Measuring the Difficult to Measure: Teaching and Learning with an iPad

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ABSTRACT

This study applies a comprehensive set of measures to document teaching practice and instructor responses when integrating new mobile technology devices in the classroom. The triangulated measures include a rubric for observing teaching with mobile learning devices in higher education, an interview protocol for capturing faculty levels of mobile learning knowledge, and a survey of faculty understanding and implementation of the adopted four pillars of mobile learning. The pillars were chosen as foundations to guide why, what, where, and how mobile learning technology supports student learning. The authors offer suggestions for collecting data regarding large-scale mobile learning implementation over time with input from a range of stakeholders to capture how they characterize and disseminate pedagogies that are developed in the new learning environment.

Keywords: Faculty Development, iPad, Mobile Learning, Rubric, Tablet Computing

INTRODUCTION

This article describes the design of three distinctive data collection instruments that an education institution can implement to measure teaching and teachers’ perceptions as a large-scale transformative mobile learning program is launched on a campus. Our primary goal is to review how one college within a system of 20 campuses engaged faculty in the early stages of a national mobile learning program. To document teaching and teachers’ perceptions, we developed a three-component system of data collection:

1. An interview protocol for capturing faculty levels of understanding of mobile pedagogy;
2. A rubric for observing teaching with mobile learning devices; and

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3. A faculty survey about the program’s four pillars of mobile learning and level of application in practice.

In April 2012, His Excellency Sheikh Nahayan Mabarak Al Nahayan, the United Arab Emirates (UAE) Minister of Higher Education and Scientific Research and Higher Education Chancellor, inspired the education world and the country by motivating the three federal higher education institutions to create functional, meaningful mobile learning in and outside of the classrooms. The Chancellor emphasized that sound pedagogical principles should guide implementation. UAE higher education leaders chose the Apple iPad as its mobile learning platform. The first wave of implementation was with incoming first year English-language students, who enter a pre-Bachelor Foundations English Language Learner (ELL) program to prepare for degree programs, which are in English. The Foundations program also includes basic mathematics courses.

The first component of the mobile pedagogy triangulation process was an interview of faculty to document reflection on adoption of mobile learning devices for teaching. The interview focused on current faculty beliefs and abilities in a mobile learning ecosystem and was modified from a recent survey (Benton, 2012). This survey was selected because it closely aligned to the goals of this study. It was implemented in the form of an interview because an experienced interviewer is able to elicit deep, descriptive data about perceptions, which we sought to guide next steps in the mobile learning program for support and professional development.

Secondly, we adapted a rubric created to observe teachers integrating technology in the classroom. No specific mobile technology teaching protocol was identified for use in this study. Therefore, a rubric designed to capture a snapshot of student-centered teaching was adapted to the mobile learning environment because student engagement was a core goal of the mobile learning program. We performed an observation in three college faculty members’ classes at the study campus at the same time. The observation process is being extended among the other campuses in the system because it is a cloud-based form completed using a mobile device.

The final corner of this triangulation process was a self-report online survey of faculty members that asked them to identify their current levels in the central theoretical constructs chosen in this program as foundational to mobile pedagogy. The questions addressed the four major models or pillars currently used in this mobile technology program. The leaders of the higher education system selected the pillars because each pillar represents an aspect of the system’s philosophy of active, engaged mobile student-centered learning. The pillars provide rationale for why, what, where and how mobile technology is used in support of student learning.

Pillar 1 supports overarching aspirations for the technology and provides rationale for the effort required for adoption of new tools and approaches. This might be considered as the “why” perspective for adopting iPads and related technology. Why would an institution adopt iPads? Because it aspires to redefine what is possible in education. The conceptual framework that guided the aspirations underlying use of the iPad was Puente’s SAMR model (2012) because it described the stages that an institution might experience on the path to redefining how it approaches education. The four steps of SAMR include:

- **Substitution**: Technology acts as a direct tool substitute, with no functional change.
- **Augmentation**: Technology acts as a direct tool substitute, with functional improvement.
- **Modification**: Technology allows for significant task redesign.
- **Redefinition**: Technology allows for the creation of new tasks, previously inconceivable.

Pillar 2 supports the content by defining the knowledge, skills, applications, and attitudes that may be built and optimized using iPads.
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