Stakeholder, corporate, and policy perspectives

By David Parsons

Those who work to promote the use of mobile tools for teaching and learning do so in a complex environment. There are many different stakeholders who can have a profound influence over the acceptance and support of such innovations. To what extent these stakeholders choose to either promote or constrain mobile learning depends on their own perspectives, driven by financial, political or social considerations. As policy is debated, formulated, applied and interpreted by these stakeholders, their differing perspectives may have positive or negative effects on policy and its progress towards its intended goals.

Taking UNESCO's mobile learning policy guidelines[1] as its starting point, this article identifies the major stakeholders in mobile learning policy. Through a series of case studies taken from the informative New Zealand context, which embodies global themes in challenges facing both developed nations and indigenous peoples, it explores some examples of how these stakeholder roles have engaged with policy. The article identifies a number of important issues and challenges facing policy makers, and concludes with a number of policy recommendations for those involved in mobile learning.

Identifying mobile learning policy stakeholders

UNESCO's mobile learning policy guidelines suggest a number of key stakeholder roles in the development and delivery of mobile learning. These roles include principals, teachers, learners, parents, national and local leaders and community-based organizations. Some stakeholders are engaged in the formulation of top down policy (e.g. national and local politicians, telecommunication regulators and education authorities) while others are engaged in bottom up policy (e.g. schools). Further influences come from industry (e.g. mobile infrastructure providers) and other relevant institutions (e.g. teacher education institutes). These multiple actors have various effects on the way that mobile learning policy is applied and its impact on those at the receiving end; learners, teachers and parents. An additional influence, not referred to directly in the UNESCO guidelines but potentially significant, is the role of philanthropy, both individual and community.

Figure 8.1 summarises the various stakeholders in this overall process. It should be noted that there are many subcategories within these main stakeholder roles. For example, 'Learners' encompasses groups who may need special consideration in terms of mobile learning policy. These include female learners and those who are physically or otherwise challenged, such as deaf, visually impaired or dyslexic learners, or those from marginalized cultures. Schools, too, fall into a number of different categories, since they vary widely in size, socio-economic profile and geographical isolation. These factors can have a major influence on the selection of appropriate mobile learning strategies. The interests of industry stakeholders are equally diverse, spanning concerns about the education of a suitably skilled workforce, acting as suppliers of goods and services to education, and the provision of work-based training within their own organisations. Thus they may be both the suppliers and consumers of mobile learning. Perhaps the most important feature of this role analysis is the wide range of stakeholders that may influence both top down and bottom up policy. These may be quite specialised in their focus, such as international bodies and subject disciplines that are only concerned with specific teaching subjects. Developers of software and content affect the supply side of mobile learning as do, in a very different way, teacher education institutes. Such a disparate range of forces is likely to lead to complex and conflicting demands on policymakers that may lead to inequalities of effect on those ultimately impacted by mobile learning.

