Curricular Redesign Grant Proposal

2011-2012

Project Title:
Exploring Mobile Technologies to Increase Student Learning

Principal Investigator
(Include campus & Department)

Tanya Joosten, University of Wisconsin-Milwaukee,
Learning Technology Center

Co-Investigator(s)
(Include campus & Department)

Sharon Stoerger, University of Wisconsin-Milwaukee,
Learning Technology Center

Date: March 7, 2011
Project Title: Exploring Mobile Technologies to Increase Student Learning

Project PI (include title/academic rank and departmental affiliation):
Tanya Joosten, Associate Director, Learning Technology Center, University of Wisconsin - Milwaukee

Co PI(s) (include title/academic rank and departmental affiliation):
Sharon Stoerger, Instructional Design Consultant, Learning Technology Center, University of Wisconsin – Milwaukee

Campuses Involved: University of Wisconsin - Milwaukee

Amount Requested: $15,000

Student Impact (approx number): At least 500 students.

Program or Course(s) Impact (approx number): Initially 10 courses, but this may expand to 20 by the end of the grant period.

ABSTRACT: 300 Word Maximum

Today’s students come to campus with a variety of technology devices and Internet-based accounts. Students may be engaged in online conversations and activities, but faculty, including those across the UW System campuses, continuously face the challenge of increasing engagement and communication in their classrooms. In particular, faculty teaching hybrid or online learning environment have found it difficult to communicate with students due to the mediated environment.

Educators have also recognized that students typically favor certain technologies over others. For instance, students are rapidly adopting mobile devices such as laptops and Internet-capable handheld devices and are quickly becoming power users. Currently, the University of Wisconsin-Milwaukee (UWM) has been conducting studies on how mobile technologies (e.g., Web clickers and Twitter Back Channel) can enhance learning in face-to-face (F2F), blended, and online classes through the use of students’ mobile devices (laptops, iTouch, smartphones, etc.). While both studies have provided UWM with a preliminary foundation for understanding how mobile technologies can impact the learning process, more research is needed.

This proposal is designed to explore the use of mobile technologies and the ways in which they may support student learning. More specifically, this research will investigate the use of mobile devices for the following purposes:

- Deliver content (e.g., announcements, PDFs, YouTube videos, simple augmented reality);
- Foster experiential learning experiences (e.g., simulations, role play);
- Data collection (e.g., fieldwork, interviews, Internet research);
- Feedback (e.g., Twitter backchannel, mobile clickers); and
Title: Exploring Mobile Technologies to Increase Student Learning

Abstract

Today's students come to campus with a variety of technology devices and Internet-based accounts. Students may be engaged in online conversations and activities, but faculty, including those across the UW System campuses, continuously face the challenge of increasing engagement and communication in their classrooms. In particular, faculty teaching hybrid or online learning environment have found it difficult to communicate with students due to the mediated environment.

Educators have also recognized that students typically favor certain technologies over others. For instance, students are rapidly adopting mobile devices such as laptops and Internet-capable handheld devices and are quickly becoming power users. Currently, the University of Wisconsin-Milwaukee (UWM) has been conducting studies on how mobile technologies (e.g., Web clickers and Twitter Back Channel) can enhance learning in face-to-face (f2f), blended, and online classes through the use of students' mobile devices (laptops, iTouch, smartphones, etc.). While both studies have provided UWM with a preliminary foundation for understanding how mobile technologies can impact the learning process, more research is needed.

This proposal is designed to explore the use of mobile technologies and the ways in which they may support student learning. More specifically, this research will investigate the use of mobile devices to for the following purposes:

- Deliver content (e.g., announcements, PDFs, YouTube videos, simple augmented reality);
- Foster experiential learning experiences (e.g., simulations, role play);
- Data collection (e.g., fieldwork, interviews, Internet research)
○ Feedback (e.g., Twitter backchannel, mobile clickers); and
○ Content creation by students (e.g., video, images, audio).

