EDER 778.01 L01
Historical and Philosophical Foundations in the Learning Sciences

EDER 678.01 L01
Cognitive and Socio-cultural Foundations of the Learning Sciences

Fall 2016

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Office Hours / Virtual Office Hours: By appointment

Classroom and Meeting time: EDT 826; Wednesdays, 1:00 – 3:50 pm

Term Dates:
September 12 – December 9, 2016
Reading days: Nov 10 & 11, 2016,

Course Description:

Students will develop critical, historical, disciplinary and trans-disciplinary perspectives on theories, designs, and practices in the Learning Sciences. Students will examine cognitive and socio-cultural-historical processes and infrastructures that constitute and support learning, teaching, development and design, in and across diverse settings and contexts, both formal and informal.

Extended Course Description:

The purpose of this course is to help students develop a strong foundation in the Learning Sciences. We will engage in close investigations of disciplinary lenses that have informed and are informing research and practice in the Learning Sciences. We will focus on key historical developments in the scholarship of epistemology, design, and knowledge. Through this exploration, we will develop an understanding of the evolution of the scholarship of learning and design, and build the foundations of a deep understanding of some of the key issues, theories, perspectives and methods that constitute the field of Learning Sciences. Cognitive, socio-cultural-historical, and critical perspectives on learning and design will be examined carefully in this course, and you will also conduct an investigation of learning as a learning scientist as part of this course.

Learner Outcomes:

In this course you will:
- Develop a deep understanding of diverse disciplinary perspectives that are active within the field of the Learning Sciences.
- Trace the historical origin of these perspectives.
- Engage reflectively on a personal learning case.
- Apply disciplinary lenses to effectively analyze cases of learning and design.
- Develop academic writing competencies.

Overview: This is a survey course on contemporary theories of knowledge, learning and design, their historical development, and their implications for the design of learning and instructional environments. The course has three objectives. First, the course introduces students to the broad fields of learning or instructional sciences. We expect after participating in this course, students will be able to go into more advanced course work with a solid grounding in these literatures and a historical understanding of theory development, empirical findings, open problems, and controversies. Second, the course is designed to induct doctoral students into practices of careful reading, clear analytical writing about conceptual problems, and finding and exploring good research problems. Third, the course provides an opportunity for students to engage in the process of structuring and carrying out an investigation of learning.

Weekly Memos: Every week, you are expected to write a short memo based on the readings. If you are reading *N* papers, then I will expect a memo with *N + 1* paragraphs. Each paragraph will briefly summarize a paper, and the additional paragraph will provide a reflective summary of the relationship(s) between the papers, and/or any additional perspective that you may consider to be missing from the papers. Grade is based on completion.

Logistics: This course meets in class every week. We will decide on our community platform that we use to communicate our schedules and readings and build our learning community together. We may decide to meet online or elsewhere for some weeks or for part of the class if we see the need.

REQUIRED READINGS:

There is no required textbook for this course. Instead, various journal articles will be used throughout the course, and a separate reading list will be shared and developed together in class. Students are expected to search and download articles from the University of Calgary e-Journal and e-Book portals independently. There will also be a few book chapters as assigned readings, and they will be made accessible through the library. The details of how to access these book chapters will be shared by the instructor on the first day of class.

WEEKLY COURSE SCHEDULE:

A detailed, suggested daily schedule of Course Topics / activities. This schedule may change to meet the emerging needs and dynamics of the participants in the course. The instructor will organize additional meetings with students as needed.

Date	Topic	Readings and Tasks	Due Dates
Sep 14	*Introduction*	Introduction to the Learning Sciences, to each other, to the learning assignments, and grading; assignment for a case of personal learning.	Discuss Learning Task 1
Sep 21	*Design, Identity, Agency, Learning*	1. DiSessa, A. A. (1983). Phenomenology and the evolution of intuition. In: Gentner, D., & Stevens, A. L. (Eds). *Mental models,* 15-34. Psychology Press. 2. Holland, D. (2001). *Identity and agency in cultural worlds* (pp 3- 19). Harvard University Press. 3. Schön, D. A. (1983). *The reflective practitioner: How professionals think in*	Weekly memo

