Winter 2018 – GDPI–PME 801 Collaborative Inquiry

Course Syllabus

Instructor: Dr. Paul Leslie
E-mail: p.leslie@queensu.ca
www.paulleslie.net
Office: Virtual office hours by appointment

January 8th - March 18th, 2018

Overview

This course will enable the student to understand the foundational principles of collaborative learning and to enact those principles in professional practice. This, in turn, will lead to the creation of a collaborative learning community within the context of the course where the knowledge and skills of professional inquiry will be explored and demonstrated.

Please note:

- There is overlap in the timing of the modules and they are of varying lengths.
- Module 4 is perhaps the most intensive as it requires group work, an extensive literature review and engagement with external communities (the name of the course is Collaborative Inquiry).
- As you will note in the course Gantt chart (following the weekly syllabus), you should start thinking about potential group members and associated work in Module 2.
- I urge you to review the entire course structure in order to be clear on the progression of ideas and content and to be able to make connections between the various elements of the course.
- I am happy to negotiate deadlines and due dates as needed. However, please consider your classmates when doing so.

Objectives

- Develop a general understanding of collaborative inquiry
- Develop an understanding of core concepts related to collaborative inquiry including collaboration, inquiry, problem solving, and design.
- Develop an appreciation that collaborative inquiry can take different forms in different professional communities
- Build awareness of the role technology can play in supporting collaborative inquiry
- Develop an understanding of key concepts beyond the core concepts related to collaborative inquiry, including (but not exclusively): contextual constraints, problem framing, inductive/deductive and abductive reasoning, and knowledge building
- Engage in critical review of a problem and the context in which the problem exists in a community
- Propose solutions to a problem that are sensitive to the concerns of the stakeholders

Module Structure

There are five (main) modules in GDPI/PME 801 - Collaborative Inquiry. Some of the modules overlap throughout the duration of the course. There are also un-numbered modules that mark the beginning

(Course & Personal Introductions module), the middle (Mid-course Consultation module) and the end of the course (Course Closure module). The main modular structure is as follows:

- Module 1: Collaborative Inquiry about Core Concepts
- Module 2: Knowledge Building
- Module 3: Develop and Share Artifacts
- Module 4: Engage in Collaborative Design with Course Peers
- Module 5: Connect with a Professional Community: Communicating about Collaborative Inquiry

Evaluation

Feedback and reflection are integral to successful professional inquiry. Across the GDPI/PME courses, participants are provided with various ways to reflect on their progress (e.g. blogging, portfolio development) and to receive on-going feedback about the progress of their ideas, actions and concerns (e.g. group discussion, collaboration, written comments). The instructor, along with other participants in the course, will provide feedback as part of the day-to-day course functioning, however at two points in this course a formal interaction between the instructor and each participant will take place.

At roughly the mid-point of the course, participants will conduct a self-assessment. This process has 2 parts. First, participants will complete the Participant's reflection section of the GDPI-PME Rubric of Professional Inquiry. In addition, participants will consider the 5 elements of inquiry represented on the rubric and construct a profile of the quality of their own learning to date. Once both sections are completed, participants will submit the rubric to the instructor via the Dropbox.

The instructor will then respond with his/her own assessment of the learning on both the rubric and through the Instructor's Remarks. No grade is to be assigned as this mid-course use of the Rubric of Professional Inquiry is for formative purposes only. At the end of the course, again using the Rubric of Professional Inquiry and following the same pattern of interaction, a summative assessment will be completed by the instructor.

