

CTE NOTEBOOK

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Reinert CTE Mission Statement

The mission of the Paul C. Reinert, S.J. Center for Teaching Excellence is to support Saint Louis University faculty and graduate students. To

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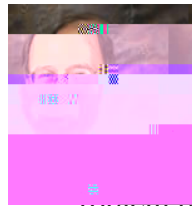
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Helps faculty and graduate students find their own directions, meaning and pedagogical style in the context of Jesuit traditions of education.

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Develops a community of scholars who encourage and challenge each other through mutual inspiration, mentoring and renewal.

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Problem-based Learning in the Classroom

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Problem-based learning (PBL) is thought of as both a curricular approach and a learning process. I will leave to others the discussion of PBL as a curricular approach. My comments will focus on PBL as a learning process.

PBL is a form of active learning requiring students to engage in the learning process through solving real time problems. Advocates of PBL believe students retain knowledge longer through this learning process as compared to the traditional lecture method. Because students are more engaged in and stimulated by the learning process, it is also believed they acquire the skills for self-directed learning.

PBL possesses two distinct characteristics. First, it focuses process of solving problems. Rather than providing students with formulaic, predetermined problems and solutions, you teach students the process of how to analyze and solve problems. This is achieved through the use of ill-defined problems from real life or practice. These problems are sometimes referred to as complex or messy. Through the PBL process, we reinforce students' ability to analyze and dissect problem situations. We want students to analyze holistically: frame the problem through identification of issues, discriminate between key and peripheral issues, think divergently, generate ideas about the situation, collect information, and evaluating alternatives. We are attempting to

My role in the process is to serve as both resource and guide. Sometimes, I am a sounding board for the problems encountered by the students. At other times, I assist students with the problems they face. Along the course's path, I highlight the concepts they should have read about in preparation for the project stage. I emphasize the conceptual point rather than the project specific problem, even as we address the challenge at hand.

I am not implementing a "pure" PBL approach. I want to insure some minimal, foundational learning. If you have worked on a research project, you will recognize PBL as the method that is used in virtually every research situation.

So, is PBL new? Probably not. But, it introduces real world problem solving earlier into the careers of our students.

I have always been uncomfortable giving long lectures. The discomfort is due to the fact that I never know if what I'm saying is really sinking in.

hoped would help reduce exposures to fecal coliform bacteria and hence reduce diarrhea among the people we were helping. What if my students in my course on control of infectious and biological agents were given the same task we were, to develop a device for removing fecal coliform bacteria and protozoans? Could they do it? As it turned out, some could and some could not. My students were not graduate engineers and although a few students turned in a working portable water filter that met the assignment criteria some students came to me with bits of tinfoil and a little sand and said, “I can’t do this”. I understood then that I had asked the students, most without hands-on skills; too much by asking them to make some tangible and testable device, so I modified the assignment and added components to it that they were learning in other courses in their public health curriculum.

I arrived at a final assignment that would not require students to make a working water filter but instead to design the filter, write a document that describes the barriers to put it to practical use, and write a study that would evaluate its effectiveness for reducing diarrhea. The students take courses in both behavioral science and epidemiology at our school and they would be putting their skills that they learned in

those classes, in addition to what they were learning about the design in my class, into solving the problem. In fact, the students were actually now doing work that reflected our own experience in Honduras.

I also teach or have taught several classes in occupational health. These classes offer students the opportunity to investigate and solve mysteries on a variety of human exposure scenarios but what seems very exciting to students can also be frustrating as “real world” problems become evident to students. I sometimes ask students to solve actual indoor health quality issues at workplaces but these can’t always be scheduled for the benefit of the student syllabus

problems they usually find there are workers that don't show up or sampling equipment that falls out of calibration. This often requires the student to reschedule their visits to a company.

I now have a warning on my syllabus for my course in occupational and environmental laboratory, "Unexpected circumstances during sampling or lab work is more the norm than the exception in the real world of environmental and occupational health, therefore, students must expect that last minute changes, additions, or deletions to sampling and lab work is part of the territory. Every attempt will be made to run the lab class according to the syllabus, however, changes may be needed from time to time". Problem based learning exercises can be a rewarding experience both to the student and instructor. My warning to students to be flexible and adapt to changing conditions in the workplace is also apt for my advice to fellow instructors; be flexible based on the student's reaction to the assignment and be empathetic to the students needs for some semblance of predictability even when forewarned to expect the unexpected.

CONFERENCES

Teaching Renewal Conference, February 23-25, 2006 at the University of Missouri-Columbia
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Follow-up to the “Conversations” Issue
 “JESUIT CONVERSATIONS IN POLITICAL
 SCIENCE”

By Timothy J. Lomperis, Ph.D.

At a brown bag seminar in October, sponsored by the Center for Teaching Excellence, Professor Ron Modras spoke of the Jesuit pedagogy of emphasizing a conversational approach to classroom learning. As a political scientist, I thought I might share my use of this conversational approach in two of my courses. In both cases, I take the individual learning that comes from writing a major paper, and try to draw further insights from these individual efforts through discussions that can collectively come from conversations in small groups. This “old” pedagogy of conversations represents at least one way we can escape from the heavy dependence on the classroom lecture through which we, as professors, are so determined to share our own individual insights and knowledge. These conversations can ensure that these lectures are just a first step to knowledge, and not the only step.

The mission of my Asymmetric Warfare class is to have the students probe Vietnam centrally, but other Cold War insurgencies/interventions as well, for lessons appropriate to the War on Terror. They

are tasked with writing a major research paper that surfaces a lesson from one particular aspect of the Vietnam War. Following this, they meet in small groups of four or five students and present their papers to each other. After a full class period of small group discussions, each group presents a “composite” set of lessons from their set of papers to the class as a whole. Students have universally found these discussions to be invaluable, and have lamented over how they wish they could rewrite their papers to take into account all of the insights they gained from their fellow students. The final class session is devoted to a plenary discussion of distilling a set of consensus lessons on Vietnam for Iraq.

The intellectual pay-off from these conversations comes in the final assignment of the course. Instead of a final exam, I have the students turn in a five page “op-ed essay,” as I call it, on what they think is the single lesson from Vietnam for the War on Terror—or what they think is the best approach for drawing lessons. I have taught this class only twice, but the quality of these pieces is, collectively, the highest of any paper assignment I have given in my twenty-five year academic career.

In my Politics of the Future seminar, the main project of the course is a twenty-five page Paradigm

of the Future Essay. In this project, the students have to construct a future political system (both national and international) set 30 to 100 years ahead

From the Director

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