CCT 611: (Seminar in Critical Thinking)  
Investigating Authentic Problems  
Through Problem-Based learning (PBL)  

Fall 2007   Tuesday 7-9:30 PM  
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"Tell me I forget; show me I remember, involve me I understand".  

Description:  
The best way to become a better problem solver is to experience the thought, habits of mind and actions needed to tackle real world problems. Problem-based learning (PBL) is a powerful process that simultaneously develops problem solving strategies and disciplinary knowledge bases and skills by placing individuals in the active role of problem solvers confronted with an ill-structured real world problem. This robust CCT process is shaped and directed by students with the instructor as metacognitive coach. Students, not the instructor, take primary responsibility for what is learned and how, using a PBL model developed by the instructor to investigate interest-based authentic problems. In PBL, the instructor "guides on the side", raising questions that challenge students' thinking and help shape self-directed learning so that the search for meaning and understanding becomes a personal construction of the learner.  

REQUIRED READINGS:  

Additional resources may include the following. Further resources may be added, as recommended by the tutor (coach) and learning teams, based on emerging needs and interests throughout the PBL process:
BOOKS: (selected chapters)


ARTICLES:


**PROCESSES:**

1) application of a 10 step model to an authentic problem
small group investigation of the problem and communication of results to
a relevant audience; accompanying team written report to include group
assessment of problem solving and team skills

2) PBL personal encounters portfolio (individual): ongoing reflection on
thinking processes, personal and learning team experiences with PBL, to
include exit self-assessment

**WEEKLY PROGRESSION** (note: after weeks 1-4, the nature of topics
and full class discussion may vary contingent on learning team needs)

**Week 1- Authentic Learning**

Self-directed learning: some essential questions
  What is learning?
  What is authentic learning?
  Self-directed learning?
  What is understanding?
  Constructivist teaching and learning (role shifts for students and
  teachers)

Activities
  best learning experiences
  solving problems with different intelligences

Readings (Week 2)
  Woods, Chapter 1: Are You Ready for Change?
  Greenwald 1-10
  Selected articles (given in class)

HW: learning styles (Woods inventories)

**Week 2- Authentic Learning cont'd.**

Big ideas from the readings: ill-defined problems
Activities:
  big ideas listing
sharing learning styles insights
what is PBL? (it starts with a "mess")
examples of messy problems

Reading: (Week 3)
Greenwald: What is PBL? (pp. 11-22)
Woods: What is PBL? Problem Solving Skills (2.1-3.26)
Greenwald: A Model for Guiding Students in PBL (p. 22-36)
selected articles (given in class)

**Week 3- A PBL Model**

PBL process: ill-defined problems
Activities:
- A model for engaging PBL (Greenwald)
- identifying/sharing messy problems

Reading: (Week 4)
Bradford: Effective Teamwork
Woods: What is small group PBL? (4.1-4.6)
Woods: Group Skills (5.1-5.10)

**Week 4- Drafting Ill-Defined Problems**

Activities:
- ill-defined scenarios (free writing)
- ill-defined problem: (PBL: Step 1)
- teams vs. groups
- team skills: listening

Reading: (Week 5)
selected reading (self-directed learning; problem finding)

**Week 5- Questioning and Team Skills cont'd.**

Unpacking information to identify problems
Activities:
- IPF questioning: PBL Step 2
- teambuilding behaviors/strategies
- application of PF strategies to messy problem scenario:
strategies for recording PF results: PBL Step 3
Reading: (Week 6)
Woods: What is self-directed, interdependent, small group PBL? (6.1-6.5)
selected reading: pattern finding; concept mapping

**Week 6- Mapping Problem Finding Results**

pattern finding; problem representation
Activities:
synthesizing information to discern patterns, relationships
problem prioritization: PBL Step 4
strategizing: who does what, when, where, how?
Readings: Week 7
Woods: Self-directed interdependent learning skills (7.1-7.17)
Greenwald: Stages if Inquiry (31)

**Week 7- Problem Investigation**

What are your goals? What do you want to learn? How?
Activities:
  KNF
  Stages of Inquiry (Greenwald)
  strategizing: who does what, when, where, how?
Readings: Week 8
selected reading: research design and methods

**Week 8- Problem Investigation cont’d.**

Readings: Week 9
selected reading: independent study; data analysis
personal encounters journal due (first half of semester)

**Week 9- Problem Investigation cont’d.**

What did you find out? From whom, what sources? Need to know?
Activities: PBL Step 5
  data assessment (source credibility? gaps? paradoxes?)
  intergroup sharing: "pits, berries" of the process
Week 10- Problem Investigation cont'd.

How will you organize/analyze your data? Activities: PBL Step 6 tools for making sense out of your data? ways to present your data?

Readings: Week 11
selected reading: making inferences; drawing conclusions

Week 11- Problem Investigation cont'd.

What did you learned about your problem? Conclusions? Activities: PBL Steps 6 and 7

Readings: Week 12
selected reading: metacognitive dialogue

Week 12- Solutions/ Recommendations

Who do you want to invite to learn about your findings? (relevant audience?) Activities: PBL Steps 8/9
Readings: Week 13
Woods: Self-assessed, self-directed, small group PBL (8.1-8.5)
Woods: Self-assessment skills (9.1-9.16)

Week 13- Refine Solutions; Communicate Results

designing team self-assessment measures Activities: PBL Steps 8/9
Readings: Week 14
Woods: Putting It All Together (10.1-10.6)

Week 14- Presentations to Relevant (guest) Audiences
• finalizing the team presentation: PBL Steps 9/10
• personal encounters portfolios due
• self-assessment due

Week 15- Presentations to Relevant (guest) Audiences
• team presentations to relevant audiences (35-40 minutes)
• team written report due