Syllabus

Module	Duration	Activity/Assignment

Course & Personal Introductions
 	
Jan 8th – 14th
	1 week	• Discussion Board:
		  ○ About this Course (*only if you have questions*)
		• Activity:
		  ○ Collaborator Artifact
		  ○ Discussion Board – **Jan 14th**
		  ▪ Share link to portfolio / artefact
		  ▪ About me as a Collaborator
		• Discussion Board: **Jan 14th**
		  ○ Background

Module 1.
Collaborative Inquiry Core Concepts
Jan 15th – 28th
	2 weeks	• Discussion Board:
		  ○ Collaborative Inquiry Core Concepts **Jan 21st**
		• Discussion Board:
		  ○ Case Study **Jan 28th**
		• Activity: Core concepts map (draft) - **Jan 28th**
		  ○ Discussion Board:
		  ▪ Post concept maps

Module 2.
Knowledge Building
Jan 29th – Feb 11th
	2 weeks	• Activity:
		  ○ Knowledge Forum **Feb 11th**
		• Activity:
		  ○ Technologies Montage – video (draft)
		  ○ Discussion Board:
		  ▪ Post your video **Feb 11th**
		• Discussion Board: Our Professional Communities
		  ○ Consider potential group members for Module 4
		  ○ Consider one potential professional community to join for Module 3 and 5 **Feb 11th**

Module 3.
Develop & Share Artifacts
Feb 5th – 18th
	2 weeks	• Activity: Final Core Concepts Map
		  ○ Submit to dropbox **Feb 11th**
		• Technologies Montage
		  ○ Submit to dropbox **Feb 18th**
		• Activity: Professional Community Initial Proposal
		  ○ Submit to Module 2 Discussion board: Our Professional Communities **Feb 18th**

Mid-Course Consultation - Submit to dropbox Feb 18th		

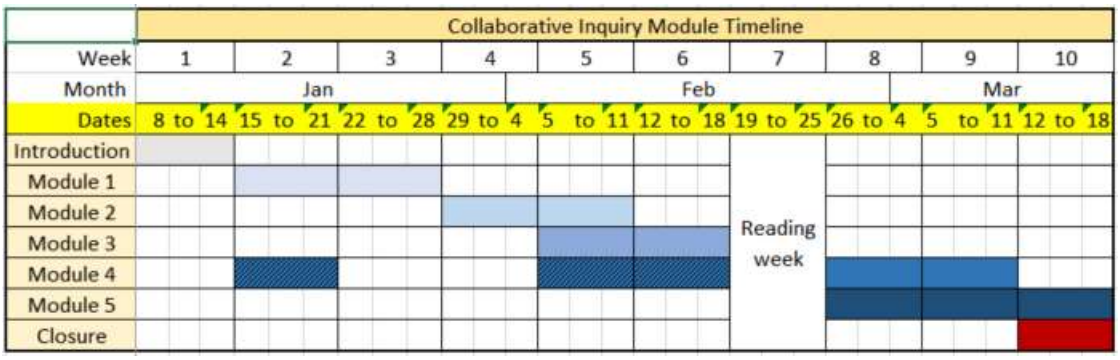
Module	Duration	Activity/Assignment

Module 4.
Engage in Collaborative Design with Course Peers
 	
Jan 15th – Mar 11th
	Over several weeks	• Activity: Solution Concept Written Proposal **Mar 11th**
		  ○ *Note – this is a group activity and assignment
		  ○ Discussion Board:
		  ▪ Post your proposal

Module 5.
Connect with a Professional Community: Communicating about Collaborative Inquiry
Feb 26th – Mar 18th
		• Activity: Connect with a professional community **Mar 18th**
		  ○ Or, create digital foothold
		  ○ Discussion board:
		  ▪ Submit evidence to "Our Professional Communities"

Course Closure
Reflections
March 12th - 18th
		• Activity: My Growth So Far artifact **Mar 18th**
		  ○ Discussion Board:
		  ▪ Submit artefact

Final Course Consultation Submit to dropbox March 18th		



GDPI-PME 801 Course Readings by Module

Introductory Module: Course and Personal Introductions

Videos/Websites

Johnson, S. [Riverhead Books]. (2010, September 17). *Where good ideas come from* [Video file]. Retrieved from http://www.youtube.com/watch?v=NugRZGDbPFU

Taylor, M. (2013, September 5). Collaboration: Oiling the system. [Blog post]. Retrieved from http://www.matthewtaylorsblog.com/thersa/collaboration-oiling-the-system/

Module 1 - Collaborative Inquiry (CI) core concepts (ill-structured, discourse-based, CI as problem solving, CI as design)

Required Readings

Jonassen, D. H. (2000). Toward a Design Theory of Problem Solving. *Educational Technology Research and Development, 48*(4), 63-85.

