

"It's when a technology becomes normal, then ubiquitous, and finally so pervasive as to be invisible, that the really profound changes happen, and for young people today, our new social tools have passed normal and are heading to ubiquitous, and invisible."(Clay Shirky) ¹

"we have moved from traditional learning places to a continuum of learning spaces so that the entire world becomes a place of learning for the student" (Ruben Puentedura)²

Introduction

Digital learning, bring your own technology, creating a digitally normal learning environment, independent and collaborative learning, are all aspects of 21st Century teaching and learning. I headed into the summer break with the aim of visiting some schools in NZ, Australia and the UK , meeting with teachers, consultants and possibly parents when and where possible. I wanted to bring all my thinking and ideas together and see how they 'stacked up' against what was happening outside the GEMS Schools network in other parts of the world.

I met with the following people:

- Mal Lee - BYOT consultant Broulee, NSW, Australia.
- Sue Lowe - Head teacher, Broulee Public School, NSW, Australia.
- Dave Hounsell - IT Teacher/Administrator, Broulee Public School, NSW, Australia.
- Linda Sherlock - Assistant Principal Waiopahu College, NZ.
- Jimmy Leach - Director of Digital Engagement, GEMS Education
- Phil Redhead - Senior Advisor, Digital Learning, GEMS Education
- Sheryl Rogers - Senior Advisor, Digital Professional Development Education, GEMS Education
- Neelam Parmar - Head of ICT at Kew Green Preparatory School, UK and Educational ICT Consultant.
- [Pegasus Town School](#) I viewed a new school being built at Pegasus in North Canterbury, NZ. At present its just in the first stages of being built, but the plans/philosophy behind this school are excellent. I have made contact with the Principal of this school.
- [iThink Therefore iPad? Conference](#) (Manchester Metropolitan University)

The key reason for these visits/interviews was to re-evaluate and test my own thinking around:

- Bring You Own Technology and the digital normalisation of the learning environment
- Learning devices in the classroom other than Apple
- Deployment/use of devices - whole school, but particularly in EYFS
- Laptops or Devices?
- The influence and importance of the school leadership (Senior Management) advocating and developing the digitally normal learning environment and BYOT.

BYOT or BYOD?

I have to say that until I read Mal Lee's book, I had not grasped the heart of the BYOT concept. I was still in the mode of BYOD and BYOT as being the same thing.

I had questions about:

- how much control a school should have (or not have) over how student devices are used in the school.
- What devices is are best for use in BYOT/BYOD School?

¹ Shirky C, Here comes everybody: Organizing without organizations (New York , 2008), p105

² R.Puentedura, [Technology in Education: A Brief Introduction](#) (YouTube video)

These are tricky questions because it is so easy to contradict the rationale behind BYOT. One thing I learned quickly was that BYOD is not the same BYOT.

The thinking should most likely start with digital normalisation - how students learn:

- Digital normalisation is about how teachers and students think, work and learn - the digital environment they operate in. It is normal and available to use whenever the teacher or student requires it.
- The digital learning environment is significantly enhanced when BYOT is implemented. BYOT means the learning environment is everywhere 24/7/365.
- The frustration factor of what will or won't work in a digitally normal learning environment has to be addressed for students and teachers alike. The 'choice factor' has to be built into the thinking and married to the acceptable level of technology which will enable the teachers and students to attain the outcomes required and more importantly, their potential.
- "While it might come as a surprise to some educators, the school use of the digital by young people represents but a minor part in the total overall usage. They are already using the technology to personalise their teaching and learning. With BYOT, they will be looking for the school to support that personalisation and the facility to use their preferred personal mode of learning."³

NOTE: Often schools provide one type of laptop for their teachers with set software. Added to this, there are permissions set that do not allow the teachers to do functions. This approach needs a careful re-think. This resonates a sense of no trust in the teachers, who, as much as students, desire to be productive and creative.

There should be an expectation:

- That teachers will experiment and pursue new ideas.
- That the technologies they use will be an integral part of this and should not be a hindrance or frustration.
- That the technologies they use should not cause the teachers to give up and not try.

