The Impact of Mobile Technology on Teaching and Learning in the Undergraduate Population

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**Introduction: On-Demand Learning**  
Increasing access, limiting cost, and sustaining quality standards delineate an intolerable wish list, given the level of inconsistency among these drivers. The solution in many cases has been introducing exclusivity to post-secondary education through narrowing paths for learners. The marketplace for mobile devices (tablets, smartphones, e-Readers, etc.) is varying and developing precipitously, conveying with it new devices, new standards and new opportunities around mobile capabilities. For higher education institutions that want to facilitate learning on mobile devices, these changes will continue to have a substantial influence on these efforts.

This paper highlights mobile strategic planning, partnering with vendors, the results of a mobilization survey given to the Maxine Smith Fellow 2014 class, and recommendation for uses of mobile technology.

**Overview of TBR Strategic Plan for Mobilization**  
The use of mobile technologies has grown to such an extent over recent years that they now overtake the proliferation of personal computers in modern professional and social contexts (Attewell, 2005). The ready availability and uptake of devices such as mobile phones, personal digital assistants and mobile music players, have permeated the manner and means of human communication, socializing and entertainment to such an extent that is it rare to find a person in western society who does not own at least one such device.

And yet, the pedagogical use of these powerful devices is not widespread in higher education. Notwithstanding the reality of the ‘digital divide’, the declining cost and mounting social currency associated with mobile devices, means that many students own one or more such devices. However, it appears that little use has been made of these
convenient and ubiquitous tools in learning contexts, and that there is little theoretical foundation to the learning environments that do use them. While the so-called ‘early adopters’ are willing to use new technologies for pedagogical purposes, it is not yet clear that there are sound theoretical reasons for the use of mobile devices in learning. Nonetheless the Tennessee Board of Regents has made a deliberate, methodical stance to address mobilization with the development of its strategic plan.

“[Cultivating] opportunities for more Tennesseans to earn post-secondary credentials is a principal area of focus for the Tennessee Board of Regents System. Attending the needs of individual Tennesseans who wish to develop their professional skills and enrich their lives is also significant. Vital to those efforts will be addressing barrier issues such as affordability, preparedness and technology, as well as issues related to increasing participation levels of traditionally underserved populations.

Anticipating high demand for post-secondary education, the TBR and its institutions will address capacity issues by promoting internal and external partnerships, using technology effectively, and optimizing the unique characteristics of its three types of institutions (universities, community colleges, and technology centers).”

According to Dr. Robbie Melton, Associate Vice Chancellor, TBR eMobilization and Emerging Technology, mobilization offers educators an opportunity to deliver education “on demand and in students’ hands.” It is well documented that people carry their mobile devices, especially their phones, with them at all times. Infographic, 2010, reported that, “From the moment they wake up to the moment they go to bed, young people are constantly connected to their electronics, syncing their tablets and smartphones with all the latest updates that came in while they caught their precious shuteye. 83% of young people sleep next to their cell phones; 35% boot-up apps before getting out of bed; 40% use their devices in the bathroom; 70% of college students take notes on their mobile devices; 51% of people do online research as part of their job; 60% of TV viewers use a
computer/mobile device at the same time; 50% of Americans prefer communicating to face-to-face conversation.”

Jackson State Community College developed based on the aforementioned recommendation. Jackson State created a campus mobilization team to create a strategic plan. The College has a mobilization vision statement and mission statement:

**“JSCC Mobilization Vision Statement**

The academic community of Jackson State Community College uses mobile technology to actively engage students by creating educational opportunities and curricular activities for academic achievement and personal growth.

**JSCC Mobilization Mission Statement**

The faculty of Jackson State and the academic support staff, through guidance from the Office of Academic Affairs, will provide our students educational opportunities and academically rigorous learning applications created to actively engage students to improve learning outcomes and foster retention through academic achievement and personal growth.”

