The Education Revolution or Devolution: The Consequences of an iPad for Every Child

Terrie Hamilton-Smith

Abstract

Schools in Australia and overseas are rapidly introducing and then replacing new forms of information technology as learning aids. There is a growing trend for this to include individual personalised devices which provide ‘24/7 access’ to the internet and effectively endless information, apps and virtual gadgetry. The drivers of these programs reflect the way we have come to think about our relationship with technology, nature and the purpose of education, generating a range of consequences that are incompatible with sustainable development. In this paper I aim to illustrate how we can reveal this largely unrecognised way of thinking that underpins how we relate with the world, and thereby harness opportunities for change.

Context

It seems that my children’s local Victorian Government primary school (School¹) is ‘behind and slow’². In 2011, a ‘1:1 Netbook program’ was introduced to the School for all students in grades three to six³, whereby each child received a Netbook for their personal use at school and home. Some three years later it seems we are behind and slow again. A corporate grant, iPads and more information and communications technology (ICT) teacher training is the proposed ‘fix’. A new program (Program) now involves every student in years five and six needing to supply their own iPad, while the school supplies iPads for the younger grades and the foreign language classes⁴.

What does sustainability mean?

The term ‘sustainability’, like language generally, is an evolving and socially constructed concept (Floyd 2012). While it has been defined in a plethora of ways, and is ascribed meaning by the user of the term:

common to all definitions ... are three principle dimensions: depth, space and time. These dimensions represent responses to three questions: What is to be sustained? For whom is it to be sustained? And for how long is it to be sustained? (Varey, cited in Floyd 2012).

¹ For privacy reasons, I have not identified the school.
² According to the sentiments expressed by many parents of children attending the School.
³ This was part of a State driven initiative which was effectively an extension of Kevin Rudd’s 2007 promise to create a $1 billion fund to give every senior secondary school student in years nine to twelve access to a computer at school (Winterford 2007). Netbooks are small, lightweight, relatively inexpensive laptop computers.
⁴ This is in addition to there being desktop computers in the library, interactive whiteboards in every classroom and a bank of ‘spare’ Netbooks, iPods and iPads.
In this context, my answers to the ‘for whom’ and the ‘what’ questions include my own children, the School, the broader local and global communities (both present and future) and their respective health and human development. ‘Health’ and ‘development’ are also big concepts that need defining. Essentially, what I seek to convey by these terms is a broad notion of social and environmental health, resilience and a sense of evolution towards a more holistic common good. This widely accepted definition broadly reflects my intent: “development that meets the needs of the present without compromising the ability of future generations to meet their needs” [my emphasis] (World Commission on Environment and Development 1987). With that in mind, let’s examine the sustainability related characteristics, contexts and systems of the Program.

Drivers and benefits

The Program (and its Netbook predecessor) has been introduced at the School’s choosing. There is no overarching legislation or directive from the Department of Education and Early Childhood Development (Department) requiring students to have an individual device. Though it is certainly being strongly encouraged. Indeed, the Department is promoting, encouraging and providing funding assistance for the take-up of both 1:1 Netbook and iPad Programs (Department 2012a and 2013b).

There appear to be a number of key inter-related drivers for the wholesale uptake of personal electronic devices as learning aids, including:

1. Wanting to be seen as ‘up to date’ with local and global trends, reflecting a kind of ‘keeping up with the Joneses’ dynamic (even in the context of education). This is also reflected in pressure that parents place on the School to have ‘good ICT’5. “The Netbook Project is part of a global movement towards a 1:1 ratio of students to wireless-enabled computers” (Department 2013b; School 2013).

2. The consumerisation6 and individualisation of education (Gruman 2013). “Research shows students are more motivated and engaged in learning when they have their own computer” (Department 2013a). “That is why [the Department], with support from Apple Corporation, examined how iPads can be best used for education through the iPads for Learning trial” (Department 2013b).

   Personal ‘ownership’ of the device is seen as the single most important factor for successful use of this technology (University of Hull 2013; Professor Chambers, Melbourne University, cited in Cauchi 2011).

3. The idea that the primary function of education is to prepare children from an early age for a role in a competitive workforce (the look and make-up of which, it is acknowledged, we cannot accurately predict), together with an assumption that this will

---

5 I have attempted to gauge parents’ responses to the program and have identified mostly support, along with criticisms that the School has been slow with its ICT uptake.

