BARRIERS TO IMPLEMENTATION OF THE IPAD INTO THE K-12 CLASSROOM

CHRISTOPHER FOSTER, ED.D.

California State University Los Angeles, United States of America
E-mail: Christopher.Foster5@calstatela.edu

Abstract— The paper will examine the potential barriers to successful iPad implementation in the K-12 classroom and the next steps in exploring successful learning experiences based on iPad use.

Index Terms— iPad, Elementary, Blended Learning, Barriers to Implementation.

I. INTRODUCTION

Although iPad usage has dominated many educational reforms to bring technology into the schools, little research on the effective use of this newer technology and the effects on learning have been examined.

II. BARRIERS TO IMPLEMENTATION OF THE IPAD INTO THE K-12 CLASSROOM

Approximately twelve years ago the iPod was introduced and the popularity of the mobile device increased greatly. Followed shorty thereafter the iPhone was introduced in 2007 and started a new generation of mobile computing and mobile devices in the form of smart phones. After the iPhone introduction, the iPad was introduced in 2010. The initial use of iPads was not clear and Steve Jobs stated, "There are no plans to make a tablet. It turns out people want keyboards. Tablets appeal to rich guys with plenty of other PCs and devices already. I get a lot of pressure to do a PDA. What people really seem to want to do with these is get the data out. We believe cell phones are going to carry this information." (Chaffin, 2003). In relative terms, this technology has only been around for less than five years, but in this short amount of time there are estimated to be millions of iPads in the K-12 classroom in the United States.

Apple may not have intended the iPad to become an educational device from its inception, but due to the low cost, high graphics, and applications already being in place for the iPod, the devices quickly caught on and were rapidly delivered into K-12 classrooms across the United States. Presently, Apple is selling over twice as many iPads as computers to the K-12 schools. The rapid progression of iPad adoption into the classroom is a quantum leap in relation to other technological adoptions in previous years. Apple CEO Tim Cook stated, "The adoption rate of the iPad in education is something I've never seen from any technology product in history. Usually education tends to be a fairly conservative institution in terms of buying, or K-12 does, and we've not seeing that at all on the iPad" (Nagel, 2012).

While the number of iPads in the K-12 classrooms is challenging to receive an exact number, it is clear that there are many classrooms geared-up for iPad use. Consider the following statistics regarding iPad use: Apple sold 1 million iPad to schools between April and June 2012 — double the number Apple sold during the same quarter a year ago; there were two iPads for every Mac it sold to K-12 and colleges; 14 million iTunes U downloads since the app was introduced for iOS in January 2012; since Apple's big education and iPad initiative in January 2012, 700 K-12 schools and 125 colleges have signed up to use iTunes U; and iTunes U courses have been downloaded 750 million times (Ogg, 2012).

Why are classrooms that have the iPad resources in place not able to fully implement their successful integration into regular classroom instructional practices? The present challenge for schools is the actual implementation of the iPads in the classroom to complement classroom instruction and learning outcomes. It is not enough to simply have the iPads in the classrooms, but the actual application and student use, based in the content of instruction, is one goal for effective utilization.

III. REVIEW OF THE LITERATURE

While there are an increasing number of schools across the nation embracing iPads, and many school moving toward a one-to-one adoption in many grade levels, the relatively new device is gaining significant market share of technology in schools. The review of the literature will review the adoption of this new innovation into the educational setting as well as the possible barriers to effective implementation.

IV. PROLIFERATION OF THE IPAD IN THE K-12 SETTING

Over a decade ago, school systems began to spend millions of dollars to purchase laptop computers for

every student, these programs termed one-to-one. One of the main reasons behind this effort was to close the perceived technology gap. Fast-forward about ten years with the introduction of the iPad and with a dramatically lower price point and the frenzy started in many schools across the country. There are a growing number of schools across the country rapidly moving forward with iPad adoption. San Diego City Schools, the second largest school district in the State of California, used a voter-approved bond of two billion dollars, of which $500 million was designated for a five-year 'digital transformation program,' to update the district's curriculum. San Diego City Schools started distributing inexpensive notebooks to students and then, in 2010, when the iPad was available changed directions believing that the iPad as a better educational tool. In McAllen, Texas the school district has already distributed 6500 iPads and plans to bring this number to 25,000. The district is funding this by moving away from desktop computers in every classroom. According to their superintendent, Dr. James Ponce, "We don't foresee having the desktop in the classroom anymore (Mathis, 2012).

In addition to the vast number of iPads, there are a growing number of schools implementing a one-to-one adoption, whereby all students receive an iPad. These programs have boomed in the last few years, often being funded by grant or school bonds. While it is clear that there are millions of these devices in our schools, how they are being implemented in the classroom is quite a different issue.

V. ADOPTION VERSUS IMPLEMENTATION

There appears to be a strong push to increase the amount of technology for K-12 students across the country. The flurry of action to get technology in the hands of all students has not been inexpensive. The Center for Digital Education estimated education spending on IT reached $19.7 billion in 2010-11 (Kaufman, 2012). Of this amount, consider two large districts and the numbers of their adoption.

In McAllen, Texas, public school officials have selected iPads over desktop PCs and plan to distribute 25,000 iPads over the next few years at a total cost of over $20 million. The program includes iPads for third grade and upwards and iPods for pre-kindergarten up to second grade. San Diego City Schools distributed 26,000 iPads to students in 2013 and Chicago public schools have around 20,000 iPads. While it is clear that adoption is a priority for many districts, the type of implementation and effective use are not immediately known as this is a relatively new innovation in our nation's schools.

VI. BARRIERS TO IMPLEMENTATION

With the rapid speed of adoption into the classroom setting, we have seen with the iPad, there have been many potential barriers to an effective implementation in the classroom. The Concerns-Based Adoption Model (CBAM) applies to change in many different environments, and with differing audiences, including policy makers, teachers, parents, and students (Hall & Hord, 1987). The model postulates that people experiencing and considering change evolve in the kinds of questions that ask and in their use of the actual change. Early questions are self-oriented such as: What is it?; How will it affect me?; and How will the students be able to do this? When these initial questions are resolved the new questions are more task oriented: How do I do it?;

How do I use the new materials effectively?; and Why is it taking so much time for this new thing? The final stage is when self and task concerns are primarily resolved, the teacher can focus on the impact of the new innovation. Teachers may ask: is this new change working for students?; and Is there something that may work even better?

The concerns model is used to identify seven stages of concern. In examining the model's implication with the iPad use, we want to consider the questions teachers may be asking and where they are presently in their personal area of concern. The model suggests that implication is a process, over time, and not an event. The quick proliferation of the iPad may have overlooked these early concerns. The concerns model is also different in who is examining the new innovation. For instance, the teacher's view may be very different from the principal's or the parents'. Professional development can be staged monitoring teacher's levels of concern.

VII. NEXT STEPS FOR EFFECTIVE IMPLEMENTATION

Considering the model, an examination of what are the barriers should be directly addressed. According to Hall and Hord, this new implementation needs to be considered in what may be hindering the Levels of Use and Stages of Concern. A thorough investigation into the Levels of Use and Stages of Concern should be planned an implemented through an examination in Hall and Hord's CBAM model. A case study approach should be planned to collect and analyze data from successful and unsuccessful schools' implementation processes. Additionally, a corollary case study should also include the blended learning model insofar as the iPad is one tool in the consideration of an effective blended learning model (Staker, 2011).

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