		action (pp 76 - 104). Basic books.	
Sep 28	*Theoretical Frameworks - Overview*	1. Greeno, J.G., Collins, A.M., & Resnick, L.B. (1996). Cognition and learning. In D.C. Berliner & R.C. Calfee (Eds.), *Handbook of educational psychology* (pp. 15-46). New York: MacMillan. 2. Cobb, P., Confrey, J., diSessa, A., Lehrer, R. & Schauble, L. (2003). Design experiments in educational research. *Educational Researcher, 32*(1), 9-13. 3. Lee, C. D. (2001). Is October Brown Chinese? A cultural modeling activity system for underachieving students. *American Educational Research Journal, 38*(1), 97-141.	Weekly memo
Oct 5	*Synergies Across Frameworks*	1. Wertsch, J. V. (1998). *Mind as action.* New York, NY: Oxford University Press. (selected chapters) 2. DiSessa, A. A. (2001). Intuition & activity elaborated. In: *Changing minds: Computers, learning, and literacy.* (pp 89 - 107). Cambridge, MA: MIT Press. 3. Heath, S. B. (1982). What no bedtime story means: Narrative skills at home and school. *Language in Society, 11*(01), 49-76.	Learning Task 1 Due; Weekly memo
Oct 12	*Design, Practice & Figured Worlds*	1. Schön, D. A. (1983). *The reflective practitioner: How professionals think in action* (pp 21-69). Basic books. 2. Holland, D. (2001). *Identity and agency in cultural worlds* (pp 49 - 65). Harvard University Press. 3. Pickering, A. (2010). *The mangle of practice: Time, agency, and science.* University of Chicago Press.	Weekly memo
Oct 19	*Concepts, misconceptions, and conceptual change*	1. Smith, J. P., diSessa, A. A. & Roschelle, J. (1993). Misconceptions reconceived: A constructivist analysis of knowledge in transition. *Journal of the Learning Sciences, 3*(2), 115-163. 2. Lobato, J. (2006). Alternative perspectives on the transfer of learning: History, issues, and challenges for future research. *Journal of the Learning Sciences, 15*(4), 431-449.	Learning task 2 workshop Weekly memo
Oct 26	*Representations, Experience & Ontology*	1. Daston, L., & Galison, P. (1992). The image of objectivity. *Representations*, 81-81. 2. Gupta, A., Hammer, D., & Redish, E. F. (2010). The case for dynamic models of	Weekly memo

		learners' ontologies in physics. *The Journal of the Learning Sciences*, 19(3), 285-321. 3. Hammer, D., Elby, A., Scherr, R. E., & Redish, E. F. (2005). Resources, framing, and transfer. *Transfer of learning from a modern multidisciplinary perspective*, 89-120.	
Nov 2	*Voices & Intertextuality*	1. Todorov, T. (1984). *Mikhail Bakhtin: the dialogical principle* (pp 41 - 74). Manchester University Press. 2. Rosebery, A. S., Ogonowski, M., DiSchino, M., & Warren, B. (2010). "The coat traps all your body heat": Heterogeneity as fundamental to learning. *The Journal of the Learning Sciences*, 19(3), 322-357.	Learning task 2 workshop; Weekly memo
Nov 9	*Practice, participation and learning*	1. Goodwin, C. (1994). Professional vision. *American Anthropologist*, 96(3), 606-633. 2. Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation* (pp 27 – 54). Cambridge university press. 3. Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation* (pp 89 – 113). Cambridge university press.	
Nov 16	*Critical epistemology: Gender & Sexuality*	1. Sumara, D., & Davis, B. (1999). Interrupting heteronormativity: Toward a queer curriculum theory. *Curriculum Inquiry*, 29(2), 191-208. 2. McWilliams, J. (2016). Queering Participatory Design Research. *Cognition and Instruction*, 34(3), 259-274. 3. Connell, R. (2014). Margin becoming centre: for a world-centred rethinking of masculinities. *NORMA: International Journal for Masculinity Studies*, 9(4), 217-231.	Learning task 2 workshop; Weekly memo
Nov 30	*Critical epistemology: Race, Ethnicity & Colonialism*	1. Bang, M., Curley, L., Kessel, A., Marin, A., Suzukovich III, E. S., & Strack, G. (2014). Muskrat theories, tobacco in the streets, and living Chicago as Indigenous land. *Environmental Education Research*, 20(1), 37-55. 2. Spivak, G. C. (1988). Can the subaltern speak?. In: Nelson, C., & Grossberg, L., (Eds.). *Marxism and the Interpretation of Culture* (pp. 271-313). Macmillan Education UK. 3. Said, E. W. (1989). Representing the colonized: Anthropology's interlocutors. *Critical Inquiry*, 15(2), 205-225.	Weekly memo

Dec 7	*Technology beyond technocentrism*	1. Leander, K. M., Phillips, N. C., & Taylor, K. H. (2010). The changing social spaces of learning: Mapping new mobilities. *Review of Research in Education, 34*(1), 329-394. 2. Wilensky, U., & Resnick, M. (1999). Thinking in levels: A dynamic systems approach to making sense of the world. *Journal of Science Education and technology, 8*(1), 3-19. 3. Sengupta, P., Krishnan, G., Wright, M., & Ghassoul, C. (2015). Mathematical Machines & Integrated STEM: An Intersubjective Constructionist Approach. *Communications in Computer and Information Science*, Vol. 510, 272-288.	Learning task 3 due; Weekly memo

CHANGES TO SCHEDULE:

Please note that changes to the schedule may occur in response to student questions and conversations.