Teachers should be able to choose the platform they wish to work from and as well as the OS. One size does NOT fit all. Yet so often we find ourselves in this position.

From the information I have gathered, a mobile device should be able to do the following:

- Connect to the Internet
- Take a photo and edit it
- Create video and edit it

One of the key things that concerned me was the fact that schools are buying whole-heartedly into a particular brand(s) of tablet and then having them deployed in the school and 'booked out' to classes. Mal Lee made this point to me. "Why would you buy devices when the children already have them at home?" I agree. But, as already stated, there is a place for school owned technologies that supplements what the students bring in. There are things that an iPad will do that an Android will not. We also know that the power and interaction of such apps as iMovie, Keynote and iBooks is unsurpassed. At Broulee Public school I observed exactly this. Students bringing their own

³ Mal Lee and Martin Levins. "Bring your own technology: the BYOT guide for schools and families." (Acer Press, 2012) p.8

technology which is enhanced effectively by technologies in the school. This is an important point to note.

BYOT is NOT:

- solely about students bringing devices from home.
- about schools never having to buy technology again.

On the contrary, astute procurement of technology in a school, that creates a valuable technologies backbone, will make a significant impact, not only on the digital normalisation of the learning environment, but also to the productivity and potential attained by each student. It also helps deliver the normalisation where there is an issue of equity. From my experience and from the conversations I have had, one thing is clear - schools with the least to lose will go almost unreservedly into a BYOT model, whilst those who have much to lose, seemingly, will be reticent about making the step forward. [Miles McFarlane](#) gives a great example of BYOT in operation.

EYFS

I met with Neelam Parmar, who is Head of ICT at Kew Preparatory School and freelance Educational Consultant in London, UK. We discussed on a number of things regarding EYFS.

1. BYOT at this level, should be a decision made collaboratively by the school and parents. It is up to the individual school to work out how the devices will be managed.

2. We lean more towards NOT giving preschool children and/or parents the option to bring their own devices to school. We think it is probably a better idea for schools to provide tablets for children in early years, reception and KS1.

3. One area that we both are concerned about, in EYFS, is the structured part of the digital learning at this age. Children of this age know how to get around an iPad, which is great, but they also know how to get into everything except that which they are meant to be working on. This then, requires a high level of supervision on the teachers part in the structured part of a lesson. Many of the EYFS teachers I speak to have very few negatives about the iPad in EYFS, except for this one aspect. Neelam gave me a possible solution for this - the [LearnPad](#).

Neelam Parmar makes the following points .. “Whilst technology is growing at such a phenomenal rate, with the added emphasis for the need to introduce them into the early years settings, practitioners feel that they are not able to keep up with the technological advancements and less attention has actually been dedicated to the pedagogical aspects in extending learning and development of curriculum focus, whilst using newer forms of technology with young children. But, new and developmental research has shown that more importance must be paid to integrating technology both effectively and appropriately within the early childhood curriculum. By making small changes to the curriculum design, new collaborative pedagogical practices will emerge and begin to filter into the classroom lessons.”

David Messer (PhD Professor of Child Development and Learning, Open University), speaking at the iPad there4 iThink Conference (Dubai) on the topic ‘Thinking about iPads in educational settings’ made it clear in his research, amongst many excellent things to be said about the iPad in EYFS, that most of the challenges were related to the teachers and their digital normalisation. ‘Staff training

and discussion is important as is provision of 'champions' who can provide advice and help'⁴. David Messer also concurs with what has already be stated with regard to the the functional aspect of an iPad in EYFS - many excellent things to be said, but the recurring theme is:

- Managing the interactions and classroom behaviour (e.g disruptive taps).
- Problems with too many sharing (this can encourages co-operation etc)

At the EYFS level, my interest is in the tools (not apps) and how they enhance and extend the activities children partake in, whether that be phonics, numeracy or free-play ('busy-bee'). Is there a place for more than one device? An iPad and a Learnpad? The LearnPad seems to have many attributes that make it a very suitable device for EYFS and possibly Year 1 and should be investigated further.

Laptops or Tablets?