Jackson State’s mobilization strategic plan addresses four areas: 1) Provide training and support for faculty and staff; 2) Identify apps for instruction, teaching, and learning; 3) Categorize apps based on Allan Carrington’s (University of Adelaide) “The Pedagogy Wheel” (create, remember/understand, apply, analyze, and evaluate); and establish goals and objectives. Jackson State’s Distance Education Department is currently piloting two mobile app initiatives: Nearpod and Blue Jeans. Jackson State also hosts eMobilization Day – a professional development event for faculty and staff promoting the use of mobile technology for productivity, collaboration, teaching and learning.

**Verizon Wireless**

During my Fellowship period, I worked with TBR Office of eMobilization and Emerging Technology. The TBR division strives to partner with leading vendors in the technology
fields. Verizon Wireless invited TBR Office of eMobilization and Emerging Technology to visit their Innovation Center located in Boston, MA. Verizon uses the Center to foster innovation by partnering with both individuals and organization to develop new, emerging technology. During the tour of the Center, we were introduced to green technology, which is revolutionizing waste management. We witnessed first-hand expansion in broadband technology and how it is used to connect rural household to the Internet. Verizon’s Innovation Program now has more than 200 participants and, to date, more than 30 products on the market, ranging from digital jukeboxes and telepresence robots to routers and gateways embedded with 4G LTE connectivity. In addition to providing opportunities to demonstrate and showcase solutions, the Center is also home to working labs, where engineers from Verizon and participant companies work side-by-side to develop, test and refine solutions (Lewis, 2013).
Survey Results 2014 Maxine Smith Fellows
During the Fellowship, the 2014 Fellows took part in an eMobilization Survey conducted by East Tennessee State University Emerging Technology Center. The results are follows:

- 100% of Fellows own a personal mobile device (iPhone, Android, Windows, etc.)
- 80% use an institution-provided device
- 70% use a mobile device in teaching
- 30% own two or more
- 90% self-taught how to use their mobile device

Maxine Smith Fellows
What else do we use our devices for:

- 70% - communication
- 60% - research
- 60% - productivity
- 50% - learning
- 50% - entertainment
- 50% - social media
- 20% - problem based learning
Maxine Smith Fellows

How do you use mobile device in class:
- 75% - Researching/searching the Internet
- 75% - Communication (email/text)
- 62.5% - Productivity (word processing, etc.)
- 50% - Creating/updating assignments
- 25% - Collaboration, Creativity
- 12.5% - Testing, grading

Maxine Smith Fellows

How do you keep up with advances:
- 100% - Self-discovery/learning
- 80% - formal on the job training
- 60% - Co-workers
- 60% - Take a class
- 50% - Watch YouTube
- 40% - Register for updates through email, RSS feeds, listservs, etc.

Summary
Despite the limitations and challenges, which institutions will face in executing mobile opportunities for e-Learning, mobile devices offer unequalled opportunities for teaching and learning which higher education cannot afford to overlook or disregard. On the most rudimentary level, mobile devices allow institutions to provide ‘access’ to learning anywhere and anytime through Wi-Fi and data connections – on demand learning. Given the increasing access to mobile technology, which is echoed in the growth of mobile
technology, mobile eCommerce, etc., classroom and teaching/learning, having a strategic plan to address these challenges is essential.

As these mobile capacities and infrastructure continue to develop in both capacity and opportunity, the possibilities for teaching and learning will continue to increase and expand. TBR Institutions, whose missions are to provide the best teaching and learning experiences for their faculty and students respectively, will need to continue to study and strategically plan based on trends in the mobile market.

**Propositions**
- Commitment to bringing education to the students
- Personalized learning experience
- Removal of barriers to collaborative teaching and learning
- Value proposition of expanded research of mobile, academic technology
- Development of policies and procedures to support “On-Demand” learning, Open-Access learning, Access to Success – Drive to 55, Tennessee Promise

**Recommendations**
- *Continued leadership in exploring emerging technologies to increase enrollment, retention, and graduation rates.*
- *Continued system wide support to campuses in the exploration of mobile technologies as effective teaching, learning, and workforce tools.*
- *Continued system wide leadership in addressing the digital divide and promoting global access.*
- *Centralized location for the state educational institutions, business/industry, government municipalities to showcase innovation (i.e. Technology Innovation Center – attract investment in Tennessee).*
References:
