AT&T Faculty-Staff Awards in Instructional Technology

Course Identifier: CEP 910
Course Name: Current Issues in Motivation and Learning
Semester: Fall 2011
Number of Students: 14
Department: CEPSE
College: Education

Primary Contact: Dr. Cary J. Roseth
Email: croseth@msu.edu
Phone: 517-515-9865

Faculty and Staff Involved in Developing and Offering the Course

- <u>Dr. Cary J. Roseth</u>   Assistant Professor   Course Instructor   croseth@msu.edu
- <u>Mete Akcaoglu</u>   Research Assistant   Web-site developer   akcaoglu@msu.edu
- <u>Dr. John Bell</u>   Adj. Associate Professor Technology advisor   johnbell@msu.edu
- <u>Ammon Wilcken</u>   Teaching Assistant   Course/Grading TA   wilckena@msu.edu

Which Competition Are You Entering: BLENDED/HYBRID COURSE

I. Course Description

CEP 910, *Current Issues in Motivation and Learning,* is a doctoral-level course providing an overview of motivational research in psychology and education. The course focuses on theories of motivation and the broad question of how individual and social-contextual factors influence motivation. Student performance is based on *Participation*, *Article Reviews* (1-page summary of empirical studies), *Reading Summaries* (1-page summary of course readings), *Article Critiques* (8- to 10-page critical review of empirical studies), and an 8- to 10-page *Course Paper*.

CEP 910's hybrid design reflected three seemingly conflicting goals.

- The first goal was to open the course to Educational Psychology Educational Technology (EPET) hybrid doctoral students who, as full-time professionals working outside East Lansing or, in one case, the state of Michigan, were physically unable to attend face-to-face class sessions.

- The second goal was to match course content with various instructional techniques, including lecture, seminar-like discussions, and cooperative activities in which students work together in small-groups. The emphasis on cooperative activities was guided by theory and research highlighting the importance of making students feel a sense of belonging (Baumeister & Leary, 1995), meeting their needs for autonomy, competence, and relatedness (*self-determination theory;* Deci & Ryan, 2000), and maintaining mastery rather than performance goals (*goal theory;* e.g., Ames & Ames, 1984).

- The third goal was to involve students in actual research on motivation. Rather than simply read about research, we wanted students to be involved in data collection and, so doing, think deeply about the strengths and limitations of measuring motivational outcomes.

In short, our challenge was to achieve all three of these goals without compromising any one. This required significant technological innovation, as traditional solutions required compromises that we were not willing to make. For example, whereas most web conferencing and streaming technologies (e.g., Skype, Adobe Connect) support synchronous lecture and seminar-like discussions, they do not allow the instructor to monitor and direct students working in separate small groups. Similarly, whereas offering 'separate but equal' FTF and asynchronous courses overcomes geographic boundaries, it precludes synchronous interaction among FTF and hybrid students. Offering separate courses also precludes shared experiences in motivational research.

As detailed below, technology was used *in every aspect of the course* to reconcile the goals of overcoming geographic boundaries in a way that supported diverse pedagogies and allowed for a shared experience of what it means to conduct research on motivation.

II. Learning and Interaction Goals of the Course or Technology-enhanced Innovation

"Blended learning" typically refers to the combined use of instructor-led FTF instruction for some aspects of the course, and asynchronous online instruction for others. Thus, 'blended' indicates an either-or approach that, ideally, matches the affordances and constraints of FTF and asynchronous online pedagogies with students' learning needs and course content.

One of the innovations of CEP 910 is that the term 'blended' refers to more than either FTF or asynchronous online instruction. In CEP 910, blended also referred to *simultaneous* FTF and synchronous online instruction, as hybrid students attended FTF sessions virtually. Blended also referred to the use of small group activities involving all possible combinations of FTF and hybrid students, including FTF students working with other FTF students, FTF students working with hybrid students, and hybrid students working with other hybrid students (see Figure 1).