Quantitative and qualitative research designs would be used to formally evaluate these mobile teaching and learning activities. The results of this research would be shared throughout the UW System and support future initiatives involving educational uses of mobile technologies.

**Project Narrative**

**Statement of Need/Problem**

In 2004, Google email was launched. At that time, students ranked email as the top online activity, followed by web searching (Smith, Caruso, Kim, 2010). Today’s students come to campus with a variety of technology devices and Internet-based accounts. Students may be engaged in a plethora of online conversations and activities, but faculty, including those across the UW System campuses, continuously face the challenge of increasing engagement and communication in their classrooms. In particular, faculty teaching hybrid or online learning environment have found it difficult to communicate with students due to the mediated environment.

Educators have also recognized that students typically favor certain technologies over others. For instance, students are rapidly adopting mobile devices such as laptops and Internet-capable handheld devices and are quickly becoming power users. While students may be actively using mobile devices for personal reasons, they are just beginning to integrate these tools into their academic experience. For example, the results of an Abilene Christian University (ACU; 2009) indicate that more than 80% of the 109 faculty respondents regularly use mobile devices in their classes.
Numerous reports indicate that the demand for mobile devices is on the rise. A report produced by Morgan Stanley (Meeker, Devitt, & Wu, 2010) claims that the mobile Internet is being adopted at a faster rate than the desktop internet. At the end of 2009, there were approximately 4.5 billion cell phone subscribers worldwide, and that number is expected to reach 5 million in 2010. While the current economic recession has dampened sales in some markets, the demand for mobile devices remains strong (e.g., Parks & Teltscher, 2010). The comScore Report for August 2010 (Flosi, 2010) states that 234 million Americans ages 13 and older used mobile devices from June-August 2010; 55.7 million people in the U.S. owned smartphones during that same three month period.

Also, there has been an increase in spending on mobile learning even in a recession. The demand for education and training is increasing, as well. There has been an increase in venture capital money, new deals with educational publishers (content services and device makers), there are new devices, more demand for location-based learning, and 4G roll out in the United States.

Informal learning via mobile devices is changing the notion of space, community, discourse, and knowledge. Mobile devices are “remediating our experience of place, creating a new world where we are neither entirely here, nor there but in multiple, occasionally hybrid, places of our own choosing” (Squire, 2010; p. 78). In the world of technology, there is a convergence among gaming devices, PDAs, personal media players, tablets/slates, GPS, smart phones, handheld ereaders. Stated another way, a device is created to do one thing, but with use it evolves to include functions of other devices (cell phone - now a camera, mp3 player, phone, computer, gaming device, etc.; Jenkins, 2006). Early research emphasized the potential for mobile devices to realize the long-held dream of one-to-one computing (one device for every
student) from a classroom perspective. As Roschelle and Pea (2002) note, mobile computers will "enable a transition from occasional, supplemental use to frequent, integral use" (p. 2).

The 2010 Horizon Report lists mobile computing as a technology to watch and places it in its near-term adoption horizon, which is approximately 12 months. According to the 2010 ECAR study (Smith, Caruso, & Kim, 2010), more than three-fourths of students responding to the survey own and use a mobile device. This increase in ownership and use is beginning to penetrate the educational system. Recent reports suggest that K-12 schools are allowing and even encouraging the use of mobile devices, including cell phones in the classroom (Project Tomorrow, 2010; Wang, 2010). By 2014, the Millennial generation will make up about half of the workforce (Bingham & Conner, 2010). These individuals are comfortable with technology and expect to use it to learn.

Preliminary research suggests that mobile devices can create more active learning experiences that improve student engagement and course retention (Joosten, 2010) which indicates that the potential exists for more wide-spread initiatives. For example, Abilene Christian University has conducted a larger-scale mobile learning initiative that encompassed the entire institution. That institution reports richer learning experiences that have energized their students and faculty (ACU Mobile Learning Report, 2009-2010).

