

## EXPLORING THE POTENTIAL OF MOBILE PEDAGOGY BY USING IPAD

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### Abstract

Mobile pedagogy continues to occupy a prominent space in the higher education literature, discussion, and conference venues while its numerous definitions attest to the fluid presence of this technology in our daily lives. As mobile devices continue to saturate the market and situate themselves in our social and educational ethos, an examination of theoretical fit is a good precursor to pedagogy and praxis. As far as mobile teaching and learning activities are concerned, research on exploring the potential of iPad in mobile teaching and learning activities was seldom found in the literature. Therefore, the potential of iPad in mobile teaching and learning activities has been explored in this paper. AssistiveTouch, Guide Access, Invert Colors, Large Text, Mono Audio, Support for closed captions, Speak Selection, VoiceOver, Dictation, Zoom, and other built-in accessibility of the iPad had been introduced so as to facilitate mobile pedagogy development. Moreover, the advantages and limitations of using iPad in mobile teaching and learning had been addressed. The success of mobile teaching and learning activities by using iPad may lead to more engaged and active student learning.

**Keywords:** Mobile pedagogy, iPad, AssistiveTouch, VoiceOver, Dictation

### Introduction

Mobile computing continues as the fastest spreading consumer technology in history and the percentage of student use of mobile devices for educational purposes continues to register yearly increases. The emergence of new technologies will continue to create a tension between the pragmatic adoption of the new affordances versus integration of new affordances among the legacy teaching and learning practices of higher education [2]. Institutions of higher education should select a definition of mobile learning that allows for strategic incorporation of mobility in praxis. A strategic approach to mobile learning begins with selection, creation, or process of determining the institution's definition. A university will benefit from the differentiation between learning that is mobile and learning that is done with mobile devices. Examining the ways in which mobility can accentuate or augment the mission and goals of the institution will generate support and provide an organizing principle for small or large initiatives. Integration of theory and selection of a framework for implementation is a necessary component for research and grant opportunities [3]. Several approaches to pedagogy offer starting points for any institution to build their own data or research practices. Texting, remote teaching, and tablets used to control for desired variables allows for a low-cost, high yield study. Such studies done at a small scale, combined with data from the current body of mobile learning research, can provide valuable information to scale system-

wide initiatives [5]. Mobile usage has become normative behavior in our social, academic, and business lives. Higher education has unique opportunities to impact student learning and establish a 21st century pedagogy [8].

As mobile learning has matured, the vernacular has become more inclusive adding learning with mobility, mobile enhanced learning, and mobile pedagogy to the pool of understood meanings [11]. The complexities of mobile learning suggest any one definition is bound to fall short. For several years after the release of the iPhone, varying descriptors of learning with mobility such as technology enhanced learning and computer assisted learning gave way to a new description of an older pedagogy and mobile learning leaned toward a device-centered definition involving a smartphone. The subsequent release of the iPad and android tablets has caused a further diffusion of mobile learning to encompass smartphones and tablets [4]. As new devices continue to proliferate and wearable technology and other devices emerge, the definition of mobile learning finds itself on more stable ground. Device options force a pedagogical understanding of the learning potential of devices, and breaks from being identified with iOS, android, smartphone, or tablet to the learning affordances of mobile device utilization [6]. The definition appears to be reaching adolescence in a way similar to other learning technology enhancements in which preliminary definitions give way to more expansive views as the discipline grows up. Mobile learning continues to occupy a prominent space in the higher education literature, discussion, and conference venues while its numerous definitions attest to the fluid presence of this technology in our daily lives [14]. As mobile devices continue to saturate the market and situate themselves in our social and educational ethos, an examination of theoretical fit is a good precursor to pedagogy and praxis [10]. As far as mobile teaching and learning activities are concerned, research on exploring the potential of iPad in mobile teaching and learning activities was seldom found in the literature. Therefore, the main purpose of this paper is to explore the potential of mobile pedagogy by using iPad.