The key to this issue is this - nobody uses just one device. That day has long gone. As children get older they will go from one device to many devices. Schools will have to decide how they will manage this. What is clear is that we need to let students learn to work in the same way as they would in the 'grown-ups' world. This will change and evolve as time goes on. If we don't think and operate in this way then we will be left behind as the evolution continues.

My thinking is this:

- EYFS - Y2: school-owned devices.
- Year 3: start a child with their own personal laptop. They will learn quickly how to use it efficiently and effectively.
- Year 5: introduce BYOT - a device that will be part of an ongoing suite of learning devices (possibly 3 or more as the progress through school, university etc).

Silvia Rosenthal Tolisano posts [What the iPad is and what it isn't](#). "The first realisation needs to be that the iPad is not (yet) intended to be a replacement for a laptop"⁵

Guidelines for parents have to be well thought out so that accurate decisions are made about the device their child will use. Dave Hounsell, Broulee Public School, gave these guidelines to parents. ["BYOT - What device to buy?"](#)

Here are my guidelines for parents buying a laptop

Y3-6 BYO Laptop Specification Guide:

- Brand: Apple or Windows PC (use leading brands and read the consumer reviews carefully)
- Weight: Light – don't compromise and buy a delicate laptop that will be easily damaged.
- Processor: 2.5Ghz Intel i5 or better
- RAM: 4Gb or better
- Battery: a minimum of 4-5 hours working time.
- Hard drive storage: 500Gb ATA drive or 256 SSD. The ATA drive has more storage capacity, but is slower booting up and rending video etc. The SSD is much faster booting up, but has less storage space.

⁴ David Messer PhD Professor of Child Development and Learning, Open University "Thinking about iPads in educational settings' (iThink there4 iPad Conference, Dubai 2013)

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⁵ [Silvia Rosenthal Tolisano](#), "[What the iPad is and what it isn't](#)" from the [Langwitches Blog](#), (Sept, 2013)

A laptop, that has a good design, uses good components and has the above minimum specifications, could last 5 years (or more) if it is looked after. It is a good idea for the laptop to have a cover (Neoprene) and a bag (top loading) for it to be carried in. There are hundreds of these on the market.

A student's perspective: [How I best use Technology: Melania Mihalcea, GEMS Royal Dubai School \(2012\)](#)

NOTE: It is critical to get the infrastructure of a school right so this can effectively take place. It is not inconceivable that a class of 25 students, particularly at secondary school, will have 50+ devices all working at the same time. The infrastructure required to support this needs careful planning, which involves a collaboration between educators who understand the pedagogy and the WIFI architects. This has to happen before the site surveys are completed. The broadband needs to be robust and capable of dealing with density and coverage.

Leadership

It is my conclusion that if the leadership does not understand BYOT and is not proactive in their thinking and actions, then you are better to not start with BYOT. I think this also extends to the scenario where there is an inability to make a decision about which way to head. I think this is a worse than a leadership team that chooses to not embrace BYOT - like a rudderless boat meandering all over the sea.

[iThink There4 iPad? Conference](#) (Manchester Metropolitan University)

This was a very interesting conference to go to which helped me focus again on what I believe and think and the track I am going down. I felt myself listening to different educators accounts of what was happening in their school and making judgement calls on what was right or wrong. I had to stop myself and remind myself that 'one size does not fit all' and if it worked in their school for all the stakeholders, then that is all that matters

The conference was about the iPad. Rarely did we get anywhere near talking about students and BYOT (except one speaker who was outstanding) and digital normalisation. I listened to one key speaker at the end of the day who could 'reel off' a lot of information but seemed to know very little. So there was a mixture of good and outstanding presentation.

One thing that concerned me from this conference is how schools have this overwhelming need to be 'in total control' of all the tech. I was amazed at the lengths schools would go to do this and the amount of money and time they would have invested to achieve the level they have achieved. It is my firm belief that the model needs to be simpler than this. The model also needs to be a learning empowering one that impacts teachers and students. An example of this is GEMS Royal Dubai School, where there is a backbone of technologies within the school. A large part of that backbone is iPads and iPod Touches. The school has a resident IT Administrator. The iPads will be deployed to year groups and specialists in a state where they have no apps on them. It will be the responsibility of the teachers to:

- choose the apps they require and download them.
- make sure the apps are updated.