According to a K-12 study conducted by Project Tomorrow (2010), there are several advantages to using mobile devices in an educational setting. These include the following:

- Improves teacher-student communication
- Increases teacher productivity
- Increases student engagement and learning
- Extends the learning beyond the school day
• Enables students to personalize their instruction
• Equips students with 21st century learning skills that are critical to workplace success (e.g., communication, teamwork, critical thinking, problem solving)

Preliminary research also suggests that mobile devices can create more active learning experiences that improve student engagement and course retention (Joosten, 2010). That, combined with the widespread adoption and use of mobile devices such as cell phones and smartphones among students, suggests that research that further investigates mobile learning is needed. For example, Abilene Christian University has conducted a larger-scale mobile learning initiative that encompassed the entire institution. That institution reports richer learning experiences that have energized their students and faculty (ACU Mobile Learning Report, 2009-2010). In addition, students in K-12 are stating that technology would make it easier for them to do their schoolwork (Project Tomorrow, 2010).

To better understand the convergence of these tools and their use in educational settings, this research proposes to examine the combination of the affordances of mobile technology. But what is mobile learning? Mobile learning is learning from and with others via mobile devices. Taking a mobile learning approach may improve the educational experience by:

• Increasing access to course-related communication
• Engaging the attention of the students by encouraging participation and dialogue
• Making students active participants in their learning
• Facilitating the creation of peer networks and learning community through the sharing of ideas
• Encouraging anytime, anywhere learning opportunities
• Creating real time, just-in-time educational experiences that foster student learning
Harnessing the power of crowdsourcing and collective wisdom to encourage peer interaction and collaboration

Together, a mobile device initiative would support student-centered learning and meaningful engagement, and prepares learners for skills students need in the 21st century.

This project will consist of several members in different disciplines throughout the campus who will integrate mobile devices into their course design. The goal is to determine whether mobile technologies can support teaching and learning activities, as well as assessing effective uses of these systems in courses. This research would explore the use of mobile devices to deliver content (e.g., announcements, PDFs, YouTube videos, simple augmented reality), encourage experiential learning (simulations, role plays), enable data collection (e.g., fieldwork, interview, Internet research), provide feedback (e.g., Twitter backchannel, mobile clickers), create content (e.g., student created content including video, images, and audio components).

There are UWM faculty members across several disciplines that have shown interest in this type of project, but a final determination of the faculty who will participate in the project will take place after funding is secured. Faculty would be selected based on a RFP process.

The goal is to learn and disseminate "best practices" and other resources for teaching with mobile media for use by faculty and LTDC staff throughout the UW System through a project website. As an institution, UWM must prepare for these tech-savvy students and interact with them in ways that are natural to them. This project will prepare the campus to support and assist instructors as they become interested in introducing digital learning activities into their courses.
Activities and Work Plan

Tanya Joosten and Sharon Stoerger will lead the mobile project. If funding is available, they would be open to collaborating with other interested UW campuses.

Tanya Joosten has been leading exploratory mobile projects at UWM for the last two years, not including the clicker implementation over five years ago. She has presented nationally and will be presenting this month at the EDUCAUSE Midwest Regional conference on mobile learning. Last fall she spent several weeks in Asia working with the National University of Singapore Interactive Media Lab on potential mobile learning technology developments. She manages several emerging technology projects, including the University of Wisconsin System social media emerging technology grant project. Tanya has over a decade of experience teaching with and researching communication technologies. Most recently, her work on social media has been highlighted by The Chronicle of Higher Education, Ed Tech Magazine, eCampus News, and EDUCAUSE Quarterly. Her book on social media for teaching and learning by Jossey Bass is anticipated in early 2012. She also serves as a member on the EDUCAUSE Evolving Technologies steering committee, Sage Publication Digital Media advisory board, EDUCAUSE Quarterly (EQ) review committee, and the Sloan-C Blended conference steering committee. Tanya leads the EDUCAUSE social media constituent group as well.