### **Exploring the potential of iPad in mobile pedagogy**

Realizing the potential of iPad devices for literacy teaching and learning requires careful planning and reflective implementation, both of which must be grounded in research. Although research specific to the iPad device is just emerging, broader research about technology-based learning in general does offer findings for our consideration [7]. Even though digital natives spend considerable time engaged in digital literacy practices, those practices may be primarily for entertainment or socialization rather than for purposes of teaching and learning [1]. Also of concern is fact that students may not transfer their skills from traditional print literacy tasks and settings to digital tasks and settings [12]. Hence, in preparing teachers to implement iPad device effectively into classroom practices, we must prepare them to focus on skills development and transfer. The main concern in implementing iPad devices as part of literacy instruction is that research findings about how students transfer the skills they learn on the iPad to more traditional academic tasks are limited and mixed. Apple's mobile operating system, iOS, includes the following standard accessibility features that can be used to reduce barriers for diverse learners:

#### **AssistiveTouch:**

AssistiveTouch was used to make it easier for people with motor difficulties to perform Multi-Touch gesture and access some of the physical buttons on their devices. This feature can be helpful for students who must use their devices from a wheelchair [9]. In that situation, it is likely that the device will be attached to the wheelchair with a special mount and the student may not be able to easily access all of the buttons (such as the ones on the side for adjusting the volume). AssistiveTouch provides onscreen options for those buttons that can also be activated with a head-mounted pointer in the case of someone with limited use of his or her extremities.

## **Guide Access:**

Guide Access was used to set up the mobile device in a single app mode. When guided access is enabled the student is not able to exit the app by pressing the Home button. Guided Access can prove useful when working with a student who uses a communication app as his or her voice because exiting out of the app may mean losing the ability to communicate (this is often the case with students with autism and related disabilities). Guided Access was also developed for administering assessments. The teacher can use Guided Access to prevent students from being able to access the web browser on their devices to look up answers while completing an assessment.

## **Invert Colors:**

To provide a higher contrast display that can make it easier to read what is on the screen. Like the Zoom feature, Invert Colors is supported for all apps. In addition, the iBooks app includes a Night mode that can be used for a higher contrast display when reading ePub books.

## **Large Text:**

To increase the text size in apps such as Mail, Contacts, and Messages. The ability to adjust the text size is also built into the free iBooks e-reader app from Apple, which supports it for ePub books and iBooks textbooks (in the portrait orientation only). Instead of having to purchase a special large-print version of their books, students with low vision can adjust the text size to match their level of remaining vision in iBooks. This improves access because the students do not have to wait for the large-print version of a book to be released, but can instead purchase and read the same e-books as their sighted peers. The ability to adjust the text size has also been shown to improve reading speed for students with dyslexia.

## **Mono Audio:**

To play both stereo audio channels in each earpiece for those who have hearing loss in one ear.

## **Support for closed captions:**

To allow individuals with hearing impairments to enjoy movies, TV shows and video podcasts. Closed captions can also help beginning and struggling readers. The captions will only be available when they have been added to the video program by the content developer.

## **Speak Selection:**

To read highlighted text aloud for people with low vision who do not yet need to use VoiceOver, or for those with learning difficulties who benefit from text to speech. In iOS 8, the Speak Selection feature added and highlighted as the selected text is read aloud. This kind of presentation has been found to benefit students with learning disabilities and other struggling readers, by helping them attend to their reading better. A number of text to speech apps are also available for those who need more than what the built-in Speak Selection feature provides: the free Neo series of apps, each of which features a different voice (NeoKate, NeoJulie and NeoPaul), Speak It!, Something to Say, and App Writer US.