Spiro, R. J., & DeSchryver, M. (2009). Constructivism: When it's the wrong idea and when it's the only idea. In S. Tobias & T. Duffy (Eds.), *Constructivist Instruction: Success or Failure* (pp. 106-123). New York, NY: Routledge.

Required Case Study to Review & Discuss in D2L

Learning Forward Ontario. (2011). *Collaborative Inquiry: A Facilitator's Guide.* Retrieved from http://misalondon.ca/PDF/collabpdfs/Collaborative_Inquiry_Guide_2011.pdf

Supplementary Readings

Akerson, V. L., Hanson, D. L., & Cullen, T. A. (2007). The influence of guided inquiry and explicit instruction on K–6 teachers' views of nature of science. *Journal of Science Teacher Education, 18*(5), 751-772.

Allen, S. J., & Graden, J. L. (2002). Best practices in collaborative problem solving for intervention design. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology IV* (Vol. 1) (pp. 565-582). Washington, DC: National Association of School Psychologists.

Eris, O. (2003). *Asking generative design questions: a fundamental cognitive mechanism in design thinking*. Paper presented at the 14th International Conference on Engineering Design, Stockholm. Retrieved from http://www.designsociety.org/publication/24150/asking_generative_design_questions_a_fundamental_cognitive_mechanism_in_design_thinking

Rittel, H., & Webber, M. M. (1984). Planning problems are wicked problems. In N. Cross (Ed.), *Developments in design methodology* (pp.135-144). Chichester: John Wiley & Sons.

Schön, D. A. (1992). Designing as reflective conversation with the materials of a design situation. *Research in engineering design, 3*(3), 131-147.

Module 2 - Knowledge Building (Deeper exploration of discourse to support Collaborative Inquiry)

Required Readings

Scardamalia, M., & Bereiter, C. (2006). Knowledge building: Theory, pedagogy and technology. In R.K. Sawyer (Ed.), *The Cambridge handbook of learning sciences* (pp. 97-115). New York, NY: Cambridge University Press.

Turbin, E., Liang, T., & Wu, S. (2011). A Framework for adopting collaboration 2.0 tools for virtual group decision making. *Group Decision and Negotiation. 20*(2), 137-154.

Supplementary Readings

Bernoff J., Li C. (2008) Harnessing the power of the Oh-So-Social web. *MIT Sloan Management Review 49*(3), 36–42.

Dillenbourg, P. & Traum D. (2006). Sharing solutions: Persistence and grounding in multimodal collaborative problem solving. *The Journal of the Learning Sciences*, *15*(1). 121-151.

Lai L. S., Turban E. (2008). Groups formation and operations in Web 2.0 environment and social networks. *Group decision and negotiation 17*(5)*,* 387-402.

Mason, W. & Watts, D. (2012). Collaborative learning in networks. *Proceedings of the National Academy of Sciences. 109*(3).764-769.

Rochelle, J., & Teasley S. D. (1995). The Construction of shared knowledge in collaborative problem solving. In C. O'Malley (Ed.), *Computer supported collaborative learning (pp.* 69-97). Berlin: Springer-Verlag.

Scardamalia, M. (2002). Collective cognitive responsibility for the advancement of knowledge. In B. Smith (Ed.), *Liberal education in a knowledge society* (pp. 67-98). Chicago, IL: Carus Publishing Company.

Stoyanova, N. & Kommers, P. (2002). Concept mapping as a medium of shared cognition in computer-supported collaborative problem solving. *Journal of interactive learning research, 13*(1), 111-133.

