

Ed Tech/Ed Psych 6448: Technology-Supported Inquiry Learning
Fall 2005
Thursdays, 5:30-8:10, South Campus Classroom (SCC) 103
(with selected meetings in the E. Desmond Lee Technology & Learning Center)

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A Note on this Syllabus

This syllabus is subject to change based on the needs of the class as a learning community. Adjustments will be made that generally benefit the group's learning opportunities.

Course Description

Educational technology such as networked computers and software can play a supportive role in inquiry-based learning. Students will explore the theoretical background, design issues, and pragmatic realities of technology-supported inquiry learning environments. Such learning environments are best understood as systems involving social, cultural, material and psychological aspects. Thus, consideration will be given to the important properties of settings, activities and technologies, as well as the role of instructors.

Objectives

- Develop bridges between inquiry-based instruction and learning theories.
- Critique and refine one's own view of the role and meaning of "inquiry" for one's own educational context and subject area(s).
- Critique and evaluate case studies of technology-supported inquiry learning in the literature, based on a systemic perspective including social, cultural, material, and psychological aspects.
- Demonstrate a principled perspective on the role teachers can play in supporting and guiding learners' inquiry (i.e., structuring activities, and being "the guide on the side").
- Apply knowledge from the course to design a technology-supported inquiry appropriate for one's own instructional context, demonstrating appropriate use of technology and plans for embedded, performance-based assessment.

Required Activities

There are five main activities associated with the course:

1) Attending class weekly and actively participating. These sessions will be devoted to presentation and discussion of readings and other assignments, led by the professor and students. You should notify me before class if you know you will not be able to attend, and as soon as possible if something unexpected arises. Missing more than two class meetings will require makeup work.

2) Participation in discussions on our Mygateway Discussion Board.

Starting after week 2, you are expected to post at least one message per week to discussions of readings on the class discussion board. After the first week, some of these discussions will be initiated by students on a rotating basis (signup will be during week 2's class). The initiator must post a message identified by the first author of the reading by Saturday at midnight, and all other students must make at least one reply *before* midnight Wednesday evening, the day before class. Please read other students' responses to the discussion before you post, and make an effort to build on their ideas (we want a discussion, not a set of isolated comments). Before class, make sure and read any comments that are posted after yours, because we are likely to use the online discussion as a jumping off point for face-to-face discussion.

3) Making a presentation of key points and leading the class in discussion of one reading during the semester. These will be the same readings you initiate discussion of on the discussion board, and the signup will be in week 2.

4) Participation in and reflection on a project once a week in Weeks 6-9. In the middle of the semester, you will conduct a mini-project about St. Louis history or world ecology that will serve as an example of a technology-supported inquiry. You will be expected to work in a pair or small group to develop an inquiry question or focus, and carry out a project with the aid of the instructor. These sessions will take place during the first half of the class meeting. After each session, you will write a reflection on your experience according to a set of guidelines you will receive. ***Reflections must be submitted by electronic mail to polman@umsl.edu no later than midnight on Monday*** (unless you notify me with a reason for your reflection being later than this, you will automatically be docked 10% for the assignment).

5) Completing a project design for your own instructional context, incorporating the ideas from the course. A project proposal will be reviewed in Week 11, and the design report will be due in lieu of a final exam. The project design should be based on your own experience in the role of the learner in such a project, and incorporate concepts and research from class readings or other literature. In addition to sketching *what* the goals, activities, and assessments for the project will be, you will be expected to provide a rationale for *why* your proposed design makes sense (based on your experience and the literature). The format and assessment criteria for this project is detailed separately.

Grading

Grades for the course will be based on work in class and out as follows:

- Class participation and short paper (20%)
- Participation in online discussion (10%)
- Leading discussion of reading on discussion board, and presenting key points of reading in class (20%)
- Participation in inquiry learning project, including field notes and reflections (20%)
- Design report on a technology-supported project you could use in your own instructional context —(length at least 8 printed pages) (30%)

Books

Polman, J. L. (2000). *Designing project-based science: Connecting learners through guided inquiry*. New York: Teachers College Press.

Beach, R., & Myers, J. (2001). *Inquiry-based English instruction: Engaging students in life and literature*. New York: Teachers College Press.

