SUBMISSION

to the

Education and Science Select Committee Investigation into 21st Century Learning Environments and Digital Literacy

11 May 2012

For more information please contact name surname bcross@ppta.org.nz (04) 913 4222

The PPTA is the union representing around 18,000 teachers in state secondary, area, manual training and intermediate schools, as well as tutors in community education institutions and principals in secondary and area schools. PPTA represents the professional and industrial interests of its members, including those working in alternative education centres and activity centres. More than 95% of eligible teachers choose to belong to the union.

This submission is presented on behalf of the PPTA ICT Advisory Committee which comprises secondary teachers representing all regions of the country plus additional representatives from low-decile schools, Te Kura, SLANZA (School Library Association of New Zealand Aotearoa) and from PPTA Execuitve and Te Huarahi.

1 Investigate possible options for the best facilities that support teaching and learning in 21st century schools. In particular, investigate more flexible teaching spaces

1.1. The future is another country; they do things differently there.

1.1.1 It is clear that ICT will significantly affect the way learning happens in schools but care needs to be taken with "expert" predictions of what will be required in the future. The history of education is littered with experiments that proved to be unworkable in practice. In particular, an early version of "flexible spaces", "open-plan classrooms" came to be loathed in schools because of the level of distraction and noise.

1.1.2 On the other hand, the construction of flexible spaces allows multiple usage. Nevertheless, we need to take careful account of the experiences of new schools already operating in flexible spaces and consider the strengths and weaknesses of this design before making too many assumptions about the design best-suited for future learning. The underpinning question that needs to be answered is, does it work equally well for all students in all situations?

1.2 The challenges of the present

1.2.1 It is likely that secondary schools will continue to need specialised rooms such as workshops, labs, drama rooms, gyms and computer rooms. Once again, the "experts" predict the end of "subjects" as we know them but there are few signs in the immediate future that either parents, tertiary institutions or employers are ready to relinquish expectations that secondary students will have a sound knowledge in certain curriculum areas. The focus on supporting 21st century students who are collaborative, open-minded, life-long learners is important but we are some way from dispensing with content-learning altogether. The risk of

suggesting otherwise is that students may leave secondary schools without the critical grounding they need to take advantage of new opportunities. The rhetoric of 21st century learning does not always match with the reality of existence in this century.

1.2.2 The follow-on question from the one that asks how flexible classrooms can be made to work for all students is the one that asks how can all schools be equipped with the sorts of buildings and facilities that enable 21st century learning? The cost of conversion for extant schools will be substantial and it is difficult to see how this can be funded under current circumstances. And neither is it just a case of restructuring classrooms into flexible learning spaces. The storage and security of hardware requires purpose-designed rooms and facilities. For some secondary schools, theft of the equipment is a constant problem which means security costs for the school and considerable administration time spent on following up.

1.2.3 There are a range of currently unaddressed issues around ICT use in schools including ventilation, heat, light, noise and ergonomics which all pose health and safety risks for teachers and students. In the stampede to embrace new technologies the physical risks for children of developing repetitive strain injuries from hunching over smaller and smaller keyboards and eye problems from the restricted focal distance do not seem to be at the forefront. Parents who will not allow a cell phone tower near their houses or schools will happily give a two year-old unlimited access to an iPad.

1.3 Tomorrow's Schools; a barrier to collaboration?

1.3.1 A major barrier to the creation of 21st century learning spaces is Tomorrow's Schools. In setting up a system in 1989, of 2,500 individual entities, New Zealand was endorsing competition and incoherence and rejecting the possibilities of collaboration and coherence. Because of this New Zealand schools almost missed the first digital revolution as it was left entirely to boards of trustees to find the funding and the knowhow within their own circles. Not surprisingly many of them failed and money was wasted on hardware, software, cabling and buildings that were completely unsuitable and have had to be replaced.

1.3.2 By 2000, the government had come to see that much more funding, support and advice was needed for schools and began providing leadership but only as far as it could in a system that is supposedly "self-managing."[1] Boards continued to make expensive mistakes so, for example a number of schools have had to have full network upgrades in order that they may benefit from UFB. In other cases, the

[1] Credit must be given to the Hon Trevor Mallard for his decision in 2002, to provide laptops for all teachers which enabled them to become familiar with the possibilities of the technology.

pace of change simply outstripped the ability of schools to keep up with ICT developments.

1.3.3 This is a reminder of how expensive the Tomorrow's Schools system is. For a country that is not wealthy, New Zealand has too much money tied up in property and sites. Since 1989, there has been a systematic expansion of the number of schools justified by the rhetoric of choice. What this means is that more and more funding is tied up in building and maintaining specialist facilities, when consolidation would free-up millions of dollars for teaching and learning. The potential for ICT to advance collaboration for the educational benefit of all will be compromised if it is not accompanied by an examination of the limits of self-management and an honest assessment of whether, in all cases, volunteer members of boards of trustees are sufficiently informed and qualified to lead the next phase of the digital revolution.

1.3.4 PPTA supports the minister's proposal to review Tomorrow's Schools and suggests that any proposals the Select Committee makes on 21st century learning should take account of the wider context.

