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Elizabeth Truesdell

Dominican University of California, elizabeth.truesdell@dominican.edu

Rebecca Birch

Dominican University of California, rebecca.birch@dominican.edu

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Mobile Learning: Implementing a 1 to 1 iPad Project in a Teacher Preparation Program

Elizabeth Truesdell, Ph.D.
Department of Education
Dominican University of California
United States
Elizabeth.truesdell@dominican.edu

Rebecca Birch, Ed.D.
Department of Education
Dominican University of California
United States
Rebecca.birch@dominican.edu

Abstract: This brief paper examines how a teacher preparation program implemented a 1-1 mobile learning initiative with faculty, teacher candidates and their fieldwork supervisors. The initiative proceeded through a three-tiered approach to effectively integrating instructional technology in and outside of the classroom. Researchers employed a mixed method approach to data collection and analysis, which indicated an increased rate of faculty, student teacher and supervisor competency levels in the use of instructional technology. This study fills a gap in research regarding 1-1 iPad initiatives in teacher preparation programs.

Introduction:

This presentation will describe how one department of education addressed the growing practice of leveraging educational technology in teaching and learning. After this session, participants will understand the program's three-tiered model of integrating instructional technology through a detailed description of the approach, a graphic organizer, and data that supports its successful implementation for both student teachers and supervisors. The major aspects of this proposal include:

- a) Context and background of the project;
- b) Insight into the project's three-tiered model;
- c) How the university's model implemented the 1-1 tablet project;
- d) Data findings and analysis; and
- e) Next steps and conclusion.

Context & Background:

As mobile devices become increasingly prominent in the lives of students, their use in the classroom has the potential to transform learning. As mobile learning (mLearning) is developed, teacher preparation programs need a structure to model, implement and evaluate learning activities for teacher candidates (Wu, 2013). The ability

to integrate technology into the classroom has become imperative for teachers at all grade levels, including post-secondary education. State standards require it and research supports its positive impact on student learning (Northeast Mississippi Technology Pilot Program, 2013; Truesdell & Birch, 2013).

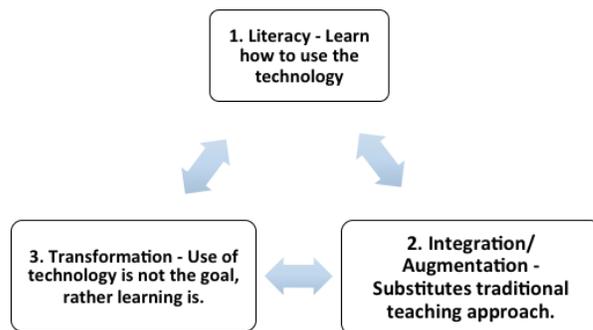
These realizations prompted the department of education at our university to re-examine how they integrated mobile devices into their coursework and fieldwork requirements. How can teacher preparation programs better prepare our teacher candidates to teach in the 21st century classroom for the 21st century student? Faculty recognized the need for more deliberate attention toward the four C's of 21st century skills: collaboration, communication, critical thinking, and creativity, as well as information, media and technology skills. The department re-designed each credential program to be more cohesive, simultaneously modeling 21st century learning outcomes (Michaels, Truesdell, Brown, 2015; Urbani, Roshandel, Michaels, & Truesdell, 2017). This process included faculty modeling the use of iPad's in the classroom, and requiring iPad's for all teacher candidates in the single subject and special education programs, as well as their supervisors during fieldwork in K-12 schools.

Three-Tiered Model:

Faculty began the 1 to 1 iPad initiative by researching existing implementation models. Subsequently, the Substitution Augmentation Modification Redefinition Model (SAMR), and the Technological Pedagogical Content Knowledge (TPACK) frameworks inform our Three-Tiered Model. These models emphasize the importance of engaging students in learning experiences that cannot be accomplished without technology (Puentadura, 2012), and provides a structure that requires a linked relationship between technology, pedagogy, and content (Koehler & Mishra, 2009; Romrell, Kidder, & Wood, 2014).