6 The iPad is a quintessential example of “consumerisation”, whereby this new technology spread first in the consumer market before spreading into businesses and organisations. Apple, IBM, Dell, Hewlett-Packard etc. have been touting the educational use of their computers since the 1980’s (Gruman 2013).
involve heavy reliance on and dexterity with digital ICT (Department 2013a, 2013b; School 2013, Robinson 2010; Gurney-Read 2013).

4. A global economic system based on the premise and reward of perpetual consumptive growth (Jackson 2009; Hamilton 2002) which often ignores, or at best struggles to find a mechanism or metric which can measure and create equivalencies for, economic, social and environmental costs (Norman & McDonald 2004).

The putative benefits of the Program are consistently said to promote and facilitate greater engagement in learning, “instant access” to information and tools, collaboration, innovation, creativity, independent and “anywhere, anytime learning” (Department 2013a, 2013b; School 2013; University of Hull 2013).

These drivers and benefits incorporate and reflect the socially constructed values, habits and systems that provide the broader framework and context for the Program (Fisher 2006).

Finding meaning in metaphors and illusions

It seems apparent from a review of the drivers and benefits that the ‘needs’ or ‘problems’ being addressed in this context are ones that have in fact been created by the drivers themselves (and their underlying social structures). No other reasons (such as a lack of participation, engagement or collaboration in education and learning) have been identified in the related literature as the issues being addressed. It therefore seems to follow that the drivers and benefits are in fact masquerading as perceived needs or problems or, to put it another way, they have become embedded in new metaphors that are guiding behaviour.

Lakoff and Johnson (2003, p.4) argue convincingly that “our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature” and that this system, which we are not normally aware of, “plays a central role in defining our every day realities” (Lakoff & Johnson 2003, p. 4).  

What can be extrapolated from the drivers, benefits and related literature, is that ‘faster’, ‘more’, ‘instant’, ‘competitive’, ‘individual ownership’, ‘autonomy’ and ‘independence’ have, in effect, become metaphors for ‘good’, ‘better’, ‘improvement’ and ‘progress’. Related to this, our culture’s predominantly dualistic interpretation of nature generates the “illusion [that] each of us exists on Earth as an independent, separate entity” (Doppelt 2012, p. 2).

Central to this illusion is the paramountcy of the ‘sacredness of the individual’, that is, “anything that threatens our ability to do whatever we want, whenever we want, is seen as a danger to our economy, personal freedom, and way of life” (Doppelt 2012, p.2).

This metaphorical understanding has given meaning to and created a legitimised structure and ‘reality’ for the Program (Lakoff & Johnson 2003; Fisher 2006). It effectively embodies what has largely become an end in itself. In this sense, it can be seen as representative of the broader ‘consumption game’, where the goal is simply ‘more’ (Leonard 2013). This produces
consequences that are not compatible with the goals of sustainable development as defined above.

Consequences

What is striking about this ‘education’ Program, from a sustainability perspective, are the consequences that fail to rate a mention in the literature produced by the School, Department, and broader research.

Cumulative Environmental Impacts

In a period of less than five years, the School has acquired a bank of desktop computers for the library, then the Netbooks and interactive whiteboards, iPods and now the iPads. It’s hard not to wonder what’s next and how soon (Welch 2013).

Apple (and most device and appliance manufacturers for that matter) is hardly in the business of manufacturing ‘once-per-lifetime’ heirloom devices.

Another government agency, Sustainability Victoria, has introduced the ‘ResourceSmart AuSSI Vic’ program which aims to “help Victorian schools actively build sustainability into everyday school and community life” (Sustainability Victoria 2013). And although Sustainability Victoria is “working in partnership on this initiative” with the Department (Sustainability Victoria 2013), it is striking to note that there is no mention of the environmental impacts inherent in the devices’ manufacture, use and ultimate disposal in the literature produced by either government agency. In fact, a search of Sustainability Victoria’s website returns zero results for ‘Netbook’, ‘iPad’ and ‘e-waste’.

By ‘environmental impacts’ I refer to the devices’ embodied energy, material resources and waste, among other aspects (including the horrific labour conditions and worker suicides that have gained press in recent years) inherent in their manufacture. And we also need to recognise the cumulative energy use resulting from the operation of the devices, including that used by internet search engines, the innocent sounding ‘Cloud storage’, ‘endless’ apps, servers, satellites, the related industries that support this use and the mountains of e-waste that this all generates (including in ‘outer’ space) (Ramos c.2011; Owen 2012, p.211; Glanz 2011; Clark 2011).