LEARNING TASKS AND ASSESSMENT

There are 4 required Learning Tasks for this course.

LEARNING TASK NUMBER	DESCRIPTION OF LEARNING TASK	PERCENT OF FINAL GRADE	GROUPING FOR TASK
Learning Task #1	**Case study of personal learning:** This is a memo (<= 5 single spaced pages) that describes and presents a brief analysis of a case of learning that you have recently experienced. Your memo should make connections to at least one of the theoretical frameworks that we will read and discuss during the first few weeks of the class.	30%	Individual
Learning Task #2	**Short notes on relationships between key ideas:** You will work in groups of 2 or 3 to write short paragraphs on relationships between the "big ideas" *across* the different papers we are reading. This will be done in the form of in-class workshops, and will be shared in the form of a group blog. **Grade is based on completion.**	20%	Group
Learning Task #3	**Weekly memos.** Every week, you are expected to write a short memo based on the readings. If you are reading *N* papers, then I will expect a memo with *N + 1* paragraphs. Each paragraph will briefly summarize a paper, and the additional paragraph will provide a reflective summary of the relationship(s) between the papers, and/or any additional perspective that you may consider to be missing from the papers. **Grade is based on completion.**	20%	Individual
Learning Task #4	**Investigation of learning.** You are to define a	30%	Individual

	(modest) research question about learning that can be addressed by an observational study of people (or a person) engaged in activity in a particular setting (<= 10 single spaced pages, excluding figures). The goal is to develop convincing evidence about how a person learns something. Your investigation of learning must be accompanied by a video (or audio) recording of learning, or if this is not possible, some other *record of activity*. You are encouraged to link your description and analysis of learning to frameworks and studies included in the assigned reading.		

1. **LEARNING TASK 1: Case study of personal learning (30% of Final Grade; Due Oct 15)**

   For PhD students: This is a memo (<= 5 single spaced pages) that describes and presents a brief analysis of a case of learning that you have recently experienced. When I have taught this course in the past, students have reported on learning to do (and becoming obsessed with) the New York Times crossword puzzle, learning to juggle (with in class demonstration), learning to be a rock climber, learning to navigate a new city, and so on. The topic is entirely up to you (it is personal). You are not expected to make stunning analytical progress in this memo; it is, in part, a way for you to get started with the course and your final assignment for this course (Learning Task 4), an investigation of human learning (see below). Your memo should make connections to at least one of the theoretical frameworks that we will read and discuss during the first few weeks of the class. You are strongly encouraged to include photographic images or artifacts from the learning experience as supplements to your written memo.

   For Masters students: This is a memo (<= 4 single spaced pages) that describes and presents a brief analysis of a case of learning that you have recently experienced. When I have taught this course in the past, students have reported on learning to do (and becoming obsessed with) the New York Times crossword puzzle, learning to juggle (with in class demonstration), learning to be a rock climber, learning to navigate a new city, and so on. <u>You can also focus on a problem of practice that is relevant to your profession or intended profession, academic or otherwise.</u> You are not expected to make stunning analytical progress in this memo; it is, in part, a way for you to get started with the course and your final assignment for this course (Learning Task 4), an investigation of human learning (see below). Your memo should make connections to one of the theoretical frameworks that we will read and discuss during the first few weeks of the class. You are strongly encouraged to include photographic images or artifacts from the learning experience as supplements to your written memo.

   CRITERIA FOR ASSESSMENT OF LEARNING TASK 1

Criteria	Fails to meet requirements (C+)	Meets requirements (B- to B+)	Meets all and exceeds some requirements (A- to A+)
Introduction	Superficially introduces the content of the paper and does not provide any convincing description of the chosen framework.		Provides convincing overview of the chosen theoretical framework, and introduces the purpose and the organization of the paper.