Other readings (journal articles and book chapters cited in the class schedule below) available on the MyGateway course space, under "Course Documents".

Note

If anyone has a health condition or disability, which may require accommodations in order to effectively participate in this class, please contact me privately as well as the Disability Access Services Office in 144 Millennium Student Center at 516-6554. Information about your disability will be regarded as confidential.

Class schedule

Week 1 – Intro

Class Activity on Thursday, Aug. 25 (SCC103):

- Overview of course goals and syllabus
- Overview of course MyGateway site, including Course Documents, Digital Dropbox, Discussion Board, and personal "home page"
- Post "hello" to Discussion Board
- Edit your "homepage" in the MyGateway site to include the following information:
 - Intro message can be whatever you want
 - Under "Personal Info", include (a) any nickname or shortened version of your name you prefer used, (b) your current and/or future educational role goals (i.e., "I am a high school chemistry and biology teacher"), (c) other Ed Tec courses or workshops you've taken, (d) level of technology access at your school or educational setting, (e) any specific hopes you have for this course.

Week 2: Why Inquiry?

Assignments to be completed *before* class this week:

- 2-3 page (double-spaced) paper on what "inquiry" means to you, in and out of school. See details in MyGateway Assignments area.
- Read Collins, A. Design Issues for Learning Environments
- Read O'Neill, D. K., & Polman, J. L. (2004). Why educate "little scientists?" Examining the potential of practice-based scientific literacy. *Journal of Research in Science Teaching*, 41 (3), 234-266.

Class Activity on Thursday, Sep 1 (SCC103):

- Presentation on and discussion of readings.

Week 3: Inquiry Science in the Classroom, pt. 1

Assignments to be completed *before* class this week:

- Read Polman: Foreword, Chapter 1 (A particular effort at science education reform) and 2 (Expeditions to Mt. Everest: Daily life in a project-based science class)

Class Activity on Thursday, Sep. 8 (SCC103):

- Presentation on and discussion of readings
- Discussion of your paper on what inquiry means to you

Week 4: Inquiry Science in the Classroom, pt. 2

Assignments to be completed *before* class this week:

- Read Polman Chapter 3 (Historical background: Haven't we tried this before?), 4 (A teacher's journey: Finding shoes that fit), & 5 (Students' journeys: Bootstrapping new practices)

Class Activity on Thursday, Sep. 15 (SCC103):

- Presentation on and discussion of readings

Week 5: Inquiry Science in the Classroom, pt. 3

Assignments to be completed *before* class this week:

- Read Polman Chapter 6 (Laying the groundwork for projects), 7 (How structuring activity works), & 8 (Teacher's time limits, students' time expanses)

THERE IS NO CLASS MEETING ON THURSDAY, SEP 22 (I will be at a professional meeting). Participation in online discussion board (at least 2 posts per person) will substitute for class.

Week 6: Inquiry Science in the Classroom, pt. 4

Assignments to be completed *before* class this week:

- Read Polman Chapter 9 (How the school culture affects guided participation), 10 (Coaching active students through transformative communication and encouragement of student voice) & 11 (Designing project-based learning environments)

Class Activity on Thursday, Sep 29 (SCC103):

- Session 1 of our class inquiry into history or science
- Short discussion of readings
- We will break class early. I recommend you join me in attending the public keynote presentation by James Paul Gee, entitled "Language, Learning and Science: The Coming Crisis", in the J.C. Penney Building from 7:30-8:30pm). This is part of a 4-day conference entitled "Connecting Science and Literacy in the Classroom: Challenges, Promises and Opportunities" (see <http://www.umsl.edu/~conted/education/conferences/connecting.html>)

Week 7: Inquiry History

Assignments to be completed *before* class this week:

- Read selections from Levstik, L. S., & Barton, K. C. (1997). *Doing history: Investigating with children in elementary and middle schools*. Mahwah, NJ: Lawrence Erlbaum Associates.
Chapter 6 (I think Columbus went to hell: Initiating inquiry into world history) and 7 (Rats in the hospital: Creating a history museum).

