on their individual ability to evaluate their peers and themselves. In fact, the bulk of students' group participation grades were based on how thoroughly students assessed their peers, not on how their peers assessed them. The advantage of this type of assessment is that students concentrate on providing quality and constructive feedback and worry very little that their feedback might harm another student's grades. The criteria for the individual assessment throughout the course consisted of self-evaluation, peer evaluation, group evaluation sessions, and an instructor evaluation.

4. *Be flexible and adaptable*

As with any new method, unexpected problems arise. PBL often is a method that does not fit schedules well. Students may surprise you with how quickly and cleverly they attack a problem or how hesitantly and awkwardly they muddle through. As a facilitator, you should pay attention to the pace of the group and offer help on how to learn, if not always *what* to learn. We have found flexibility to be one of the chief advantages of the PBL approach. We also suggest that you mold and modify "pure" PBL to suit your needs and abilities as a teacher.

The second author learned this lesson in his first attempt at PBL in the Junior Cornerstone Seminar. The major downside to the course was that the students had no background in psychology, in the research methods of psychology, or in the ethics of human subjects research. These are issues that must be addressed and incorporated into the curriculum of the course. However, because the PBL format is flexible, you can shape students' understanding of a scientific approach to answering questions. You can also use the lack of background as THE biggest problem for the students to solve. Consistent with a PBL approach, it is important not merely to tell students what they need to know. Rather, as facilitator, part of the instructor's task is to help students identify *learning issues*, or topics for which students must seek out new information. This aspect of PBL is tricky, however, because you do not want to be perceived as the expert who is withholding information. It is appropriate at times to be a content resource for students, but you should do so judiciously (Allen, Watson, & White, 2007).

5. *Be prepared: Students may not be happy with PBL at first*

PBL is not a method with which most students or faculty are familiar with. Students are used to having their cups filled with knowledge, and although they may complain about being asked to "memorize what my teacher says and spit it back to her," it is what they are comfortable doing. Asking them to become active, collaborative learners is a difficult process. Students (and faculty) may have to be patient to see the value in learning to be a life-long learner.

Conclusion

Like any new pedagogy, there is a learning curve for you as you first teach in this format. As we have noted, you can adapt PBL to your own teaching style, and we encourage you to do so. We would not want to teach all of our classes in this format and it may not be appropriate to do so, but we have enjoyed the challenges and rewards of utilizing this approach. Once students become accustomed to the new

classroom environment, they too seem to enjoy it as they work together to take ownership of and find solutions for the problems they confront.

References

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