Figure 1. Multiple, simultaneous, and synchronous two-person groups involving different combinations of face-to-face (FTF) and hybrid (H) students. Specifically, moving left to right, we see FTF-H, FTF-H, FTF-FTF, FTF-FTF, FTF-H, FTF-H, FTF-FTF.

In CEP 910, 'blended' also involved four asynchronous courses sessions scheduled intermittently during the semester. Guided by theory and research on *task-technology fit* (Maruping & Agarwal, 2004), these sessions capitalized on the affordances of asynchronous online learning, providing students with more flexibility about where and when they would complete course activities while challenging them to compose written responses to discussion questions that required more time for reflection and, on occasion, access to additional resources. Importantly,

the intermittent scheduling of the asynchronous sessions also capitalized on the interpersonal relationships nurtured during synchronous FTF sessions, ensuring that students' sense of belonging and self-determination needs provided an optimal motivational context for working independently in asynchronous online contexts.

In sum, the major technology-enhanced innovation of CEP 910 was accomplishing both of our first two goals, opening the course to hybrid doctoral students without compromising the range of pedagogies or the extent to which hybrid students participated in FTF course sessions. We know of no other course using technology to support FTF and hybrid students across such diverse pedagogies in both synchronous and asynchronous online contexts.

III. Points of Interest and Innovation

To support CEP 910's blending of virtual and FTF sessions as well as asynchronous online components, it was necessary to create a new course management platform that was secure, easily accessible, and user-friendly. In effect, this platform needed to replace the FTF classroom as the course's common meeting area, providing both a synchronous and asynchronous link amongst all class members who were never in the same geographic location at the same time. The next sections highlight the various technologies used in creating this platform.

- **Google Hangouts**

Google Hangouts were used to support synchronous interaction between FTF and hybrid students. Unlike traditional web-conferencing and streaming technologies, Google Hangouts allowed the hybrid students to "move around" the classroom and to do so *on their own,* just as a FTF student might move from one small group discussion to another in a traditional FTF context.

To use Google Hangouts, at the start of each FTF session we invited the hybrid students to five different Hangouts (e.g., Hangout #1, Hangout #2, etc.) corresponding to five different computers (e.g., Computer #1, Computer #2, etc.) in the FTF classroom. Before class, we also posted the small group assignments for a given day on the course website (see Figure 2). This ensured that, during class, all students – whether FTF or hybrid – knew "where" to be.


Figure 2. A typical weekly schedule, with small group assignments listed in the right-hand column. Group numbers correspond to classroom computers and Google Hangouts (e.g., Group #1 = Computer #1 = Hangout #1).

As an example of how students "moved" between different Google Hangouts, consider the start of a typical FTF class session. Students began each FTF class session in their Base Groups (e.g., Base Group #1), with FTF students sitting next to a classroom computer that hosted a corresponding Hangout (e.g., Base Group #1 sat at Computer #1 that hosted Hangout #1) and hybrid student joining the corresponding Hangout (e.g., Base Group #1 = Hangout #1). When prompted by the instructor, students then left their Base Groups and joined a different small group to complete their Article Reports. Thus, a hybrid student in Base Group #1 that was assigned to Article Report Group #4 would "move" from Hangout #1 to Hangout #4. Simultaneously, FTF students assigned to Group #4 would physically move to Computer #4 (i.e., Hangout #4) where the hybrid students would be waiting for them. More often than not, it would take FTF students more time to move computers than hybrid students to move Hangouts!

With practice, Google Hangouts worked seamlessly and allowed FTF and hybrid students to participate in a variety of cooperative activities, ranging from the simple (e.g., base groups, 'turn-to-your neighbor' discussions) to more complex (e.g., jigsaw, constructive controversy; for a review cooperative learning activities, see Johnson & Johnson, 2007). Importantly, Google Hangouts also allowed every member of the class to work with every other member of the class, regardless of their FTF or hybrid status. Figures 3 and 4 display two examples of Google Hangouts being used during the course.