This session will offer insight into our Three-Tiered Model to mLearning, which includes Tier One – *Literacy*, Tier Two – *Integration/Augmentation*, and Tier Three – *Transformation* (see Table 1). We applied this approach initially as a pilot in one program on campus. It has since expanded to multiple teacher preparation programs, university supervisors, and other departments through faculty professional development.

Table 1: Three-Tiered Approach to mLearning.



University Model:

This paper session will describe how the department applied the three-tiered model to eventually accomplish transformation both within the teacher preparation programs, and outwardly to the university and local K-12 schools. Upon learning the new technologies (tier one), university faculty members modeled the technologies in their classrooms, thus accomplishing integration, or tier two. This included incorporating educational applications, Apple TV's and flipped instruction.

Evidence of tier three, or transformation, occurs in multiple iterations. Teacher candidates use mLearning to document observations in the field and their reflections throughout the program. Supervisors use iPad's to offer feedback on candidates' teaching and modeling of 21st century skills in their lessons. Teacher candidates are expected to leverage instructional technology in their supervised teaching and are assessed by their supervisors. The culminating assignment in the program has evolved into an electronic portfolio in the form of a website. Coursework and fieldwork scaffold activities so candidates can gradually build the website with their iPad's throughout their program.

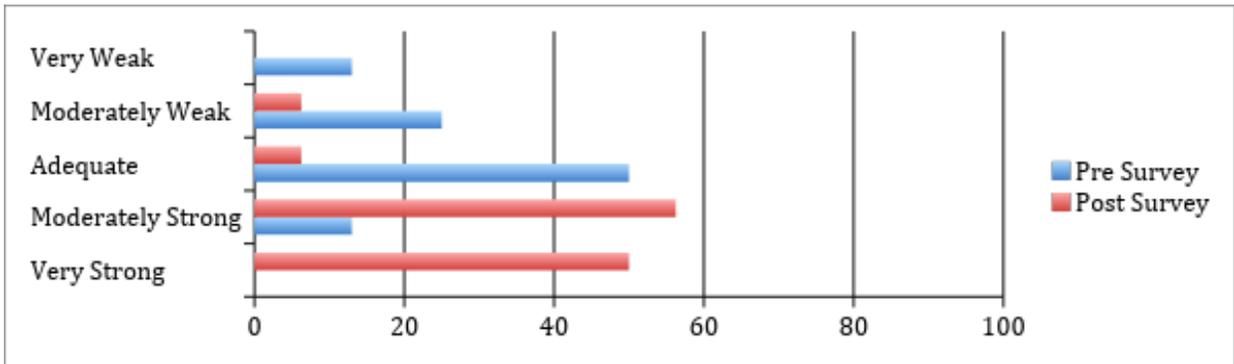
The website portfolio has since expanded to the multiple subject and special education programs within the department, and with support from the Vice President of Academic Affairs on campus, the model has spread to a university pilot program and became a university-wide project for all students. The electronic portfolios pair 21st century skills (communication, collaboration, creativity and critical thinking and information, media and technology skills) and the four pillars of the university's values (study, reflection, community, and service) as the framework.

Additionally, transformation has occurred through student and faculty led workshops across campus in the form of "Tech Labs" and "Appy Hours" where peers and instructors share iPad applications they have used in the classroom. The department is now planning to expand the mLearning workshops to community partners.

Data Findings & Analysis

Although research on mLearning and 1 to 1 tablet projects is growing in the K-12 sector, there exists a paucity of research on similar initiatives in post-secondary education, and more specifically in teacher preparation programs (Urbani, et.al, 2017). Throughout the process, training facilitators have gathered both qualitative and quantitative data to track competency levels for all participants. Initial findings of pre-post surveys, focused observations, and open-ended questionnaires indicate increased levels of competency amongst faculty members and engagement of the student teachers in their classrooms. Results of pre-post survey questions follow (N=10).

Table 2: What is your level of proficiency integrating technology into daily lessons?



