Pedagogy of the iPad

1. Introduction

A device, like the iPad, can be said to embody a pedagogy in three different ways:

Firstly, in the ways in which it fits with or extends certain pedagogical strategies and practices, that is to say, it’s pedagogic fit - this leads to the question of what approaches to learning and teaching does the iPad best support?

Secondly, we can consider the pedagogical approaches that make the adoption-adaption of the device more likely for individuals and groups - this leads to the question of what is the best way to adopt-adapt the iPad into our lives (to learn the way of the iPad)?

Finally, when we reflect upon the use of the iPad by ourselves and by others, we can ask the question what can the iPad teach us about ourselves and the world?

In each of these three dimensions, the iPad is revolutionary. Remember these three questions concerning pedagogy as we examine some of the things about the iPad that give it such revolutionary potential. We will come back to them at the end of the workshop.

Before then, we will cover the following (GO THROUGH THE SLIDES):

- How it’s not really about the iPad, but rather something called “ubiquitous computing”.
- How ubiquitous computing translates into ubiquitous learning.
- Examples of how I have enhanced my own capabilities, as a PhD student, for ubiquitous learning using the iPad.
- We then have an activity: not at all ironically entitled “in defence of the book”.
- Followed by an examination of how Apple wants us to use the iPad, and how that limits its potential for ubiquitous learning.
- An examination of how Apple’s closed system has been opened-up a bit to better fit with ubiquitous computing and learning.
2. Ubiquitous Computing

Did you know that the iPad concept was invented in the mid 80's by a collaboration of anthropologists, designers and computer scientists at the Xerox Palo Alto Research Center? The ParcPad was just one component in a much more revolutionary vision: ubiquitous computing. Mark Weiser, Rich Gold and John Seely Brown later described how they were motivated by:

"the idea of spreading computers ubiquitously, but invisibly, throughout the environment." (Weiser, Gold & Brown, 1999: p.693)

"We wanted to put computing back in its place, to reposition it back into the environmental background, to concentrate on human-to-human interfaces, and less on human-to-computer ones." (ibid. p.694)

Anthropologists, observing designs in practice, were central to this paradigm shift:

“the anthropologists of the Work Practices and Technology area within PARC, led by Lucy Suchman, were observing the way people really used technology, not just the way they claimed to use technology."

The PARC collaborators built the first ubiquitous computing environment, complete with wireless networking, cloud computing and a full range of mobile computing devices with various form factors and specialisations.

You can see many of the now familiar elements in this photo. The participants are working together on shared documents, using devices that allow sharing and collaboration through the network and through physical space seamlessly. They can pass around files or devices. Analogue sources can easily be digitised and added to the mix with digital resources. Participants can work synchronously or asynchronously, in anyplace and at anytime, carrying their connected devices with them.

It quickly became clear to the Xerox team that they were doing more than just inventing cool gadgets. They had started a revolution that would lead to new ways of working and learning.

"we came to realize that we were, in fact, actually redefining the entire relationship of humans, work, and technology for the post-PC era." (ibid. p.694)
3. From Ubiquitous Computing to Ubiquitous Learning

The iPad is then just one device fitting within one interpretation of the ubiquitous computing paradigm. But it was the first successful attempt to fill an important niche in any such system, the key design properties of which are:

1. Small and light enough to be portable, comfortable in the hands, and safely passed around a group of people.
2. Tough enough to survive “thoughtless acts” of use or abuse (Jane Fulton).
3. Aesthetically pleasing, so as to help it to achieve “emotional durability” (Jonathan Chapman).
4. With a high quality touch screen, big enough to be viewed by several people at a time.
5. With enough on-board storage and processing power.
6. Providing a fast and potentially global connection to the network.
7. With an inherently secure operating system.

All of this adds up to achieving the holy grail of ubiquitous computing, described by Weiser, Gold and Brown as:

"Maintaining simplicity and control simultaneously" (ibid. p.695)

The iPad achieves all of these design aims. But it wasn’t designed specifically for educational use. In many ways Apple’s recent adaptations of the iPad for education seem to be an afterthought. However, the iPad has, regardless of Apple’s intentions, had a huge impact in education.

But attempts to deploy it within traditional pedagogies, as a location into which the classroom may be flipped, represent only a small part of its impact.

The real significance of the iPad in education is as a device for what has come to be known as “ubiquitous learning”: connecting the learner, anytime and anyplace, to a whole internet of academic materials, with curated collections, and allowing them to create their own curated collections; allowing learners to share and collaborate seamlessly in digital, analogue or blended space; allowing learners to carry with them everywhere their resources and their projects, and to work on them in a convenient connected way.

Ubiquitous learning empowers and frees-up the learner in unprecedented ways. Four major sets of capabilities are extended for the learner:
**Resource capability** - Everything to do with how we discover, evaluate, create, store, share, access, use and combine resources and sources of resources.

**Project capability** - Allowing us to consistently develop a product (such as an essay, or even ourselves) by working on it over time in discontinuous episodes.

**Ethical capability** - Allowing us to develop, apply and evaluate core values, for example being concerned for the development and well being of our peers, whether they are in the same institution or on another continent.

**Design capability** - Allowing us to extend our capabilities by redesigning our practices, for example by incorporating new technologies.

What roles may a technological device play in enhancing these capabilities? Five theoretical approaches from the philosophy of mind, society and education contribute to my understanding of this:

1. **The Extended Mind Thesis of Andy Clark and David Chalmers** - We “offload” cognitive load into physical and digital devices - for example a device might seamlessly integrate with ones memory, if its interface is fast and unobtrusive. But it might also go beyond simply replicating our native cognitive processes, and become part of our cognitive evolution.

2. **Networked Agency** - We can achieve more by working together, with agency distributed across a network, not just with other people, but also with machines and animals.

3. **The Constructionism of Harel and Papert** - We learn by making and playing with constructions. A construction might be a Lego model, a poem, an essay or a concept. Improving our capabilities with such projects improves our ability to learn.

4. **Donald Schön’s Educating the Reflective Practitioner** - Acts of reflection, stopping to think about the choices we have made and the reasons for making them, act as powerful fulcrums in the learning experience.

5. **The Reflexive Imperative described by Margaret Archer** - The ways in which we reflect on ourselves, reflexivity, have evolved interactively with society, technology and Capitalism. Maintaining consistency between our values and our actions, through an ethical capability, is increasingly challenging.

The iPad, if used effectively, offers major benefits in each of these areas. But it is far from perfect. I will now go through some examples of how the iPad, apps and services have extended my personal capabilities (as a PhD student). And then we can look in more detail at how Apple’s system constrains our use of the iPad in education.