Figure 3 (above). Two FTF students and one hybrid student working together via Google Hangouts.
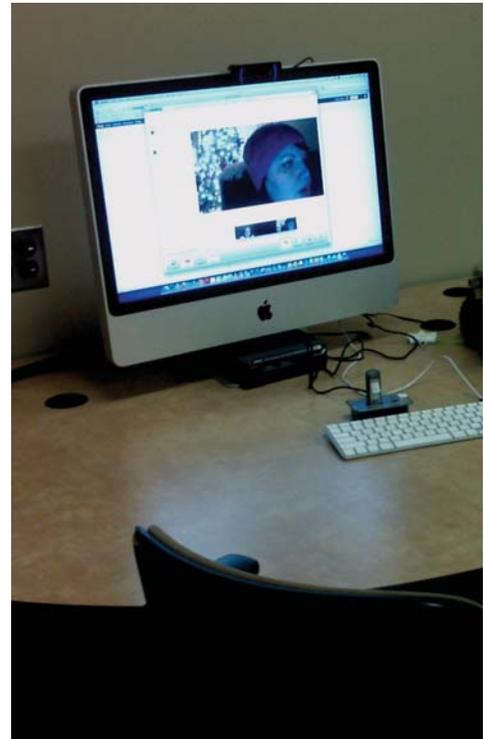
Figure 4 (right). Two hybrid students working together via Google Hangouts.

- **Using an Instructor "Stream" and Wireless Microphones**

During FTF class sessions, another challenge was to enable hybrid students to see and hear the instructor during lecture or when he would interrupt small group work to clarify a point or direct students' efforts. Using the classroom computers worked perfectly for Hangouts and small-group

work, but their physical locations around the classroom made it nearly impossible for hybrid students to see or hear the instructor.
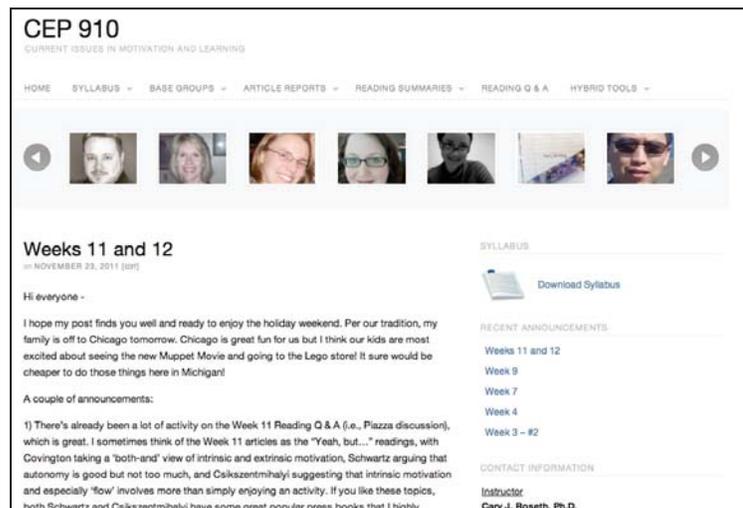
We solved this problem by embedding a HD stream of the instructor in the course website and by using wireless microphones for the Google Hangouts. Specifically, when the instructor wanted to address the entire class, hybrid students simply turned to the embedded video stream of the instructor on the course website. For audio, the instructor simply collected the five wireless microphones corresponding to the five Google Hangouts prior to addressing the class as a whole. This enabled the hybrid students to see and hear the instructor perfectly while avoided audio feedback between the instructor video stream and the Hangouts. It also enabled hybrid students to remain visually connected to their small groups while they focused on the instructor.

- **WordPress Course Website**

We created a course website using the WordPress platform as it was free, relatively easy to use, and provided great flexibility to embed course content and a variety of synchronous and asynchronous collaborative tools. We also felt that WordPress was most likely support the sustainability and scalability of future versions of the course. Figures 5 and 6 show the course site's secure login and home page, respectively.