1.3.5 Another documented consequence of Tomorrow's Schools has been a systematic polarisation of schools along socio-economic and ethnic lines. This means that the most disadvantaged students - the ones who are over- represented in the so-called "tail of under-achievement" - tend to congregate in the poorest schools. They are less likely to have access to computers and internet at home so the role of the school is pivotal. It would be instructive for the members of Select Committee to undertake some field research comparing the ICT facilities at randomly selected decile 10 and decile 1 schools to get a sense of how wide the digital divide is. Addressing this disparity is surely the biggest challenge facing New Zealand education.

2 Investigate possible changes to the timing of when learning can occur, given the spread of handheld devices.

2.2. Who will miss out in the digital revolution

2.2.1 Anytime learning is evolving relatively quickly in New Zealand secondary schools, driven by the use of Learning Management Systems that enable teachers to post lessons and assignments online and parents to access data about their child's progress. Lower decile schools usually make their facilities available before and after school so that students can use them to study.

Some of the issues that this raises include:

- The teaching job will quickly become unmanageable if, on top of all their other duties, teachers are expected to be available 24/7. Schools will need very clear

national guidelines if the extra demands of digital learning are not to fuel teacher burnout.

- In general, the schools leading the way with BYOD (Bring Your Own Device) are high decile. What support will be needed for other schools to enable them to join the BYOD revolution, bearing in mind that in these communities, students often do not have internet access at home? The scheme undertaken by Point England School to provide wireless internet for their whole school community is admirable but it should be noted they are endeavoring to raise three-quarters of a million dollars. That sort of fundraising is definitely not scalable.

- Are parents prepared to pick up the financial burden of providing digital devices for their children accepting what is effectively a transfer of educational costs from the taxpayer to them?

- In remote communities students do not have internet access at home and cannot stay at school to use the school facilities because of busing. Northland, the East Coast and the West Coast are examples of remote communities that have more than their share of disadvantaged students who must not be left behind.

3 Investigate possible options for the best technological infrastructure that supports teaching and learning in 21st century schools

3.3 Lighting the Fibre

3.3.1 The Ministry of Education through its SNUP programme (School Network Upgrade Project) has had some success in guiding schools through the process of upgrades - and sometimes complete overhauls - but it is reliant on cooperation of boards. The Ministry cannot stop schools which are determined to make bad decisions and equally is apparently reluctant to direct them. For example many schools have had very bad experiences with SMS (Student Management Systems) which proved to be unworkable and had to be replaced when the Ministry should probably have trialled and recommended a single system. The whole area of ICT is too complex and too expensive to be left to the discretion of individual school boards.

3.3.2 The most important initial step is to ensure all schools have functioning, reliable and secure wireless networks. The Ministry is driving this process and assisting schools with its central purchasing of reliable and reasonably-priced parts.

3.3.3 While schools welcome the advent of UFB, they are alramed about how they are to manage the ongoing costs of lighting the fibre, especially when data use is moving into terabytes

per month. The faster the broadband the greater the data use will be. There are also hardware and software costs, repair costs and a vast increase in electricity charges for schools to manage within declining budgets. Without some dramatic changes, schools will have UFB but limited financial capacity to make the best use of it. There is an urgent need for the central negotiation of a package for schools that delivers affordable rates.

3.3.4 One ICT cost that has been largely overlooked is professional learning and development. While some contracted ICTPD was provided, the Ministry's own evaluation showed that it was not particularly useful for secondary teachers because it was too often targeted at the more generic needs of primary teachers. (Although individual schools often benefited from the funding provided to run the ICT clusters.) Specialist subject teachers have pretty much had to make their own PD. Without a comprehensive plan for professional development that is genuinely targeted at secondary teachers' needs the educational potential of ICT will not be realised. The capacity for ICT to drive national collaboration in a flexible way needs to be harnessed for the delivery of professional learning and development.

3.3.5 For a number of years, PPTA has advocated the establishment of tagged staffing positions providing e-learning leadership to a school, or a cluster of schools. This proposal was partly aimed at supporting professional development of teachers but was also an attempt at retaining ICT pioneers in the sector. Currently the e-learning experts are being systematically lost into other careers.

3.2.6 Pre-service teacher education must also be part of the technological infrastrucuture mix. The Graduating Teacher Standards already require that teacher education students demonstrate “the pedagogical application of IT” but there is a case for a national programme that operates through all the institutions and in close connection with schools so prospective teachers are well prepared for work in the schools of the future. This has implications for the autonomy of the teacher education insititutions and for schools as well because they must give beginning teachers the best possible start to their careers. Sometimes beginning teachers are not provided with functioning ICT equipment so they are not able to develop their skills in that area.

4 Consider how the rollout of ultra-fast broadband (UFB) will affect teaching techniques and processes, and whether additional resources or training may further enhance the positive effect of UFB on teaching and learning outcomes. In particular, investigate the role and efficiency of the Network for Learning.