Figure 8.1: Stakeholder roles in policy
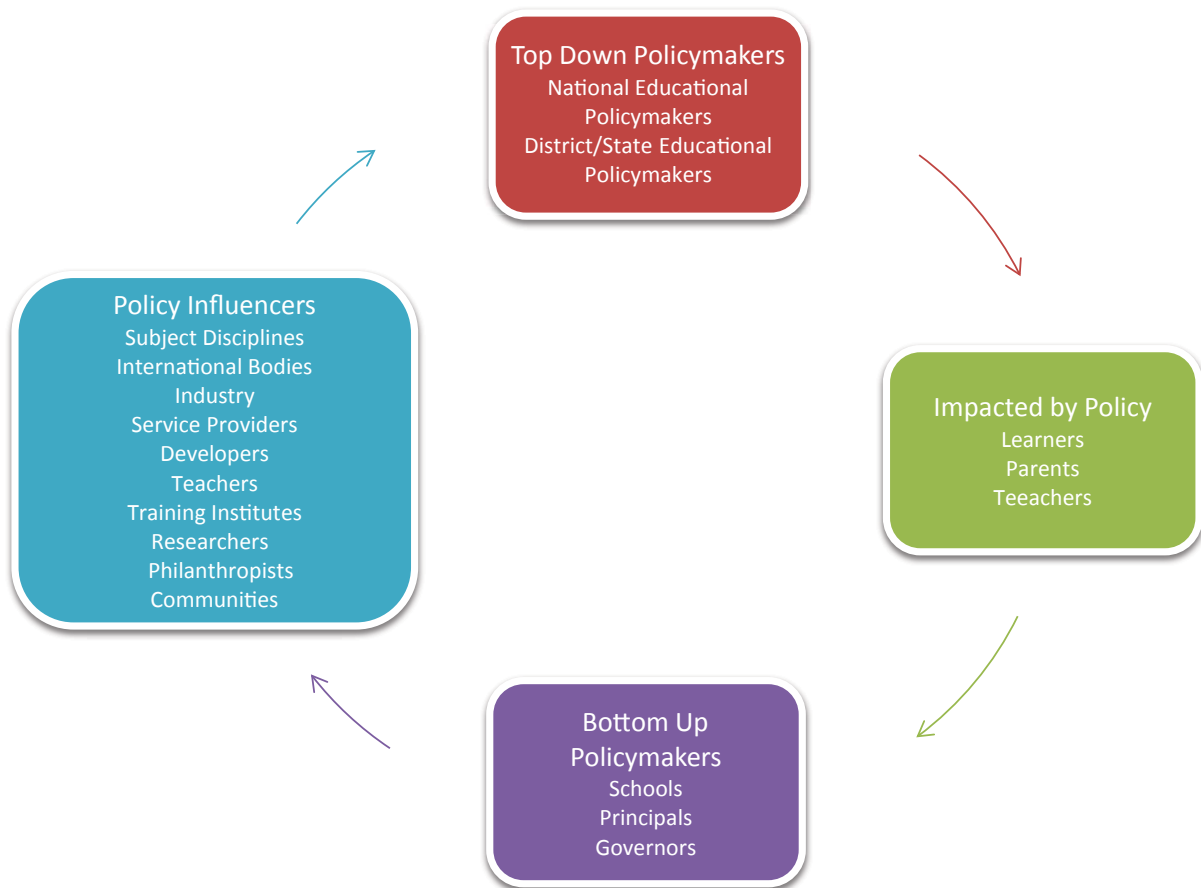
The New Zealand context

This article takes all of its examples and case studies from New Zealand. The main justification for this approach is that New Zealand has been described as the world's laboratory for progressive digital legislation; "if a policy maker, public servant or politician comes to me and asks me who to talk to around digital policy, I increasingly find myself looking at New Zealand as the place that is the most compelling"[2].

The New Zealand economic and social landscape

New Zealand's economy has some unique characteristics but shares others with many developed nations. It has been transformed from an agrarian to a more industrialized, free market economy, but in the process has deepened socio-economic divisions, suffered from mediocre economic performance and is heavily indebted internationally. Although its current population is predominantly of European origin, New Zealand is a bicultural society with a significant indigenous population of Māori, numbering approximately 600 000 (15 per cent of the national population). The bicultural relationship between the Crown and the Māori is embodied in the Treaty of Waitangi. More broadly, New Zealand is a multicultural society. About 7 per cent of the population identify themselves as being of Pacific origin, with the largest group being Samoan (Samoan is the third most commonly spoken language in New Zealand, after English and Māori). New Zealand's largest city, Auckland, is often referred to as the world's largest Polynesian city. Of its 1.3 million inhabitants, 11 per cent are Māori, 13 per cent are of Pacific Island descent, and there is a growing Asian population of around 12 per cent. The Māori and Pacifica communities are disadvantaged from a socio-economic perspective, and their educational achievement, as measured by formal qualifications, is significantly lower than other social groups.

Changing economic patterns and complex socio-economic divisions, compounded by clashes of

indigenous and immigrant cultures, where various social and digital divides impact negatively on learners from disadvantaged communities, are challenges faced by large numbers of countries across the world, and radical changes to education are frequently seen as essential to address these challenges. Recent major policy initiatives in New Zealand in the area of digital teaching and learning, intended to tackle some of these problems, may thus provide us with globally relevant insights into the role of mobile devices in education.