*Figure 5.* Secure login.   *Figure 6.* Course home page.

Another design challenge was enabling collaboration between students, regardless of their geographic location or, for that matter, synchronous or asynchronous time of participation. To do this we used iframe HTML code to embed Google Forms, EtherPads, and the Piazza website directly into the course website.

- **Google Forms**

Google Forms were used to support Base Group activities and peer feedback on the *Article Review* assignment. Besides being free, Google Forms allowed us to record and display students' responses over the semester.

For Base Groups, students used embedded Google Forms to answer questions at the beginning and end of every weekly session. Specifically, students reported weekly preparation levels, answered a "check-in" question designed to nurture positive interpersonal relationships, recorded important content points, and set goals for subsequent weeks. Thus, in keeping with theory and research on meetings students' self-determination needs and maintaining mastery goal-structures, Google Forms helped us to create a dynamic record of students' growth and change during the course wherever in the world they may be located. Figures 7, 8, and display examples of the embedded Base Groups forms and various reports.

Figure 7. A Google Form embedded in the course website for Base Group activities.
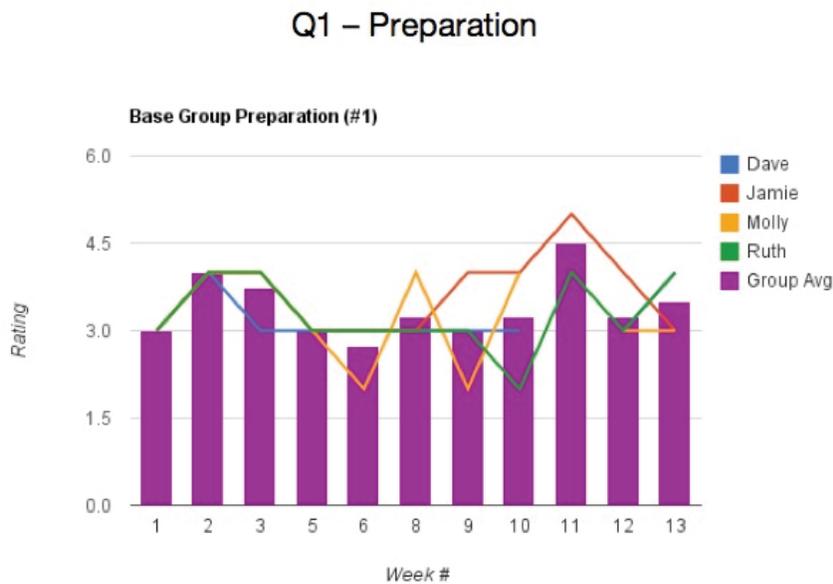
Figure 8. An embedded report of Base Group preparation ratings.

Q3 – Very Important Points (VIP)

Week	Dave	Jamie	Molly	Ruth
W1	The technique of reading academic article.	Brophy - It is more feasible to think about ways to motivate students to learn than to promote sustained moments of intrinsic motivation.	Learning to navigate all the course technologies was an important factor for me this week. I learned not to switch rooms while instructions are being given because you lose key information.	It is important to look at the conceptual structure of an article when trying to get the main ideas.
W2	The reporting and summary method, with the Also interesting were several questions the instructor posted.	Not sure it's a VIP, but the question about "what does a good grade mean?" helped me think about the extrinsic/intrinsic motivation debate.	Different conceptual understanding of rewards and the impact of choice.	It was interesting to think about the why of motivation and see how different authors would think about it.
W3		SDT - the main focus is on the 3 basic	OIT & CET - where they fit	The connection between relationships and

Figure 8. An embedded report of Base Group "Very Important Points" recorded at the end of each class session.

For the *Article Reports* assignment, students used embedded Google Forms to provide feedback to their peers on both their oral and written reports. Students also used Google Forms to submit a URL to their Google Doc written report, which peers and the course TA then accessed and provided feedback. Figures 9 and 10 display the feedback forms and URL submission form, respectively.