And while the devices have become more ‘efficient’ in the sense that they require less material resources and use less energy individually, the corresponding price decreases resulting from that greater efficiency serve to accelerate their uptake and turnover. Therefore, the net cumulative impact of cheaper, more ‘efficient’ and more portable models (thus making them appear more environmentally and therefore socially acceptable) results in far greater overall impacts. This dynamic is not new to us; it is known as the ‘Jevons Effect’ (Fisher 2006, p. xv; Owen 2012). The ‘1:1’ aspect of the Program across the entire school spectrum spurs this dynamic, exacerbates these environmental impacts, and arguably

---

*7 The only relevant references I have located are to increase electronic waste recycling (in a hard copy leaflet) and to turn off monitors and computers while not in use.*
represents a gross excess, inefficiency and waste, particularly in the absence of definitive
evidence\(^8\) associated with the claimed benefits.

**The Technical Fix and Loss of Self**

*One of the telling aspects of the literature and ‘supportive’
media coverage in relation to this and similar initiatives is the
dominant focus on the capacities of the device itself.*

Lists of ‘pros’ include its lightness, portability, instant powering up, capacity for ‘endless’
apps and the 24/7 access to a galaxy of information, tools and virtual gadgetry. This suggests
a ‘technical fix’ for a ‘problem’ which has been considered “in isolation and without tackling
its social context” (Fisher 2006, p. xv). And the benefits seem to involve quite a lot of
‘outsourcing’ of important human attributes and skills to an electronic device. Consideration
of the broader social context (and our participation in and construction of it) offers the
opportunity for us to not only better ‘see’ the significant environmental impacts discussed
above, but also some of the more insidious social and cultural implications.

The difficulty lies not so much in the technology itself, but rather in its implementation
(Fisher 2006, p. xv). Sounding the alarm in this context is the arguably unnecessary and
potentially harmful insistence on an independently owned device for each child (with 24/7
access\(^9\) being insisted upon as an integral and necessary component to achieve the touted
benefits (University of Hull 2013; Chambers, cited in Cauchi 2011)). Apart from reinforcing
the habits and structures identified by the drivers of the Program, we risk losing aspects of
what it means to be human (Fisher 2006; James 2012). The following observation by
children’s author, Mem Fox, illustrates one take on this problem:

*... an increasing reliance on technology to teach children how to read could inhibit
their empathy and social skills…. Apps had no beginning, middle or end, and did not
describe forgiveness or courage in adversity (cited in Battersby 2013).*

And as the works of Jackson (2009), Hamilton (2002), Doppelt (2012) and Wilkinson and
Picket (2009) convincingly demonstrate, ‘having everything’ in a material sense does not,
past a certain threshold, increase our sense of wellbeing. Nor does it bring benefits to the less
fortunate in our communities. Rather it creates and exacerbates serious problems and
inequities across the social spectrum.

Absolute technical ‘connectivity’ risks bringing about further widespread 'dis-connectivity'
with each other and the rest of the environment.

*What our dystopian master storytellers did not foresee is that
the threat from technology is not a universal and deadening conformity, but quite the opposite, a universal and deadening*
individuality (Sarewitz 2013).

Opportunities for change

This situation (which is becoming the norm across industrialised and industrialising countries) has come about due to our culture’s dualistic way of thinking whereby we humans think of ourselves as separate from the rest of nature. This creates such a dislocation that the broader context, as illustrated in this paper by the drivers and consequences, is ‘simply’ not ‘seen’. Revealing this thinking and the broader consequences it generates is the real sustainability challenge and opportunity here. As Professor Frank Fisher (2006, p. xiv) put it:

An understanding of the social construction of meaning is a guide to taking effective action for social change … and compels a responsiveness to the natural environment. Environment is context. We adapt to the natural environment, and we adapt it to suit our adapted selves. Accordingly, we are responsible for our interactions with it.

Consumption and the ‘sacredness of the individual’ have essentially become ends in themselves. No ‘higher purpose’ or ‘problem’ has, as far as I can tell, been clearly identified as needing a solution. This is not to argue that the School wants anything other than to provide ‘better or more appropriate education’. With this clearly articulated aim in mind, however, we need to not only ask ourselves how education will be delivered (that is, through what material means or technology). We need to concurrently and continually ask about its purpose: ‘education for what, and why?’ These are particularly pertinent questions for a society that invests such great meaning in formal education, believing it to be the key to everything (Schumacher 1973, p. 59).