The school decile system

For funding purposes, schools in New Zealand are categorised by the socio-economic status of their catchment areas, using a decile system (from 1 to 10). Two of the case studies in this article are taken from contrasting areas of Auckland. Orewa College is in an affluent area north of the city (categorised as decile 9) whilst the Manaiakalani Trust serves a cluster of twelve schools in East Auckland from the lowest socio-economic category (decile 1A.).

Educational broadband policy implementation

A fundamental enabler for mobile learning is a pervasive and reliable wireless infrastructure, supported by wired broadband networks. Governments across the world are supporting the deployment of such networks, with educational usage a major consideration. The Digital Agenda for Europe, for example, aims to expand broadband access to enhance digital literacy, skills and inclusion. There is general agreement that policy should encourage broadband deployment and reduce digital divides. This means that the vast majority of the policy debate is about how the potential benefits of broadband access can be realised[3]. The New Zealand government is taking major initiatives in providing national broadband for schools and internal school networks (including wireless). The overall investment in ultra-fast broadband (UFB) is approximately USD 1 billion, the government contributing around 90% with private co-investment. Of this sum, USD 20 million is for fibre connections from school boundaries into the schools. As a result of this infrastructure build, 97.7 per cent of schools and 99.9 per cent of students will receive ultra-fast broadband capability, with the remaining 2.3 per cent of

schools in remote areas given wireless or satellite services.

The UFB project brings fast Internet connections into the school grounds, but does not directly address how that connection may be used inside a school. To address the next stage of broadband provision the School Network Upgrade Project (SNUP) has the objective of upgrading internal school networks, and includes a wireless option to support mobile learning. The estimated cost of these network upgrades, which are mostly funded by the government, with some contribution from schools, is estimated at USD 400 per student. New Zealand has around 750 000 school students, so if all schools were upgraded the approximate cost would be around USD 320 million.

A further initiative is the Network for Learning (N4L), a USD 150 million government-owned agency tasked with providing teaching, learning and support services on these new broadband networks. Thus the total technology investment in digital teaching, learning and administration across these three initiatives is somewhere in the region of USD 500 million over a period of 5 years, approximately 0.5 per cent of annual GDP. Whilst mobile learning is only one aspect of these investments, they open the door to a huge expansion of opportunities in mobile learning provision.

Given that the policy landscape around mobile learning is complex, with multiple stakeholders, and the investment required to deliver mobile learning infrastructure and services is substantial and multi-layered, the following section introduces three brief case studies to illuminate some of the main initiatives and challenges that characterise current mobile learning policy in New Zealand.

Case studies

These case studies have been chosen to illustrate various aspects of the stakeholder landscape. Previously in this article, the direct influence of top down policymakers has been outlined. Our case studies therefore focus on policy influencers and bottom up policymakers.

The first case study (Box 8.1) looks at mobile learning apps for the Māori language and culture. It provides an example of policy influencers, more

specifically researchers and software developers,
working in conjunction with the Māori community.

Box 8.1: Mobile learning apps for the Māori language and culture

| Te Pūmanawa | Kura | Hika Explorer |

Photo credits: Te Pūmanawa (image courtesy Maori Multimedia Ltd), Kura (image courtesy Te Kura Māori), Hika Explorer (image courtesy Hika Group)

An indigenous language is not just a language but also an important part of an overall culture. As the King of Samoa stated in 2013, if the uniqueness of the Samoan language is lost, "we should be strangers, culturally and spiritually, in our own land. If we lose our language, we lose the meaning of why we are here today."[a] Unlike Samoans, Māori do not have independent nationhood, so perhaps sustaining an independent language is even more essential to cultural identity. The Māori language (Te Reo Māori) is currently spoken (not necessarily fluently) by around 30 000 - 50 000 people, down from 50 000 - 80 000 in 2006. With this rate of decline there is a danger that the Māori language could be extinct in two generations. Sustaining a language requires that language to be embedded in the present, not just the past, and technology can play an important role in this.