Sharon Stoerger has been collaborating with Tanya on mobile learning projects since her arrival at the UWM Learning Technology Center in July. She is also assisting with the clicker initiative at UWM. In addition to her work in the LTC, Sharon teaches online and technology-enhanced face-to-face courses at UWM and Mount Mary College, Milwaukee, WI. Her teaching
experience ranges from topics related to gender and computerization (STEM) to instructional
technologies (including mobile technologies) to professional and media writing. Sharon's
research areas of interest include computer-mediated communication and educational uses of
social media via mobile technologies, as well as online and blended learning. She received her
Ph.D. in Information Science from Indiana University, and she has presented her work on
educational uses of emerging technology at a number of national education-related conferences. Sharon’s
research in this area has also appeared in education, communication, and information science
publications.

Prior to Start of Project

- Define expectations for faculty redesign projects
- Describe other requirements and responsibilities for faculty participants
- Identify and recruit faculty participants, including developing a RFP for faculty participants

Summer, 2011

- Faculty will integrate mobile learning activities into course design
- Continued support and consultation provided by instructional improvement staff

Fall and Spring, 2011

- Faculty will teach redesign courses using mobile technologies
- Develop of research design, including evaluation instruments
- Collect data on faculty and student use

Summer, 2012

- Debrief faculty on mobile learning projects
- Analyze data collected from faculty and students
- Submit publications and proposals for presentations for review
• Develop web repository to share with UW System
• Submit progress report by August 1st, 2012, to UW System

Project Outcomes and Evaluation

The goal of this project is increase student learning, engagement, communication, and satisfaction. Once the courses are delivered, we will distribute student and faculty surveys to evaluate the perceived impact on engagement, presence, and community (process variables) as well as student learning, performance, and satisfaction (outcome variables).

Dissemination

1. We will present our research at the following UW System venues:
   a. LTDC fall or spring f2f meeting
   b. UW President’s Summit

2. We will submit a proposal to present our research at the following regional and national conferences:
   a. EDUCAUSE Midwest Regional Conference
   b. ELI Annual Conference
   c. EDCUAUSE Annual Conference
   d. Sloan-C Emerging Technology Conference
   e. Sloan-C International Conference for Online Learning
   f. American Educational Research Association

3. We will submit the data and findings to a mobile learning journal such as the International Journal for Mobile and Blended Learning for publication.

4. We will develop a web repository to share with all System.
Budget and Budget Narrative

- $6,000 for development of mobile apps, e.g., augmented reality
- $3,000 instructional support staff, 1500 each
- $5,000 faculty stipends
- $1,000 dissemination costs, conference travel
**Project Title:** Exploring Mobile Technologies to Increase Student Learning  

**Principal Investigator:** Tanya Joosten  

**Institution:** University of Wisconsin - Milwaukee

### Personnel Salary

- **1 Faculty and Academic Staff:**
  - **Funds Requested:** $5,000.00  
  - **Cost to Institution:** $5,000.00

- **2 Classified Staff:**
  - **Funds Requested:** $3,000.00

- **3 Limited Term Employee:**
  - **Funds Requested:** $0.00

- **4 Research and Grad Assistants:**
  - **Funds Requested:** $0.00

- **5 Student Workers:**
  - **Funds Requested:** $0.00

- **6 Other (i.e., Guest speakers, Consultants, etc):**
  - **Funds Requested:** $0.00

- **7 Fringe Benefits (see note below):**
  - **Funds Requested:** $0.00

**Personnel Salary Sub Total:** $5,000.00  

### Supplies & Expenses

- **1 Travel:**
  - Dissemination and conference travel expenses  
    - **Funds Requested:** $1,000.00

- **2 Supplies:**
  - Development of mobile apps (e.g., augmented reality)  
    - **Funds Requested:** $5,000.00

- **3 Other (describe):**
  - **Funds Requested:** $0.00

**Supplies & Expenses Sub Total:** $7,000.00

**Project Funding Totals:** $15,000.00  

*Note:* In order to maximize grant funds, we prefer that fringe benefits be kept to a minimum. The PI must seek campus support and confirmation of all fringe benefits incurred. Any other matching support from the campus or external funding source is welcome.
References