Literature Review & Conceptual Framework	Lacks in synthesizing the scope of the relevant literature and unable to articulate the theoretical framework used for the study.		Explicitly able to articulate the theoretical framework used for the study, and explain why it is a good fit for the current study in light of previous studies in the literature.
Description of the study, or design	Does not describe the study in appropriate detail. Claims are not substantiated by evidence.		Describes the study in appropriate detail. Claims are substantiated by evidence. Ties the claims back to the theoretical framework.
References, organization, and proofreading	Contains few or incomplete references. Pays little attention to APA standards. Sections and paragraphs of the paper do not contain good information organizers. Contains spelling grammatical errors.		Contains a complete list of references, accurately cited using APA format. Shows thoughtful organization to paper, sections, and paragraphs, and contains no spelling and grammatical errors.

2. **LEARNING TASK 2: Short notes on relationships between key ideas – DUE: Ongoing, 20%**

You will work in groups of 2 or 3 to write short paragraphs on relationships between the "big ideas" across the different papers we are reading. This will be done in the form of in-class workshops, and will be shared in the form of a group blog. The material for this task should come from the weekly memos.

CRITERIA FOR ASSESSMENT OF LEARNING TASK 2
Grade is based on completion.

3. **LEARNING TASK 3: Short notes on relationships between key ideas – DUE: Ongoing, 20%**

Every week, you are expected to write a short memo based on the readings. If you are reading N papers, then I will expect a memo with N + 1 paragraphs. Each paragraph will briefly summarize a paper, and the additional paragraph will provide a reflective summary of the relationship(s) between the papers, and/or any additional perspective that you may consider to be missing from the papers.

CRITERIA FOR ASSESSMENT OF LEARNING TASK 3
Grade is based on completion.

4. **LEARNING TASK 4: Investigation of learning – DUE: Dec 8, 30%**

For PhD students: You are to define a (modest) research question about learning that can be addressed by an observational study of people (or a person) engaged in activity in a particular setting (<= 10 single spaced pages, excluding figures). The goal is to develop convincing evidence about how a person learns something. Your investigation of learning must be accompanied by a video (or audio) recording of learning, or if this is not possible, some other *record of activity*. You are expected to link your description and analysis of learning to

frameworks and studies included in the assigned readings, including connections between and across multiple papers and/or frameworks.

For Masters students: You are to define a (modest) research question about learning that can be addressed by an observational study of people (or a person) engaged in activity in a particular setting (<= 8 single spaced pages, excluding figures). <u>You are encouraged to focus on a problem on practice that is relevant to your current or intended professional and research work.</u> The goal is to develop convincing evidence about how a person learns something. Your investigation of learning must be accompanied by a video (or audio) recording of learning, or if this is not possible, some other *record of activity*. You are encouraged to link your description and analysis of learning to any one of the frameworks and studies included in the assigned readings.

CRITERIA FOR ASSESSMENT OF LEARNING TASK 4

Criteria	Fails to meet requirements (C+)	Meets requirements (B- to B+)	Meets all and exceeds some requirements (A- to A+)
Introduction	Superficially introduces the content of the paper and does not provide any convincing description of the chosen framework.		Provides convincing overview of the chosen theoretical framework, and introduces the purpose and the organization of the paper.
Literature Review & Conceptual Framework	Lacks in synthesizing the scope of the relevant literature and unable to articulate the theoretical framework used for the study.		Explicitly able to articulate the theoretical framework used for the study, and explain why it is a good fit for the current study in light of previous studies in the literature.
Description of the study, or design	Does not describe the study in appropriate detail. Claims are not substantiated by evidence.		Describes the study in appropriate detail. Claims are substantiated by evidence. Ties the claims back to the theoretical framework.
References, organization, and proofreading	Contains few or incomplete references. Pays little attention to APA standards. Sections and paragraphs of the paper do not contain good information organizers. Contains spelling grammatical errors.		Contains a complete list of references, accurately cited using APA format. Shows thoughtful organization to paper, sections, and paragraphs, and contains no spelling and grammatical errors.

Distribution of Grades*			
Grade	GP Value	Percent	Graduate Description
A+	4.0	95 - 100	Outstanding
A	4.0	90 - 94	Excellent - superior performance showing comprehensive understanding of the subject matter
A-	3.7	85 - 89	Very good performance
B+	3.3	80 - 84	Good performance
B	3.0	75 - 79	Satisfactory performance. *Note: The grade point value (3.0) associated with this grade is the minimum acceptable average that a graduate student must maintain throughout the program as computed at the end of each year of the program.*
B-	2.7	70 - 74	Minimum pass for students in the Faculty of Graduate Studies
C+	2.3	65 - 69	All grades below B- are indicative of failure at the graduate level and cannot be counted toward Faculty of Graduate Studies course requirements.
C	2.0	60 - 64	
C-	1.7	55 - 59	
D+	1.3	50 - 54	
D	1.0	45 - 49	
F	0.0	< 45	

*Based upon Faculty of Graduate Studies 2016/2017 Calendar, "Distribution of Grades"

It is at the instructor's discretion to round off either upward or downward to determine a final grade when the average of term work and final examinations is between two letter grades.