Module 3 - Develop and share artifacts and providing feedback

Required Readings

Valkenburg, R. & Kees, D. (1998). The Reflective practice of design teams. *Design Studies 19*(3), 249-271. doi: 10.1016/S0142-694X(98)00011-8

Videos/Websites

EduGains – Ontario Ministry of Education. (2010) *Feedback – The most powerful tool* [Video file]. Retrieved from http://www.edugains.ca/newsite/aer2/aervideo/descriptivefeedback.html

Supplementary Readings

Schon, D. A., & Wiggins, G. (1992). Kinds of seeing and their functions in designing. *Design studies 13*(2), 135-156.

Module 4 - Engage in collaborative design with course peers

Required Readings

Dorst, K., (2011). The core of 'design thinking' and its application. *Design studies 32*(6), 521-532.

Dorst, K., & Cross, N. (2001). Creativity in the design process: co-evolution of problem-solution. *Design studies, 22*(5), 425-437.

Gassmann, O., & Zeschky, M. (2008). Opening up the solution space: The Role of analogical thinking for breakthrough product innovation. *Creativity and innovation management. 17*(2), 97-106.

Goel, V., & Pirolli, P. (1992). The Structure of design problem spaces. *Cognitive science, 16*(3), 395-429.

Supplementary Readings

Barron, B. (2000). Achieving coordination in collaborative problem-solving groups. *Journal of the learning sciences. 9*(4). 403-436. doi: 10.1207/S15327809JLS0904_2

Deketelaere, A., & Kelchtermans, G. (1996). Collaborative curriculum development: An encounter of different professional knowledge systems. *Teachers and Teaching, 2*(1), 71-85. doi:10.1080/1354060960020106.

Svihla, V. (2010). Collaboration as a dimension of design innovation. *CoDesign, 6*(4), 245-262.

Module 5 - Students plan and carry-out connecting with broader professional community (Various professional communities and their approaches to collaborative inquiry)

Required Readings

Ontario Leadership Strategy (2010). Exploring five core leadership capacities: Promoting collaborative learning cultures: Putting the promise into practice*. Ontario leadership strategy bulletin, 3,* 1-23. Retrieved from http://www.edu.gov.on.ca/eng/policyfunding/leadership/ideasintoactionspring.pdf

Ontario Ministry of Education (2010). Collaborative teacher inquiry: New directions in professional practice. *Capacity building series, Secretariat Special Edition #16*, 1-8. Retrieved from http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/CBS_Collaborative_Teacher_Inquiry.pdf

Videos/Websites

Hsu, P. (2013). What can PLCs do for you? *Research brief: are you a true PLC?* 1-8. Retrieved from http://qualityschools.lausd.net/sites/qualityschools.lausd.net/files/Are%20You%20a%20True%20PLC.pdf

Supplementary Readings

Bell, T., Urhahne, D., Schanze, S. & Ploetzner, R. (2010). Collaborative inquiry learning: Models, tools, and challenges. *International journal of science education, 32*(3), 349-377. doi:10.1080/09500690802582241

Capps, D. K., Crawford, B. A., & Constas, M. A. (2012). A Review of empirical literature on inquiry professional development: Alignment with best practices and a critique of the findings. *Journal of science teacher education, 23*(3), 291-318.

Ehn, P. (1993). Scandinavian design: On participation and skill. In D. Schuler & A. Namioka (Eds.) *Participatory design: Principles and practices* (pp.41-77). Hillsdale, NJ: Lawrence Erlbaum Associates.

Keys, C. W., & Bryan, L. A. (2001). Co-constructing inquiry-based science with teachers: Essential research for lasting reform. *Journal of Research in science teaching, 38*(6), 631-645.

Lakkala, M., Lallimo, J., & Hakkarainen, K. (2005). Teachers' pedagogical designs for technology-supported collective inquiry: A national case study. *Computers & Education, 45*(3), 337-356.

Muller, M. J., & Kuhn, S. (1993). Participatory design. *Communications of the ACM, 36*(4), 24-28.