## **VoiceOver:**

A gesture-based screen reader that makes it possible for people with visual disabilities to hear what is shown on the display read aloud to them. VoiceOver can be turned on right after taking the

mobile device out of the box by triple-clicking the Home button (the circular button at the bottom of the device when it is held in the portrait orientation). This makes it possible for someone who is blind or who has limited functional vision to set up his or her device independently, without any sighted assistance [13]. Once it is enabled, VoiceOver can be learned quickly. Just moving a finger around on the screen will result in what is underneath the finger being read back to the user, and a simple double-tap with one finger will perform the desired action (open an app, enable a feature, etc.). With VoiceOver, students who are blind can access the information on web pages and e-books in an audio format that is accessible to them. For students who know braille, Apple's iOS software also includes support for a number of wireless refreshable braille displays. These displays convert the audio output from VoiceOver into the braille format that can be read by many people who are blind.

### **Dictation (iPhone 5 and iPad Air or later):**

This dictation provides an alternative to the onscreen keyboard for people who find it difficult to enter text by typing. This includes not only students with motor difficulties, but also those who are blind and rely on the VoiceOver screen reader for interaction with their mobile devices. Entering text with the onscreen keyboard while using VoiceOver can be a time consuming process. With Dictation, text can be entered using speech recognition instead. However, the feature depends on an active Internet connection to work.

### **Zoom:**

To magnify the screen up to 500 percent for people with low vision. Zoom is also a valuable teaching tool for ensuring all students can see the information projected at the front of the room in a large classroom. Some teachers also use Zoom to reduce distractions while showing a webpage that has ads and other content that could distract students. While the Zoom feature only magnifies what is on the screen, a number of apps can magnify the student's surroundings using the cameras built into Apple's mobile devices.

Many videos shown how to use the built-in accessibility features of the iPad and other Apple devices that run iOS are available on the YouTube channel (e.g. <http://www.youtube.com/lfperez72>). These video tutorials are closed captioned, and the captions will be available on mobile devices when accessed with the YouTube app from Google, which also supports captions. In addition to the built-in accessibility features, iOS includes a number of other features that while not considered accessibility features can be used to support the needs of students with disabilities. An example is the custom shortcut feature that expands a few keystrokes into a longer phrase (for example, typing in "omw" can expand to "on my way"). This feature was included as a convenience for all users, but it can be especially helpful to someone who has difficulty typing and who could create a number of such shortcuts to save time and effort with common phrases. Another example of a support that is not considered as an accessibility feature is the built-in dictionary feature, which allows users to look up words when reading webpages, e-books and more. The feature is especially helpful to students with learning disabilities and those who are prone to distraction, as it allows them to look up unfamiliar words without exiting the current app, webpage or e-book. In this way, it makes it easier for such students to remain on task while reading.

### **The Advantages and Limitations of using iPad in Mobile Pedagogy Development**

From my experience of more than 12 years in higher education, I believe that the iPad: (1) is a true mobile learning device, (2) increases student engagement, (3) enables collaborative learning, (4) allows potential student productivity, (5) allows potential student efficiency, (6) improves student technology competency, and (7) reduces faculty back end effort. However, there are some

limitations: (1) technology reliance requires preparation in advance for possible failure, (2) there has to be a motivation to change on the part of the faculty, (3) there is increased faculty effort involved in preparing to use these technologies, (4) on the older versions of the iPad there are limitations to presenting on the screen, and (5) there is a learning curve for the new technology.

### **Conclusions**

Using iPad in the mobile pedagogy initiative was founded upon the theory that students learn best when they are in community – collaborating with others in a learning environment without boundaries. A technological solution that aims at increased learning must enhance communication and convergence. The potential of iPad in mobile pedagogy development seeks to connect learners through engaged, collaborate, distributive, integrated, and evaluated models, all of which combine to produce a profoundly connected learning experience. The success of this initiative is contingent upon extending or enhancing faculty teaching and research, to lead to more engaged and active student learning.

### **Further Studies**

Teacher preparation for effective integration of iPad devices in literacy instruction surely requires more research. Teacher educators who engage pre-service and in-service teachers in similar experiences might consider conducting follow-up survey research to assess the extent to which these experiences influence teachers' actual classroom practice. Case studies of graduates who do go on to integrate iPad-based teaching and learning will perhaps identify factors from the teacher-preparation program experience that facilitate or impede classroom integration. Those findings would guide the ongoing development of teacher-preparation programs and increase the likelihood of classroom application. Preliminary studies might explore the benefits and challenges of utilizing iPad devices within the classroom setting, and identify effective steps teachers take to overcome or manage the challenges. Studies might also seek to identify specific skills and strategies learners must employ in iPad-based learning, how those skills and strategies are being learned, and if those skills and strategies transfer to more traditional literacy situations.