Figure 9. An embedded Google Form used to for peer feedback on classmates' oral Article Reports.

Figure 10. An embedded Google Form used to submit Article Review URL's and support written peer feedback.

- **EtherPads**

For the *Reading Summary* assignments, we used EtherPads which, like Google Docs, support real-time, online collaboration but, unlike Google Docs, may be embedded into the course website using iframe HTML. We created an EtherPad for every course reading, allowing students to complete their part of the reading summary even as other students synchronously or asynchronously contributed to the same assignment (see Figure 11).
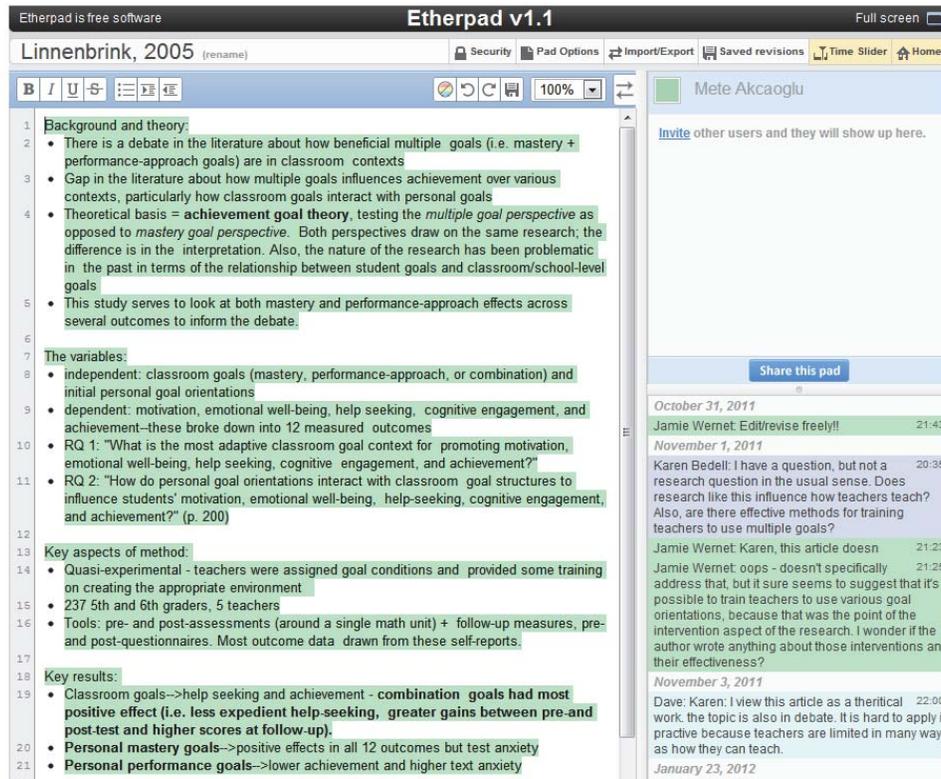