Class Activity on Thursday, Oct 6 (SCC103):

- Session 2 of our class inquiry into history or science
- Presentation on and discussion of readings

Week 8: Inquiry History, pt. 2

Assignments to be completed *before* class this week:

- Read Lipscomb, G. B. (2002). Eighth graders' impressions of the Civil War: using technology in the history classroom. *Education, Communication & Information*, 2 (1), 51-67.

Class Activity on Thursday, Oct. 13 (SCC103):

- Session 3 of our class inquiry
- Presentation on and discussion of readings

Week 9: Inquiry-based English, pt. 1

Assignments to be completed *before* class this week:

- Read Chapters 1-3 (pp. 1-50) from Beach & Myers' *Inquiry-based English instruction: Engaging students in life and literature*.
- Further information is available on the authors' website at <http://www.ed.psu.edu/k-12/socialworlds/>

Class Activity on Thursday, Oct. 20 (SCC103):

- Session 4 of our class inquiry into history or science
- Presentation on and discussion of readings

Week 10: Inquiry-based English, pt. 2

Assignments to be completed *before* class this week:

- Read Chapters 4-6 (pp. 51-99) from Beach & Myers' *Inquiry-based English instruction: Engaging students in life and literature*.

Class Activity on Thursday, Oct. 27 (SCC103):

- Short presentations of results of class inquiry into history or science
- Presentation on and discussion of reading
- Discussion of final project assignment

Week 11: Inquiry-based English, pt. 3

Assignments to be completed *before* class this week:

- Read Beach, R., & Myers, J. (2001). Hypermedia authoring as critical literacy. *Journal of Adolescent & Adult Literacy*, 44(6), 538-565
- Be sure to explore the websites referenced in the article
- Read *one* of the following from Beach & Myers' *Inquiry-based English instruction* (whatever chapter interests you most; be prepared to discuss it during class)
 - Ch. 7: Peer Worlds
 - Ch. 8: School and Sports Worlds
 - Ch. 9: Family and Romance Worlds
 - Ch. 10: Community and Workplace Worlds
 - Ch. 11: Virtual Worlds
- Email me (polman@umsl.edu) a one-paragraph proposal for the final project

Class Activity on Thursday, Nov. 3 (SCC103):

- Presentation on and discussion of reading

Week 12: Inquiry Learning and Special Education Students

Assignments to be completed *before* class this week:

- Read Marlowe, B., and Page, M. (2005). Inquiry learning and special education students. In R.H. Audet & L. K. Jordan, *Integrating inquiry across the curriculum*, pp. 175-199. Thousand Oaks, CA: Corwin Press.

Class Activity on Thursday, Nov. 10 (SCC103):

- Presentation on and discussion of readings

Week 13: Making it all work, pt. 1

Assignments to be completed *before* class this week:

- Read Barron, B. J. S., Schwartz, D. L., Vye, N. J., Moore, A., Petrosino, A., Zech, L., Bransford, J. D., & The Cognition and Technology Group at Vanderbilt (1998). Doing with understanding: Lessons from research on problem- and project-based learning. *The Journal of the Learning Sciences*, 7(3&4), 271-311.

Class Activity on Thursday, Nov. 17 (SCC103):

- Presentation on and discussion of readings

No class on Thursday, Nov. 24 (Fall Break)

By Nov. 28 (the Monday after Thanksgiving), turn in an electronic draft, outline, or status report on your project. I will return comments at the Dec. 1st class.

Week 14: Making it all work, pt. 2

Assignments to be completed *before* class this week:

- Read Edelson, D. C., Gordin, D. N., & Pea, R. D. (1999). Addressing the challenges of inquiry-based learning through technology and curriculum design. *Journal of the Learning Sciences*, 8 (3/4), 391-450.

Class Activity on Thursday, Dec. 1 (SCC103):

- Presentation on and discussion of readings
- Closing Discussion

Week 15: Final Class

Assignments to be completed *before* class this week:

- Prepare presentations describing project and rationale (no more than 10 slides, 10 minutes)
- *Final drafts of project write-ups are due in class at 5:30pm, Thursday, Dec. 8.*

Class Activity on Thursday, Dec. 8 (SCC103):

- Evaluations
- Student Presentations