- problem solve connection to the WIFI when it drops. It is an expectation that teachers will learn this through support provided by the IT Administrator and Digital Learning Coach as part of their digital learning programme.

It makes more sense to invest money in a Digital Learning Coach than in the alternative 'controlling systems'. This track enhances and extends the teachers professionally and pedagogically.

Tweets from the [iThink There4 iPad? Conference](#) can be found at [#ittip13](#)

"Bring Your Own Technology: The BYOT Guide for Schools and Families"

Mal Lee's and Martin Levins (Acer Press, 2012)

Broulee is a 'surfers town' 4½ hours south of Sydney by car. I took the plane - a 34 seat Saab 340 - and it took 45 minutes. Broulee has no airport, so you fly into Moruya and drive the rest of the way. Mal Lee is a foundation member of the ACT Brumbies and has managed several high level Brumbies teams. As a one-eyed Cantabrian and parochial Crusader, we had much to talk about. The Brumbies had just beaten the Crusaders! For the record, the travel was more expensive than flying to New Zealand from Sydney. Talking with Mal was fascinating. We discussed many of the aspects below.

I read Mal Lee's and Martin Levins book ["Bring Your Own Technology: The BYOT Guide for Schools and Families"](#). This book is not designed to tell you how to implement BYOT. Understanding the issues through the accounts of schools who were on the BYOT journey, enables a prospective school's BYOT path to be that much clearer. Through careful consideration of each aspect outlined in the book, educators, teachers and administrators alike, will be able to design their own unique approach to how they will implement BYOT. As I read through this book, my understanding of BYOT deepened and critical points in the BYOT journey stood out for me. I have created 10 critical points⁶ using quotes from the book.

Critical Point 1: Digitally normal is NOT ...

"the teaching and learning model of the place called school is still predominantly paper-based, is insular and teacher-dominated and struggles, despite the rhetoric, to accommodate the digital and the networked, even to acknowledge the nature and impact of the teaching and learning happening outside the classroom and shift to a mode appropriate for the twenty-first century (Lee & Finger, 2010)." p.5

"school leadership ... who still believe an appropriate education for the twenty-first century involves simply a focus upon and success in a small group of academic subjects" p.5

"we have today in most schools a growing home - school digital divide (Becta, 2009b), with the formal schooling being regarded as increasingly irrelevant." p.5

Critical Point 2: BYOT is NOT ...

⁶ Excerpts from: Mal Lee and Martin Levins. "Bring your own technology: the BYOT guide for schools and families." (Acer Press, 2012). These points do not in any way serve as a substitute for reading the book. It would be a fallacy to do so. They are created by me, and may not be the viewpoint of the authors.

“adopting a ‘one-way collaboration’ approach that tells the parents and students what technology they have to provide and instructs them how their technology will be used in the school and under what conditions. In its 2010 study of home–school collaboration, Futurelab (Grant, 2010) not surprisingly identified the long-term damage incurred by such an approach” p.6

Critical Point 3: What is BYOT?

“Bring your own technology is an educational development and a supplementary school technology resourcing model, where the home and the school collaborate in arranging for students’ 24/7/365 use of their own digital technology/ies to be extended into the classroom, and in so doing to assist their teaching and learning and the organisation of their schooling and, where relevant, the complementary education outside the classroom ... BYOT’ is that the term ‘technology’ neatly covers both the hardware and the software and the fact that the students could, and are increasingly likely, to use multiple digital technologies.” p.11-12

“While it might come as a surprise to some educators, the school use of the digital by young people represents but a minor part in the total overall usage. They are already using the technology to personalise their teaching and learning. With BYOT, they will be looking for the school to support that personalisation and the facility to use their preferred personal mode of learning.” p.8

Critical Point 4: Provision for teachers

“Fundamental to the 24/7/365 collaborative teaching is that the students, the parents and particularly the professional teachers have normalised the use of the digital in their teaching and operations and have ready access—anywhere, any time—to the digital (Lee & Ward, 2013)” p.4