There are a number of Māori language apps available on mobile app stores. Perhaps the most significant of these are Te Pūmanawa, Kura, and Hika Explorer. All of these apps have had researcher input to their content. The Te Pūmanawa mobile learning app for the Māori language and culture was the first mobile app to provide a complete mobile learning course in Te Reo Māori. It is certainly more extensive than any previous mobile learning app for the Māori language, with nine interactive modules, voice recognition functionality and more than 100 educational games and quizzes and assessments. It can lead to a certificate approved by the New Zealand Qualifications Authority. The Kura app focuses on game based learning, and supports both single player and multi-player modes. Hika Explorer has been supported by Vodafone, who offered free downloads of the 'Lite' version of the app during Māori Language Week in 2012, and aims to provide a fresh approach to learning by using modern technologies, audio, visual and kinaesthetic functions. Such innovations may help to support the survival and dissemination of the Māori language through informal mobile learning.

Note: [a] Ah Mu, A. (2013). Head of State takes battle for language eastward. *Talamua Media*. Available at: www.talamua.com/11925/ Accessed 23 Nov. 2016.

The second case study (Box 8.2) looks at Orewa College, a school in a relatively affluent socio economic area that was a pioneer of the Bring Your Own Device (BYOD) approach to mobile learning. This example helps to illuminate the nature of policy that is developed in a bottom up manner from school leadership teams.

Box 8.2: Orewa College – school driven policy

Orewa College is a decile 9 school north of Auckland. It was the first state school in New Zealand to launch a Bring Your Own Device (BYOD) teaching and learning strategy based on recommending a specific tablet device (the iPad 2). Previous 1 to 1 device initiatives in New Zealand had involved devices supplied by the school, or BYOD laptop or netbook schemes, mostly (but not exclusively) pioneered in private schools. The choice of the iPad was significant for a number of reasons, but particularly so from a mobile learning perspective. The use of tablet computers rather than laptops or netbooks has enabled learning to become mobile both inside and outside the classroom. As one example, students in PE classes now take their tablets outside and use them to video sports activities for later analysis.

Initially, year 9 students (aged 13-14) were expected to bring their own 1 to 1 digital learning device into the classroom for the 2012 academic year. Following this pilot year, the initiative has now expanded across the school. The school's influence on policy has been significant, as they have disseminated their message and experiences through a series of conferences held at the school for teachers and other stakeholders.

Policy questions raised by the BYOD scheme at Orewa College include the ethical and social impact of mandating that pupils must bring their own 1 to 1 digital device to school for learning. Another potential issue is that other schools may be tempted to follow their lead without going through the long term planning and local negotiation processes that were put in place before the first pilot was launched.

Orewa College students use iPads to record and analyse activities in physical education classes

Photo credits: Image courtesy Orewa College

The third case study (Box 8.3) looks at the Manaiakalani Trust, a community based initiative that has attracted high profile philanthropic support.

Box 8.3: Manaiakalani ('Hook From Heaven') Trust – community, philanthropy

The Manaiakalani Trust serves a cluster of twelve schools in East Auckland, most of which are classified as decile 1A, the lowest socio-economic decile. The ethnicity of students in the schools is approximately one third Māori and two thirds Pacifica. The name 'Manaiakalani' reflects this ethnic profile, originating in Polynesian legend where it signifies a safe passage, prosperity, strength and good fortune, emphasising the aims of the trust in raising student achievement through digital inclusion.

The trust's activities began with a four-year project in 2007 to use e-learning to raise student achievement in one of New Zealand's lowest socio-economic communities. Since then it has evolved into an on-going effort to bring digital equity and opportunity not only to the students in the schools but to the community.

Although the trust activities did not begin with a mobile learning perspective, the choice of lease devices is reappraised every year, and these have become increasingly portable. From a community perspective, the devices, supported by the community wireless network, are diffusing into the local area, supporting informal and lifelong learning in the families of students who have previously suffered from a lack of access to digital resources. The trust believes that for any time, any place, any place learning to be a reality, home access must be provided at an affordable cost with appropriate safety and security measures.