4.4 Encouraging collaboration

4.4.1 The assumption that resourcing and training will drive collaboration is a triumph of hope over experience. While the funding drivers continue to support competition rather than collaboration, any attempt to create cooperation through training will be artificial and short-lived. The most recent attempt at ICT cluster funding, the ICTPD, met with only limited success largely because of the atomised nature of our system. The hard question of how to build cooperative structures needs to be confronted rather than trying to apply band-aids collaboratively.

4.4.2 Proposals to split the per-student funding across schools to encourage sharing have their origins in systems that have a real regional presence which acts as a referee and honest broker for schools. In the absence of that, implementing something like a "student programme voucher" will increase fragmentation and risks an intensificationo of the unhelpful competition that that pervades schooling in many parts of New Zealand.

4.4.2 The Network for Learning is a reasonable compromise to the problem mentioned above, that it is extremely difficult to provide leadership in a system that is so devolved and so divided. Much of what it promised will be seen only when the UFB rollout is complete but it has considerable capacity to provide centralised support for schools. One difficulty that may arise is that once the large, well-resourced urban schools have UFB, they will outstrip the Network For Learning further exacerbating the digital divide.

4.4.3 The Virtual Learning Network (VLN) provides a powerful model of how schools can collaborate to deliver effective individualised online teaching given the opportunity. The most impressive aspect of the VLN is how it has enabled small rural schools to thrive.

5 **Consider whether current generations of learners more readily adopt new technology, and whether increasing base levels of technological proficiency may promote independent learning.**

5.1 Digital natives?

5.1.1 There can be no doubt that young people enjoy, and even expect, learning to be ICT-based. It is going too far, however, to claim that they are "wired differently". Such claims are more likely to be made by individuals selling ICT

equipment and services than by neuroscientists. Because students are connected to digital devices does not necessarily mean they are learning. Surveys done with university students have shown that students may be competent at using devices for social purposes but are much less skilled with respect to research and analysis of data.

5.1.2 We can expect the continued growth of independent learning programmes but students will still need support and guidance. In this context, it is important to note that it will not be possible for teachers to provide the necessary support for independent learning programmes if schools are expected to continue to operate classes with over 30 students.

6 **Investigate the opportunities for technology to increase collaboration between neighbouring schools, and between distance learners.**

6.1 Where is the motivation for cooperation?

61.1 As noted earlier, Tomorrow's Schools was deliberately set up to facilitate competition between schools and not collaboration which is why a review is overdue. Effective ICT use demands collaboration but all the levers in our school system go the other way. Schools benefit financially if they can increase their rolls so it is not in their interests to share resources.

6.1.2 The VLN demonstrates how schools can cooperate when they have no other way. It was developed by small rural schools who were most disadvantaged under the Tomorrow's Schools model and needed to work together to survive. There is no such motivation for schools that are not at risk of becoming non-viable.

6.3 The potential for further collaboration between schools may rely heavily on a more co-ordinated, centralised approach to the resourcing of online-learning. This is doubly so since those schools relying most heavily on it are those with the least capacity to generate significant levels of local funding. This may mean considering how the Operations Funding and the Staffing Orders may be modified to recognise and facilitate the equitable provision of e-learning in those schools.

7 **Investigate issues of equity of access to technology in New Zealand schools, which includes establishing the current extent of New Zealand's digital divide.**

7.1 Equity and fairness

7.1.1 As already mentioned, schools in low-socio economic areas and in rural locations have either been left behind by the digital revolution or are struggling to keep up. Any strategy

for the future needs to begin by focussing on delivering equity for these learners.

8 Investigate the impact of increased digital literacy on learning.

8.1 Creating digital literate citizens.

8.1.1 Young people today are usually confident and competent users of technology. The challenge for schools is to help them develop sufficient digital literacy that they may become informed users of ICT. Aside from the support of Netsafe, schools have been left to develop their own digital literacy programmes - yet another example of each school having to re-invent the wheel. New Zealand could better maximise the benefits that ICT offers, if nationally-available resources, appropriately-targeted at the various curriculum levels, were made available to assist schools in developing students' digital literacy skills.

9 Conclusion

9.1 The Select Committee in its investigation has correctly identified the potential for ICT to drive collaboration and the synergies and savings that will result. Unfortunately, that proposition immediately raises the difficult political issue of whether a system designed in the 20th century to maximise competition is the appropriate mechanism for 21st century learning.

9.2 Michael Fullan, who has evaluated the features of top-performing international education systems in *Choosing the wrong drivers for whole system reform,* identifies the "right" drivers as:

1. A curriculum that encourages problem solving and critical thinking;

2. Fund schools adequately paying special attention low decile areas;

3. Invest in high quality preparation and PLD for teachers;

4. Encourage collaborative planning and PLD by providing time;

5. Avoid over-assessment;

6. Ensure teachers are adequately paid.

In contrast, the wrong drivers are:

1. An over-emphasis on accountability;

2. A focus on individual teacher and leadership solutions at the expense of group solutions;

3. Unrealistic expectations about technology and competition;

4. Fragmentation not coherence and collaboration

Currently New Zealand sits largely in the "wrong drivers" camp. Hopefully the Select Committee will, in conducting this review, take the opportunity to reflect more widely on the potential of ICT to address some of the structural problems that are inherent in the current system.