“The authors would suggest that in providing all the teachers with their digital tools, employers adopt many of the core attributes of the BYOT model, provide the staff with an appropriate allowance and let each secure their preferred technology. The top-down, ‘one size fits all’ model that alienates the young also peeves the teachers.” p.52

The Importance of Digital Learning Coaches

“Where young people outside the school have largely unfettered use of and operational responsibility for a sizeable suite of up-to-date digital technologies, in most schools (Maher & Lee, 2010) the use of the digital is still strongly limited by the number of teachers who have yet to normalise the use of the digital in their teaching ...” p.32 NOTE: [The 6 Megatrends](#) p.31

Critical Point 5: Provision for students - Equity

“We are firmly of the belief that the education of every child is vital and that in seeking to shape the desired future, schools need to do whatever they can to:

- personalise the education of each child, and
- ensure that no one is disadvantaged technologically.” p.18

Critical Point 6: Key Readiness Factors

Two of the most important ... (a) the readiness of the school’s teaching staff to genuinely collaborate with its homes and (b) the professional teacher’s willingness to use a style of teaching that will convince the students it is worth taking their personal digital technology along to that teacher’s class.” p.7

“We have identified five, possibly six, key readiness factors:

- Normalised use of the digital
- Genuine home–school collaboration
- Principal’s leadership
- Appropriate infrastructure
- Champions
- Education authority (if applicable).” p.50

Infrastructure: Density and Coverage

“The difference between density and coverage is important in the provision of adequate wi-fi for members of your community. Many people concurrently using the network (such as in a library space) will require considerable density; a building with fewer users may need to focus on coverage. The two are not mutually exclusive, but require a slightly different set-up. Vendors often refer to the need for a site survey and the generation of a ‘heat map’ that will overlay a plan of the buildings with wireless coverage, so that the proper balance between density and coverage can be made. However, like trying to determine the location of concrete pathways for a new school on a green-field site, the location of wireless access points may need to be determined organically rather than solely by computer simulation. Use the heat-mapping exercise as a guide, then work out from your own knowledge of your school where you think the access points should be.

It would be wise to spend some quality time with a systems integrator rather than a wireless vendor so that switchgear, core switching, servers and gateways all work together. An integrator can be charged with making it all work, rather than the ‘he said, she said’ arguments when network elements from different vendors are interconnected ... “Users will expect a quick response and this will require some spare access points and cabling outlets ... a general rule of thumb is that additional cabling outlets should be deployed whenever any network expansion is carried out to allow for such organic growth in the future; it’s not only cheaper this way, but provides a much more agile response to changes in need.” p.84-5

Critical Point 7: Leadership and BYOT Developments

“Jill Hobson, the Director of Instructional Technology, noted ... [BYOT] evolved because ... astute education authority leadership team had the acumen and vision to see the way forward, to recognise the kind of twenty-first century education the district should provide, to identify the infrastructure and the support the teachers would require, and they had the willingness to let each school adopt an approach that would suit its context.” p.46

“Without ... leadership from the top the school will struggle. Each case study affirms the importance of having school leaders who understand the myriad of ever-evolving interrelated variables to be simultaneously addressed in developing a school operating in the networked mode, who appreciate how a development like BYOT has to be seamlessly integrated into the everyday operations of the school and who have the courage to lead in uncharted territory. In many of the situations ... high level of leadership is provided not only by the principal but also by other members of the executive.” p.54

“If you force BYOT upon the parents and students, experience, common sense and the case studies show not only will the school not achieve anything near 100 percent student uptake, the students

will express in class their ongoing antipathy, with many seeking to undermine the control over the model.” p.74

“What came through in all the school’s work in the area was the quality of the school’s leadership, its appreciation of the plethora of human and technical variables to be addressed and its willingness to cede some control in order to let BYOT grow. p.27

Critical Point 8: Parental Engagement

“How and when you choose to address the developments in your situation is up to you, but one of the newer variables likely to impact on your operations is the growing digital empowerment of your community—your clientele—and their expectation that the school will collaborate with them and make astute use of young people’s personal technology.” p.29

How parents see digital technology and their children's learning?

