

# CCT Open House: Teaching in the Key of CCT

## Rapid Problem Based Learning Activity

For this rapid Problem-Based Learning (PBL) activity, we are exploring teaching and learning (in graduate courses in Critical and Creative Thinking, and beyond), especially as it relates to your relationship to the environment of the face-to-face classroom, and the possibilities that go beyond that format. In PBL, we start out with ill-defined problems and issues, so we need to spend some time at the beginning thinking about what we are actually trying to accomplish. Rather than starting with a predefined issue to be addressed, we ask participants instead to develop a line of inquiry based on their own interest, bring forth questions that prompt future follow-up, and explore issues to share. Steps:

1. Review the background articles provided. These identify a few perspectives on teaching and learning beyond the face-to-face classroom, including some attention to emerging understanding of the potential of connectivist MOOCs (Massively Open Online Course).
  2. Go through the PBL process: develop an inquiry around issues important to you, and see what you can learn in that time. You may wish to spend some time on this individually, or you may wish to join with another person or small group and work through ideas together. The list of steps below provides a starting point for approaching Problem-Based Learning, if these help you to get going. Collect some notes on directions and results of your inquiry.
  3. After a while, we'll rejoin as a wider group and ask everyone to share what you've found.
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## List of PBL Steps to Guide Learners

From "Ill-Defined Encounters Are the Right Kind!" (Greenwald, 2001). Based on A taxonomy of problem-based learning methods (Barrows, 1986).

Guiding students in PBL

This ten-step approach is based on the original medical school model (Barrows, 1986). It involves students in constructing understanding through critical and creative thinking and promotes collaboration and autonomy in learning:

1. **Encounter an ill-defined problem:** Students can encounter real-life, ill-defined problems in many compelling contexts.
2. **Ask IPF questions:** "What's Interesting here?" "What's Puzzling, curious, problematic?" "What's important to Find out?"
3. **Pursue problem-finding** - look to uncover new or unseen problems not previously stated.

- a. draw a problem; even crude drawings can convey a lot of information
  - b. ask a series of "why" questions to reveal possible causes of something
  - c. create a flow map to sequentially link aspects of a situation
  - d. uncover possible false assumptions about information
  - e. minify or magnify a situation to understand its essence or scope
4. **Map problem finding;** prioritize a problem: Next, students organize problem finding results to show patterns and relationships among ideas. Again, teachers guide but do not make decisions for students.
  5. **Investigate the problem:** To help the group strategize, teachers might ask: "How will you organize your overall plan?" "What responsibilities will each group member have?" Inquiry guiding questions might be, "Since you have decided to interview people, who will you interview?" "How will you find them?" "What information is needed?" "How will you record this?"
  6. **Analyze results:** Responsibility for analyzing information again lies with students.
  7. **Reiterate learning:** Reiteration is a distinguishing feature of PBL in which students present what they have learned to each other (Barrows, 1997). They actively apply learning back to the problem to gain new understanding by re-entering it from the beginning, critiquing and refining their original problem statement, thinking strategies, sources and goals. They relate what they learned to understanding other problems and try to extract concepts that have broad applicability. Metacognitive guiding questions might be, "How do your results help you understand the problem you investigated? "Should you investigate this again, what would you do differently and why?"
  8. **Generate solutions and recommendations:** Students need to revisit outcomes of the previous two steps to determine what direction they take.
  9. **Communicate the Results:** As stakeholders in a real-world situation, students need to communicate what they have learned.
  10. **Conduct self-assessment:** Assessing one's performance progress is an important life skill that PBL develops. Students assess their own problem finding, problem solving, knowledge acquisition, self-directed and collaborative learning skills and share this with their group. Authentic assessment methods include journal writing, lab notebooks, self-rating scales, peer interviews, and conferences with teachers for which students develop discussion criteria. Teachers also provide their own assessments based on students' application of the 10 step model.