It is beyond the scope of this paper to delve into those questions here, though we may speculate how likely they are to generate responses referring more to human qualities and values (rather than devices). Indeed, these may not be dissimilar to some of those identified in the claimed benefits of the Program, such as collaboration (which might be considered a form of sharing), creativity, innovation and engagement. But with this broader purpose explicitly in mind, the debate opens up with regard to the best means of going about such education; and we would not become so mired in justifications for choices of technology that go little further than its improved technical capacity. We would be empowered to create education programs appropriate to the world we live in, programs that meet the needs of sustainable development.

Engagement and debate

So how might we work towards ‘revealing’ our problematic thinking in ways that are likely to positively influence others? This becomes a question of how we might best be able to engage the School, the Department and the community at large on the issue (Fisher 2006, p.213). Practical means that come to mind include raising awareness of context and sustainability issues generally through activities, targeted class sessions and initiatives at the School. These could include facilitating guest speakers, Q&A sessions and seeking to have the issue raised and debated in the media more often. We could also write to the relevant
government departments raising these issues and inviting a response (Fisher 2006, p. 214). Communication with Sustainability Victoria is definitely in order given they do not seem to have thought about the impacts of iPads beyond those that derive from their immediate energy use. The new Australian Curriculum, which requires sustainability to be included as a “cross-curriculum priority”, is a timely driver for such activities (Australian Association for Environmental Education 2014; Victorian Curriculum Assessment Authority 2014).

A telling alternative

Or perhaps we could ‘take a leaf out of the book’ of eBay’s chief technology officer and other employees of Silicon Valley giants (including Google, Apple, Yahoo and Hewlett-Packard) who send their children to a nine classroom Steiner school10 in Los Altos, California (Richtel 2011). These ICT experts say “technology is a distraction when we need literacy, numeracy and critical thinking”, and that “computers inhibit creative thinking, movement, human interaction and attention spans” (Eagle, cited in Richtel 2011).

And to counter the claims of those who advocate that children need computer time to compete in the modern world they ask: “what's the rush, given how easy it is to pick up those skills? It's like learning to use toothpaste”.

At Google and all these places, we make technology as brain-dead easy to use as possible. There's no reason why kids can't figure it out when they get older (Eagle, cited in Richtel 2011).

Artist in residence

A practical program that could be fun to incorporate into students’ lessons would be to introduce some of the ‘brain training’ activities that Todd Sampson investigated and demonstrated in Make Me Smarter (2013). Many of the activities and exercises that Sampson engaged in, with a view to expanding his capacities for memory, creativity and innovation, involved changing his thinking and mind set. Notably, the key ‘techniques’ he used involved mostly coaching by experts and exercises using simple low-tech household items. Sampson would make for a very entertaining ‘artist in residence’.

Had there been an opportunity for the School to think about the Program in this light, it could have chosen to use the corporate grant11 to engage a suitable person to design and implement a program which incorporates sustainability, along with different ways of thinking and knowing, into the curriculum.

Conclusion

I have attempted to demonstrate that the Program is an unsustainable ‘technical fix’ to a perceived ‘need’ that is being driven by our problematic ways of thinking and the dominant consumerist paradigm. The solution is not to be found in technology, but rather by revealing the systems we have created and the ways we think about them. It is by no means easy to change the metaphors and illusions we live by but “new metaphors have the power to create a

---

10 In the US, Steiner schools are referred to as Waldorf schools. These schools subscribe to “a teaching philosophy focused on physical activity and learning through creative, hands-on tasks” (Richtel 2011).

11 The grant was able to be used for a variety of purposes, including sustainability.
new reality” (Lakoff 2003, pp.146, 158; Doppelt 2012). Revealing this provides both a challenge and an opportunity for sustainable development. And we will be all the better equipped to deal with this, and to create genuinely sustainable societies, when freed from our unrecognised default patterns of thinking and behaving.

References


Doppelt, B 2012, From Me to We: The five transformational commitments required to rescue the planet, your organization and your life, Greenleaf Publishing, Sheffield, UK.


Make me Smarter 2013 [TV program], Redesign my Brain, ABC Television, 10 October 2013.


Owen, D 2012, The Conundrum: How scientific innovation, increased efficiency, and good intentions can make our energy and climate problems worse, Scribe, Brunswick.


Schumacher, EF 1973, Small is beautiful: A study of economics as if people mattered, Blond and Briggs, London.


University of Hull 2013, iPad research in schools, University of Hull, 11 April, viewed 11 November 2013, <http://www2.hull.ac.uk/ifl/ipadresearchinschools.aspx>.