“The 2010 Project Tomorrow of some 42 000 USA parents noted that:

- approximately two-thirds of the parents planned to buy their children a personal digital device in the coming year and expected their school’s teachers would collaborate with the home in the children’s use of that technology in the classroom;
- they wanted to be the ones to purchase the desired technology, not the school; and
- while they wanted to collaborate with the teachers, if the school chose not to, they would use their own expertise to support their children’s use of the digital.” p.33

Critical Point 9: A Suite of Technologies

“In examining the potential opportunities offered by and the benefits of BYOT, it bears reiterating that one is analysing an ever-evolving suite of increasingly integrated multipurpose digital technologies, where many of the potential purposes have yet to be revealed. We are thus not merely contemplating the use of just a teaching aide but also the likes of an organiser, a communicator, a chronicler, a camera, a digital recorder, a multimedia editor and, when one adds the apps, any number of other facilities. Seek to take advantage of any or all of those facilities.

Moreover, try to envisage the kind of use with a networked mindset, asking how one can best take advantage of the students’ ubiquitous use of the technology to enhance their holistic teaching and learning every day, all year round. It is a skill that takes time to develop.” p.30

Critical Point 10: The ICT Experts, the Government and the Economy

“By the mid-1990s, the market research was revealing that the vast majority of parents believed having internet access at home would enhance their children’s educational development, making it increasingly important to have the current technology in the home (Lee & Winzenried, 2009). The same belief and reliance on the ever-evolving market still shape their buying today” (ACMA, 2007). p.34

“In contrast, the personal technology acquired for use in schools, particularly within education authorities, has been selected not by the market but rather by the ‘ICT experts’ trying to identify what the market is likely to do ... one has to conclude that in general terms most have done the job poorly and incurred immense waste of funds.” p.34

“When those experts enter an entire education authority into a four - or even two - year fixed contract, the students will be asked to make do with dated technology well below that which they

already have. In contrast, the home, which doesn't have to wait for budget allocations, committee meetings, stringent buying and accountability procedures, can buy the latest technology whenever they wish (Lee & Ryall, 2010). Vitality, the home is free to buy the digital technologies each young person wants." p.35

"the 'ICT expert' model's problem is that it invariably adopts a 'one size fits all' approach, which mandates that every student across every year level in every school will use exactly the same technology, with exactly the same bundle of software. If the 'ICT experts' make a poor choice, all the students in that authority's schools are stuck with that choice. Importantly, so too is the government of the day. The political risk associated with such an approach in such a volatile area is immense." p.35

"The political risk associated with such an approach in such a volatile area is immense ... the waste to taxpayers of having the lesser gear sit unused, rapidly depreciating in value. The educational, financial and, importantly, political risk associated with an education authority acquiring all their students' digital "technologies is such as to make it either a brave or quite foolhardy thing to continue to do let the market primarily determine each student's desired personal technology." p.35

"BYOT says to government and school leaders that in an ever-more networked world the parents and students have a key economic role to play, and as such their contribution needs to be factored into any school development strategy." p.43

Conclusion

The following are very clear to me now:

- BYOT is a MUST if you truly want independent and collaborative learning 24/7/365
- BYOT does not mean a school never has to buy technologies ever again - this is a myth
- BYOT starts as a process whereby the leadership of a school see the true potential for students learning. To do otherwise, is to do each students learning potential an injustice.
- BYOT can only happen when teachers are working in a digitally normal way themselves as well as with their students.
- Digitally normal and the digitally normal learning environment simply means that the digital tools are available and can be accessed and used by a student when they require it. However, it is not just about the classroom. Learning happens everywhere, on the bus on the way home or at the shopping mall while a parent to finishes the shopping.

I am now in a position where I can speak authoritatively on this subject. Authoritatively does not mean to give instruction on how it should be done or worked out. On the contrary, authoritatively means to be an effective guide throughout the process, affirming the process or giving decisive thinking that will help overcome any impasses. The recurring theme is always 'one size does not fit all'.

For me, there was an affirming dialogue that happened with all these people that either gave me a clearer focus on what I was thinking or it confirmed for me that what I thought was exactly correct.

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