Research must also look beyond the level of skills acquisition to explore children's metacognition. Ethnographic studies within the grounded research tradition might uncover particular classroom conditions (teacher behaviors, student behaviors, specific features of particular iPad apps, etc.) that help children perceive iPad-based experiences as authentic literacy events, rather than perceiving them solely as games. These studies may also help us recognize what classroom conditions facilitate children's transfer and application of literacy skills across media, from print to digital experiences and vice versa. After identifying supportive features in individual classrooms, researchers might conduct comparative analyses to uncover patterns of effectiveness. Knowing what conditions foster metacognitive awareness and transfer of literacy skills, and how effective teachers establish those conditions, will enable teacher educators to prepare teachers for more critical and strategic practice. A call for such extensive research into this one particular technology must be tempered with a cautionary statement regarding the deictic nature of all digital technologies. Even as researchers share important findings about iPad-based teaching and learning as we know it, the iPad will be either rapidly changing or becoming obsolete. Difficult as it may be to imagine a world without apps and iPad devices, that world may very well materialize and quickly! Therefore, the authors urge researchers to always be looking for what might be enduring and applicable across multiple technologies. While examining the particular, researchers must look for the universal so that the findings remain relevant in a rapidly changing digital world.

## References

- [1] Chase, Z., & Laufenberg, D. (2011). *Embracing the squishiness of digital literacy*. *Journal of Adolescent & Adult Literacy*, 54(7), pp.535-537.
- [2] Cochrance, T. D. (2010). *Exploring mobile learning success factors*. *Journal for the Association of Learning Technology*, 18(2), pp.133-148.
- [3] Collins, A., & Halverson, R. (2009). *Rethinking education in the age of technology: The digital revolution and schooling in America*. New York: Teachers College Press.
- [4] Hart-Davis, G. (2014). *Teach yourself visually iPad*, John Wiley & Sons, 2nd Edition.
- [5] Kinzer, C. K. (2010). *Considering literacy and policy in the context of digital environments*. *Language Arts*. 88(1), pp.51-61.
- [6] McManus, S. (2014). *iPad for the older and wiser get up and running with your Apple iPad, iPad Air and iPad Mini*, U.K.: John Wiley & Sons Ltd., 4th Edition.
- [7] Murray, O. T., & Olcese, N. R. (2011). *Teaching and learning with iPads, ready or not?*, *TechTrends*, 55(6), pp.42-48.
- [8] Pacino, M. A., & Nofle, J. T. (2011). *New literacies for global, digital learners*. *International Journal of Learning*, 18(1), pp.477-485.
- [9] Parette, P., & Scherer, M. (2004). *Assistive technology use and stigma*. *Education and Training in Development Disabilities*, 39(3), pp.217-226.
- [10] Powell, K. C., & Kalina, C. J. (2009). *Cognitive and social constructivism: Developing tools for an effective classroom*. *Education*, 130(2), pp.241-250.
- [11] O'Connell, M., & Smith, J. (2007). *A guide to working with mlearning standards: a manual for teachers trainers and developers*. Sydney, Australia: Australian Flexible Learning Network.
- [12] Rosaen, C., & Terpstra, M. (2012). *Widening worlds: Understanding and teaching new literacies*. *Studying Teacher Education*, 8(1), pp.35-49.
- [13] Walsh, M., Asha, J., & Sprainger, N. (2007). *Reading digital texts*. *Australian Journal of Language and Literacy*, 30(1), pp.40-53.
- [14] Zhao, Y. (2007). *Social students teachers' perspective of technology integration*. *Journal of Technology and Teacher Education*, 15(3), pp.311-333.