Figure 11. Collaborative writing with EtherPads

- **Piazza**

In addition to real-time collaboration tools such as Google Hangouts, Google Forms, and EtherPads, we also needed to support students' asynchronous communication. Specifically, we wanted to create a discussion forum that allowed students to tag posts, post questions and be easily alerted about new posts and responses easily. Thus, we also embedded Piazza in the course website (see Figure 12). Piazza is a free web-base service that supports question and answer forums with unique affordances such as email notifications, tagging, and both named and anonymous posting. Over the semester, Piazza proved essential in answering weekly questions and, during asynchronous course sessions, supporting lively discussion forums.
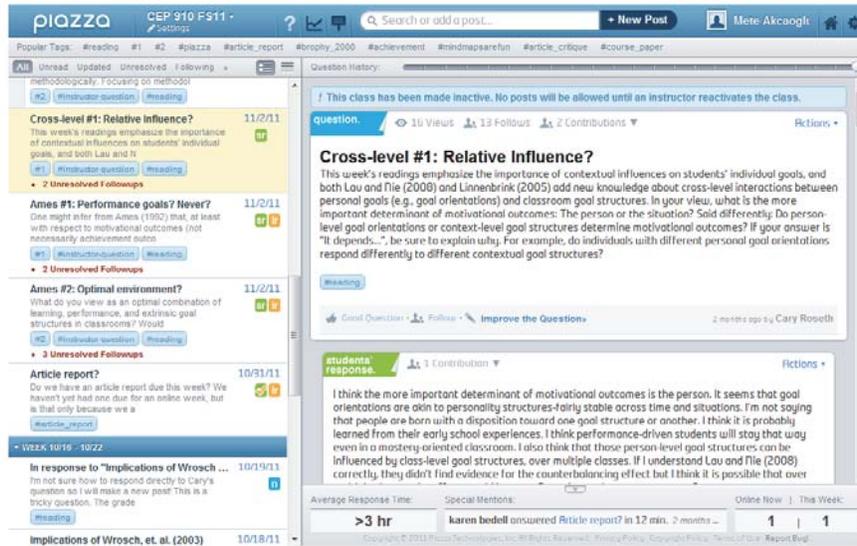
Figure 12. Piazza Q&A software embedded within CEP 910

- **Experience-Sampling Survey Tool**

Finally, the third goal informing the design of CEP 910 was to involve students in actual research on motivation. To do this, we developed a Java-based survey tool in the spirit of Csikszentmihalyi's (1990) Experience Sampling Method (ESM) that prompted students to answer survey questions once per hour when logged into the course website (see IRB# x11-1073e). Our goal was to document FTF and hybrid students' experiences as they occurred "in-the-moment," and then link these experiences to their subjective experience of context (FTF, synchronous online, asynchronous online), instructional activities (i.e., base group, lecture, small-group discussion), and time (i.e., week one, two, etc.). The final dataset was shared with all members of the class and we now are in the process of completing the data analyses. Figure 13 displays the pop-up survey as it appeared on students' computers.

Figure 13. Custom designed, pop-up experience-sampling survey tool linked to the course website.

IV. Evidence of Effectiveness with Students

The SIRS comments provide some evidence of students' support for our efforts in CEP 910.

Overall, I loved this course and learned more in this semester than I have in several other semesters combined. I very much appreciate the thoughtfulness that went into the course design and structure. I enjoyed the hybrid structure and the use of technology.

The course assignments were good and contributed to both my understanding of the material as well as furthering my ideas about motivation as related to my research interests. Thanks for a wonderful class! I would take another class from you again in a heartbeat.

Really enjoyed the course!!

Cary is the most excellent instructor I've ever had. He should receive his tenure asap!

I enjoyed the class, the instructor and the material.   I think the instructor really cared about teaching. Thanks to the instructor, and two TAs who put a lot of extra time into the preparation. the format of class is great.   The technology part did not work so well in the beginning, as the course goes on, the technology worked well, especially in the last few sessions.   One suggestion: reduce the frequency of survey. and also reduce the number of questions in the survey.

I really appreciated the many techniques, processes, varieties of tasks, and so on in this class. I liked having the opportunity (and requirement!) to choose the weekly article to read and summarize related to our interests. It was great that they fed into our final paper. Ultimately, I learned A LOT and it was the most creatively structured class I've ever taken.

V. Plans for Sustainability

We have every intent of continuing to offer CEP 910 to both hybrid and FTF doctoral students in the future. Financially, the development and sustainability of the course is enhanced by the fact that everything we used to create the course site was free (e.g., Google Hangouts, Google Forms, EtherPads, Piazza, Survey Tool, etc.). Our department also believes that some of the course innovations (e.g., the survey tool, use of Google Hangouts) may be applicable to other course formats. We agree with this idea and believe this course provides a model for linking theory-based, evidence-based pedagogy with innovative technologies and the unique demands of integrating the needs of both FTF and hybrid students.