Teacher candidate data was gathered when they first entered the program, and then a semester later after they took the instructional technology course, implementing mLearning through their iPad's. Findings of pre-post surveys indicate increased levels of proficiency amongst credential candidates. Results of pre-post survey questions follow (N=15).

Table 3: How comfortable are you with educational applications on iPad's or tablets?

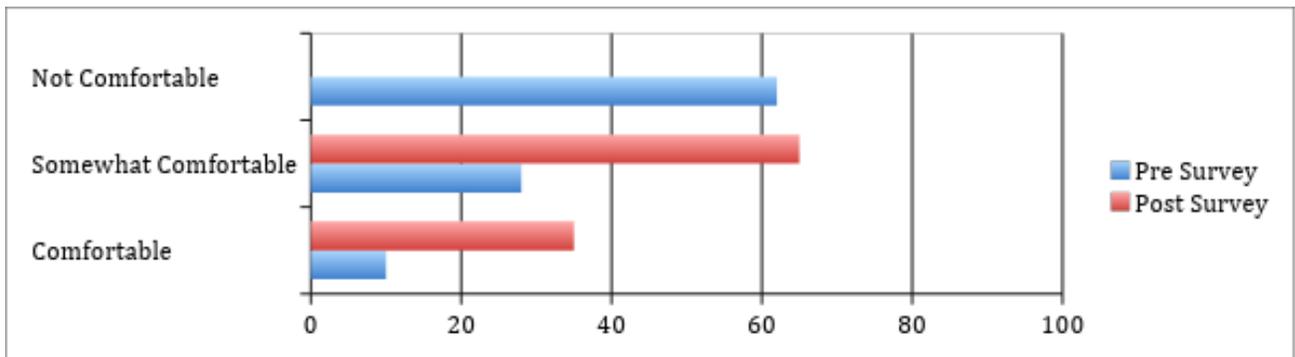
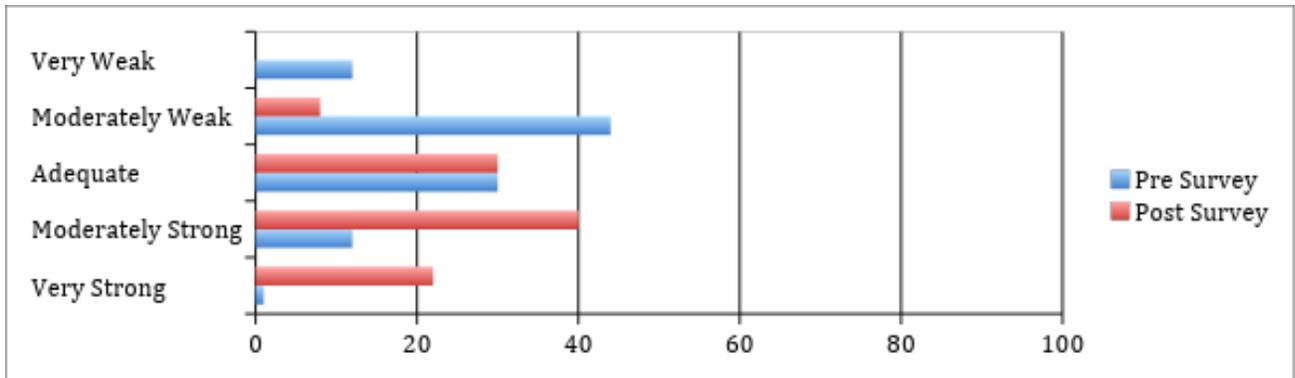


Table 4: Level of Proficiency: Designing activities that will integrate technology.



University supervisors in the single subject program began to use iPad's to evaluate student teachers in the classroom. Pre-post surveys indicate increased levels of competency in iPad use. Results of pre-post survey questions follow (N=5).

Table 5: How comfortable are you in using iPad's or tablets as a supervisor?