The trust was the recipient of high profile philanthropy when hip hop star will.i.am visited Point England School in Auckland and presented the Manaiakalani Education Trust with a USD 70 000 donation from his i.am.angel Foundation for trust schools to put towards science and technology. This is not the only philanthropic support made to the trust. To expand its broadband network across the local community, Housing New Zealand has supported the installation of Wi-Fi routers on its properties, and the Telecom Trust has made sustained investment in the trust. Telecom (now called Spark) is one of New Zealand's principal telecommunication providers.

Will.i.am at Point England School

Photo credits: Image courtesy Laura Heathcote, NewstalkZB

One of the policy problems faced by the trust is that its intention to pioneer a community based approach that could be copied and implemented elsewhere has been a victim of its own success. Its high media profile and success in improving outcomes for disadvantaged students has attracted philanthropic support that could not be replicated across other similar initiatives. It also faces issues in that some of its projects are funded as short-term ventures that may be unsustainable if further funding is not forthcoming.

Policy challenges

Mobile learning policy faces many challenges in the context of multiple stakeholder influences and a rapidly changing technological, economic and social global environment. It has to be formulated and enacted in an education system that is constantly changing, with new forms of learning and assessment developing rapidly. Policymakers must address the future needs of economies that are hard to predict so that worthwhile employment opportunities can be offered to future school leavers. This at a time when most developed countries face a shortage of skilled workers in high-technology industries, while often also suffering chronic youth unemployment. Challenges to those who have to create and deliver policy include how to get adequate levels of participation from the wider community, including minority cultures, and tailoring the detail of policy so that it provides concrete tools for action without being too prescriptive or restrictive. Underlying all these concerns is the multi-faceted and long-term nature of attempting to create social equity, particularly in the context of disadvantaged indigenous peoples.

Policy questions

Given the policy challenges outlined in the previous section, a number of important questions need to be asked by policymakers of all types.

Issues of personal choice often come to the fore in policy debates. To what extent should policy drive people towards ICT usage, or give them the option? Currently, the use of mobile learning in schools is supported, rather than mandated, by national policy, but is either mandated or prohibited by local policy. Some schools have moved towards a compulsory mobile learning policy, whether BYOD, by some kind of lease arrangement, or supplied by the school. Other schools have banned any kind of mobile devices from the classroom. In theory, parents and students have a choice about whether they choose to participate in mobile learning, by selecting which school children will attend. In practice, of course, choice of school is strictly limited by physical location and competition for places.

An associated question is to what extent central policy should drive local procurement and practice. Central procurement is often seen as a major benefit of national policy, since this is generally expected to reduce costs (along with streamlining of administration, this is projected to recoup half the cost of bringing fibre to the school gate) but it also reduces choice. An additional risk is that intervention strategies can lead to failure of competition where a single supplier achieves or retains a monopoly.

A particularly difficult challenge is the degree to which policy can embrace both today's questions and tomorrow's. A solution designed to address current problems may lock us into approaches that are inflexible to future needs. However, there is little value in attempting to address the perceived needs of the future while ignoring pressing issues of the present. The question of teaching digital skills relevant to the current ICT employment market is one of these dilemmas, which leads us on to the issue of the creation of ICT artefacts.

From the perspective of industry stakeholders, a critical issue is to what extent people are educated to be able to create ICT artefacts using the same tools that are used by the professional community, to prepare them for the workplace. This addresses a number of aspects of digital teaching and learning. One is the question of how creative modern digital tools actually are, and whether they are really devices for consumption rather than creation. Even where tools are

designed for the creation of software artefacts, those that are increasingly used in schools tend towards the drag and drop approach that often obscures a real understanding of the processes of software development. An example from the mobile learning space is the use of Hopscotch for developing mobile software on iPads. School students can learn to develop mobile software using a mobile platform, but it is unclear to what extent such skills are transferable to other types of IT knowledge. This is particularly important in a context where the routine tasks of software development are often outsourced, and higher-level design, architecture and strategy skills are required by employers. Another issue that arises is whether the software tools that students experience in their formal education prepare them adequately for the software tools used by industry, particularly an issue if students only use mobile devices.