Werklund School of Education Appeals Policy and Process
- http://werklund.ucalgary.ca/gpe/werklund-school-education-appeals-policy-amp-process

Universal Student Ratings of Instruction (USRIs)
Students are strongly encouraged to complete course evaluations for each course taken in their program. Student feedback on their experience in a course is taken very seriously by the Werklund School of Education in timetabling and staffing courses. Student feedback via the Course Evaluation is used to monitor the quality of teaching, the quality of students' learning experiences and the quality of course design in Graduate Programs in Education.

Students are advised to become familiar with the Faculty of Graduate Studies policies and the University of Calgary support services in these areas: intellectual property, academic integrity, plagiarism, research ethics, effective writing, and English language proficiency. Information about these topics is available through the following web addresses:

- **Plagiarism + academic misconduct:** http://www.ucalgary.ca/pubs/calendar/grad/current/gs-o.html
- **Intellectual Honesty:** http://www.ucalgary.ca/pubs/calendar/grad/current/gs-m.html
- **Integrity**: http://www.ucalgary.ca/pubs/calendar/grad/current/gs-r.html
- **Research Ethics:** http://www.ucalgary.ca/research/researchers/ethics-compliance
- **My Grad Skills:** http://grad.ucalgary.ca/mygradskills
- **Intellectual Property:** http://grad.ucalgary.ca/current/managing-my-program/academic-integrity/intellectual-property
- **Student Success:** http://www.ucalgary.ca/ssc/

Graduate Studies Calendar, Excerpts on Plagiarism:
O.1.a) Definitions
1. Plagiarism - Plagiarism involves submitting or presenting work as if it were the student's own work when it is not. Any ideas or materials taken from another source written, electronic, or oral must be fully and formally acknowledged.

(b) Parts of the work are taken from another source without reference to the original author.
(c) The whole work (e.g., an essay) is copied from another source, and/or,
(d) A student submits or presents work in one course which has also been submitted in another course (although it may be completely original with that student) without the knowledge of or prior agreement of the instructor involved.

O.1.b) Penalties, can include and are not limited to:
1. Failing Grade - A student may be given a failing grade in either an exercise or course in which that student is found guilty of plagiarism, cheating or other academic misconduct. A student may not avoid a failing grade by withdrawing from the course.
2. Disciplinary probation.
3. Suspension.
4. Expulsion.

Copyright: All material used in the course is for the sole use of the individual and should not be recopied in either print or digital format.   For copyright guidelines, including those relating to photocopying and electronic copies, please refer to the Association of Universities and Colleges of Canada (AUCC) fair dealing guidelines: http://library.ucalgary.ca/copyright

Academic Accommodations – It is the students' responsibility to request academic accommodations. If you are a student with a documented disability who may require academic accommodations and have not registered with Student Accessibility Services, please contact them at 403-220-6019. Students who have not registered with Student Accessibility Services are not eligible for formal academic accommodations.   More information about academic accommodations can be found at www.ucalgary.ca/access .

Accommodations on Protected Grounds other than Disability
Students who require an accommodation in relation to their coursework or to fulfill requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to their Instructor or the appropriate Associate Dean, Department Head or the department/faculty designated contact person. Students who require an accommodation unrelated to their coursework or the requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Vice-Provost (Student Experience). For additional information on support services and accommodations for students with disabilities, visit www.ucalgary.ca/access/.

Campus Security provides a range of services intended to promote and facilitate a safe and secure learning and living environment, e.g. the SafeWalk program for students attending classes on campus. For more information please visit http://www.ucalgary.ca/security/ or telephone 403-220-5333.

The **Freedom of Information Protection of Privacy Act** (FOIPP) prevents instructors from placing assignments or examinations in a public place for pickup and prevents students from access to exams or assignments other than their own. Therefore, students and instructors may use one of the following options: return/collect assignments during class time or during instructors' office hours, students provide instructors with a self-addressed stamped envelope, or submit assignments, or submit/return assignments as electronic files attached to private e-mail message.

Emergency Evacuation Assembly Points - For both the Education Tower and Education Block, use the Scurfield Hall Atrium (Primary) or Professional Faculties Foodcourt. See: http://www.ucalgary.ca/emergencyplan/assemblypoints