Special Topics: Computer Supported Collaborative Learning

Course Number: 05-899 E
Day/Time: Mon/Wed 9:00am-10:20am
Location: SCR 201
Units: 12

Instructors:
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You will be required to purchase your own copy of the text book, which you can order from Amazon.com. All other readings will be provided in pdf form in the course blackboard account.

Prerequisites: None. Some familiarity with educational technology, linguistics, or machine learning would be beneficial, but not required.

Course Description

Collaborative technologies featured in the current day social web offer a snapshop vision of the next generation of learning opportunities. Environments such as MOOCs, the Knowledge Forum, Wikipedia, and the Virtual Math Teams environment offer a wide range of formal and informal learning opportunities to individuals and groups worldwide. These social web technologies hold the potential to greatly increase opportunities for fostering advancement of underserved populations and leveraging the large amount of out-of-school time that school age kids have for their intellectual and social development. The field of Computer Supported Collaborative Learning has as one of its foundational goals to work towards understanding the pedagogical and technological features that make on-line education in general, and collaborative learning in particular, effective. The purpose of this class is to expose students to the foundational theoretical, technological, and methodological issues underlying previous work in on-line learning, to introduce students to the wide range of current on-line environments for formal and informal interaction and learning on-line, and to explore current research in improving the quality of experiences these environments have to offer. The course is oriented around a hands-on group project of the student's own choosing and design that will offer the opportunity to gain experience with available tool kits and work towards making their own contribution to what the modern day web has to offer for on-line learning.
Assignments

I. This semester as an important part of reflecting on the readings as a group and forming a consensus vision of the field of CSCL, we will work together on a CSCL mediawiki, which you will find at http://moon.lti.cs.cmu.edu/wiki.

a. Create an account for yourself on the wiki. When you log into the wiki, you will find a description of the main themes of the course described. In the current wiki, there is a linked page set up for each of those themes. (If it asks you to authenticate before getting to the wiki to open an account, use login name cmu and password cscl).

b. On the talk page for each theme, there is a reflection area set up for each lecture. You are required to respond to a reflection prompt in preparation for each class period starting with the second lecture. Sometimes these reflections will require making connections with discussions posted earlier in the semester. The deadline for submitting reflections is 8pm the night before the lecture. The prompt will be posted at least 1 week prior to the lecture and will relate to the readings for that lecture.

c. Starting with Week 3, each week two students will take responsibility for starting a synthesis of the discussion from the reflection prompts as content on the content page for the theme of the week. The instructors will take responsibility for weeks 1 and 2 to illustrate what is required. The synthesis should be posted no later than 10 days after the first lecture in that student pair’s week (e.g., the synthesis of Week 2 should be posted by Wednesday of Week 3).

d. The students who take responsibility for a week of material are responsible for the representation of that material in the wiki for the whole semester. Thus, they should take an active role in discussions related to representation of that content on the wiki and connections between it and the other topics on the wiki throughout the semester.

e. 20% of each student’s course grade will be based on active participation in the wiki and idea leadership in that space.

II. Term Project: Work in groups of 3 or 4 to design and prototype a form of group learning support. You may pick any issue relevant to the course to focus on with your prototype, but the design challenge theme for the semester is supporting group project work in MOOCs. Your project ideas are meant to be inspired in part by your own experiences coordinating your work in the online environment that will be used to manage the course.

Below are individual assignments that are meant to cumulatively result in the completion of the term project, which is cumulatively worth 70% of your grade. The purpose of the project is to give students experience with each part of the process of designing and prototyping affordances for online group learning, with the understanding that there is not sufficient time to perfect each step along the way.
(a) In week 1, work through the Quick Guide to Creating a Learning Community, which includes some brief activities you will need to complete. It will introduce you to our CSCL Network and CSCL Wiki, which will provide the infrastructure in which the course will be managed. Pay attention to which aspects of the course infrastructure might annoy you. You should also get an account on some MOOC platform such as NovoEd, Coursera, or edX and informally participate in a course or at least poke around during weeks 1 and 2 of this course just to get a feel for what the experience is like. You will write up a reflection of this experience as Assignment 1, which will be due by Monday of Week 3. Please see the write up of Assignment 1 in the Assignments folder on the CSCL Wiki.