In any innovative approach to digital teaching and learning there is a potential tension between moving ahead with pioneering projects and the maintenance or enhancement of equity. How is it possible to ensure that 'all boats rise on the same tide' while not being held back by the valid needs or attitudes of minorities. There seem to be two aspects to this issue. First, before a new innovation is launched there needs to be extensive dissemination and discussion of information in order to ensure the maximum possible buy-in, while implementation strategies must also ensure that mechanisms are in place to bring all stakeholders along with the main tide. As some of the examples highlighted in this article indicate, this includes supporting minority indigenous cultures as well as providing disadvantaged social groups with the ability to engage in informal learning by building community infrastructure that can support mobile learning.

A question that should be asked when looking to the future is whether concepts such as ICT, mobile devices or 21st century skills are still relevant to debates about future education policy. Our thinking about the future of education is based around some concepts that have common currency, having been well established over the last 20 years or so. The debate about whether the concept of the digital native is real or imaginary has already led to some critical commentary on how today's young people learn. However, there are other commonly used terms that have

so far endured less scrutiny, but may be equally unhelpful. Defining a 21st century skill is largely meaningless, in the same way that defining a 20th century skill would also be meaningless. The concept of ICT is too broad and embedded in the infrastructure of society to mean very much as a distinct entity, and mobile devices are only ephemeral artefacts. Perhaps if there are underlying changes in the needs of education, they are to some extent represented in 21st century views of high level learning objectives where, at the risk of over-simplification, synthesis becomes creation. Although the emphasis on creativity should not make us think that the other types of learning are less important, it is also true that modern digital tools enable them to be more easily delivered direct from source to learner, without necessarily requiring the mediation of a teacher.

Policy recommendations

The policy background and case studies outlined in this article support certain recommendations for mobile learning policymakers, based on a range of evidential sources. The following list provides a brief summary of policy recommendations that are drawn from the literature and case studies reported in this article.

- Policy must take proper account of return on investment. Not just in hard currency terms (profits and savings) but in long-term economic and social benefits that may be hard to predict but are nevertheless demonstrable.

- Policy must be flexible enough to ensure that grassroots approaches are not stifled or derailed by centralised assumptions. Often it is the local community that is the best driver of educational policy.

- Policy must take account of all stakeholders, including employers, though this does not mean taking a short term of view of skill requirements and human potential.

- Policy must be careful to ensure that arguments around personal choice are heard and catered for where possible.

- Policy must be adaptive to concepts of equity; there are many types of digital, social and educational divide. Issues of gender, relative

poverty and minority/indigenous culture all have to be accounted for.

- Policy must balance both short-term and long-term goals.

Conclusion

The main message of this article is that mobile learning policy is dependent on a complex interaction of stakeholders in its formulation and implementation. It requires a major commitment on the part of national government to provide infrastructure and services, but the process cannot only be one of top-down policy. Bottom-up policy

is equally important as it allows communities, cultures and regions to adapt to their specific needs. These may be driven by local industry, socio-economic profile, indigenous language, demographics, or a range of other factors.

The case studies in this article may be drawn from one national context but their lessons can be translated to other countries and regions. They demonstrate the importance of diversity of approach and commitment to develop mobile learning at all levels of society, from national government, to local community, to individual school and individual person, whether millionaire philanthropist, teacher, student or parent.

Endnotes

1   UNESCO. (2013). *Policy guidelines for mobile learning*. Available at: http://unesdoc.unesco.org/images/0021/002196/219641e.pdf Accessed 23 Nov. 2016.

2   Eaves, D. (2013). New Zealand – The World's Laboratory for Progressive Digital Legislation. *Tech President* [online] 18 September. Available at: http://techpresident.com/news/wegov/24353/new-zealand-worlds-laboratory-progressive-digital-legislation Accessed 23 Nov. 2016.

3   Bauer, J., Kim, J. and Wildman, S. (2005). An integrated framework for assessing broadband policy options. *Michigan State Law Review*, 21.