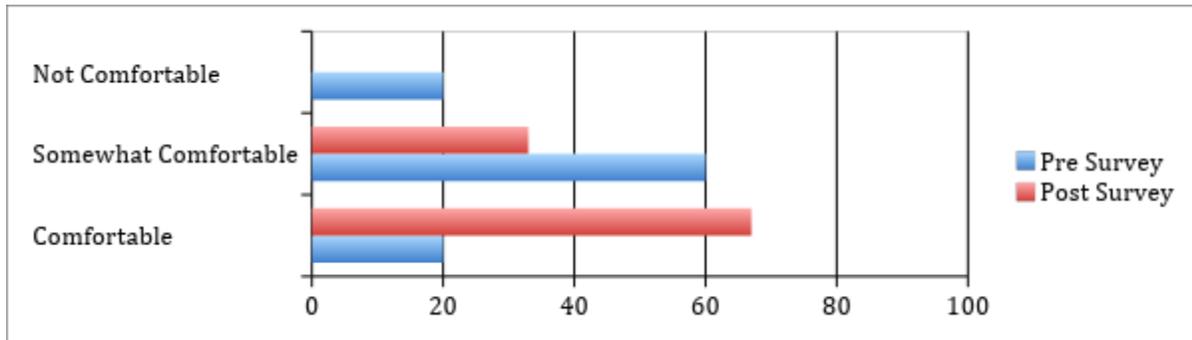
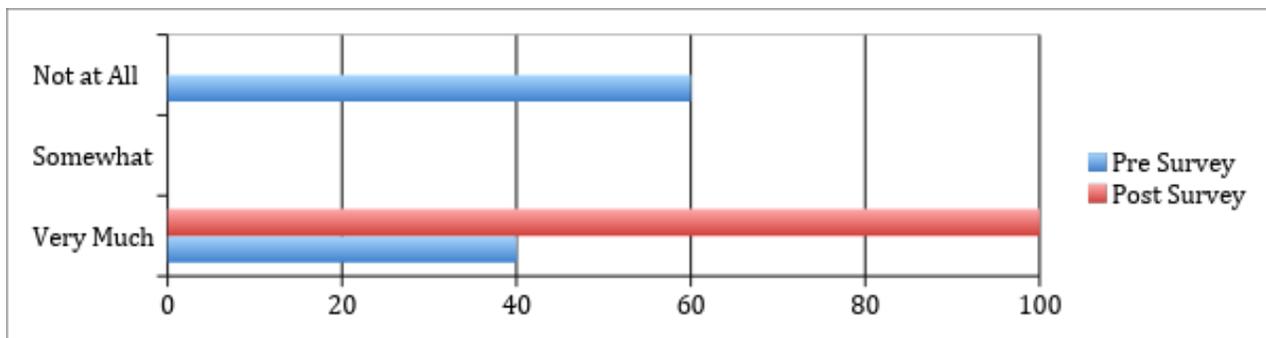


Table 6: Do you feel using iPad's as a supervisor will expedite feedback to your students?



Qualitative data from structured observations and focus group interviews reinforce the qualitative data results, and support the intent of simultaneously developing 21st century skills. Examples of direct quotes are listed below.

- “The iPad’s allowed the students to be creative in their projects.”
- “My participation in student teaching in a 1 on 1 iPad initiative school helped me teach my students dramatically.”
- “Technology is so prevalent in today’s society, that neglecting it in the classroom is not beneficial to the students.”
- “They can do everything from make assessment more efficient to help students with special needs, which I was unaware of before.”

Next Steps & Conclusion

Project facilitators will continue to maintain the 1-1 iPad and mLearning initiative in the department of education. Next steps include the establishment of professional development seminars for in-service teachers in the community, the pursuit of an Apple Distinguished Program identification, and guiding the campus-wide e-portfolio pilot.

Researchers' longitudinal study will expand the 1-1 iPad project with all credential programs in the department, and track alumni as in-service teachers after graduation.

In summary, this presentation will describe our unique approach to mLearning at the University and K-12 level, including supporting empirical data that indicate success rates amongst university faculty members, teacher candidates and supervisors. This paper contributes to the growing body of research on instructional technologies with a deliberate focus on sustainable change through the implementation of a three-tier model of faculty technology training. Initial findings of this study will inform similar programs on the implementation process.

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