(b) Building on the discussion from class in Week 3 Lecture 2, identify a problem regarding learning in online spaces like our own course management system. Create a group in the CSCL Network with just you as a member (initially) and add a descriptive paragraph to the group page describing the problem and ideas for a potential solution. Describe what kinds of skills will need to be represented in a project group that would attack that problem for the course project (due by Monday of Week 4).

(c) Create a thread in the Idea Thread Mapper with your informal project proposal paragraph. Then participate in at least two other students’ threads. Also post a response to each post other students post to your idea thread (due by Monday of Week 5).

(d) Form teams in the CSCL Network through the messaging functionality. You can search through student profiles to identify people who would be good team members give your goal, or you can search through group pages to identify potential projects proposed by other students that you might want to get involved in. Each team must have a proposal abstract (which will be based on the discussion in the idea thread mapper) and 3 or 4 students. You either need to attract students to your idea, or you need to join someone else’s group (in which case, you should mark your group page as defunct). Teams must be finalized by Monday of Week 7.

(e) Write a more formal project proposal with your team. These will be presented in class the week after Spring Break.

(f) In Week 13 each project team must set up a 15 minute progress check meeting with the course instructors to discuss the project progress and get formative feedback for the final stretch.

(g) Present your project in class during Week 15. Final paper due by Tuesday, May 12 at midnight.

Grading
There will be no exams. The term project and its components are 70% of the grade. Wiki participation is 20% of the grade, and active classroom discussion is 10% of the grade.
Syllabus (Readings)

Overview of the Field of CSCL (Jan 12-Jan 14)

Week 1 Lecture 1: Course Intro & History of the Field


Week 1 Lecture 2: Network Analysis of the Community


Research on Learning in MOOCs (Jan 21-Jan 26)

Week 2 Lecture 1: no class meeting

Week 2 Lecture 2: Brief Survey on MOOCs


Week 3 Lecture 1: Learning Analytics in MOOCs

Wen, M., Yang, D., Rosé, D. (2014). Linguistic Reflections of Student Engagement in Massive Open Online Courses, in *Proceedings of the International Conference on Weblogs and Social Media*


**Design, Ideation, and Learning (Jan 28/Feb 2)**

**Week 3 Lecture 2: Design Methods**


Design activity in class in sticky notes --- kickoff for project ideas, begin team formation

**Week 4 Lecture 1: Idea Thread Mapper**


**Theoretical and Methodological Foundations (Feb 4 - Feb 18)**

**Week 4 Lecture 2: Cognitivist Perspectives**


**Week 5 Lecture 1: Metacognitive and Motivational Perspectives**


**Week 5 Lecture 2: Agent Based support for ideation**

Week 6 Lecture 1: Socio Cultural Approaches


Week 6 Lecture 2: Intro to Collaborative Process Analysis


**Argumentative Knowledge Construction and Cultural Differences (Feb 23/Feb 25)**

Week 7 Lecture 1: Script Based Support for Argumentative Knowledge Construction


**Week 7 Lecture 2 Supporting Knowledge Construction in the face of Cultural Differences**


**Conflict (Mar 2/Mar 4)**

**Week 8 Lecture 1**

**Week 8 Lecture 2**


**Spring Break**

**Project Proposals (Mar 16/Mar 18)**

**Week 9 Lecture 1: in class presentations and feedback**

**Week 9 Lecture 2: in class presentations and feedback**

**Collaboration in Physical Spaces (Mar 23/Mar 25)**

**Week 10 Lecture 1**


**Week 10 Lecture 2**


**Augmented Reality and Game Based Learning (Mar 30 – Apr 6)**

**Week 11 Lecture 1**


**Week 11 Lecture 2**


**Week 12 lecture 1 Collaboration in Game Based Learning**

**Dynamic Collaboration Support and Adaptive Scripting (Apr 8 – Apr 27)**

**Week 12 Lecture 2 Conceptual Foundation**


**Week 13 Lecture 1: Facilitated Group Learning**


**Week 13 Lecture 2 Teacher Support**


**Week 14 Lecture 1 Flexible Scripts**


**Week 14 Lecture2 Teacher Assistance and Macro-Scripts**


**Week 15 Lecture 1 Facilitation Agents**

Wrap Up (Apr 29)

*Week 15 Lecture 2: Final Project Presentations (Poster Session)*

Final paper due on Tuesday, May 12