The Truth about BYOD

What really matters, and what's worth doing

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Fewer terms in the ed-tech world have caught the imagination, or have been so widely embraced, as BYOD, or, as it is formally known, Bring Your Own Device.

Possibly, "widely embraced" should be rephrased as "wildly embraced," for in the best Chinese whispers tradition, it would be hard to think of an educational idea in recent times that has been the subject of so much myth, fantasy, and fairy tale.

So what are the issues, challenges, and questions about BYOD that you need clarified? It's time to cut through the industry bluster and the educational babble to uncover the truth so that you can make informed decisions in the best interests of your school community.

What do we mean by BYOD ? Why should you be considering it, and how can your school be successful if you decide to go ahead with it? Let's take these three questions one at a time.

BYOD Uncovered

The idea that students should have 24/7 access to their own computing device is not a new one—far from it. BYOD in fact has foundations from the '70s through the work of Seymour Papert,[1] Alan Kay, and others, who showed exceptional foresight in recognising the learning potential for young people when they had access to a fully functional, portable, personal computer.

However, their foresight was neither recognized nor rewarded, and so the most common access model for student computer use in schools became locking desktop computers in labs.

Fortunately, the arrival of the laptop computer in the late '80s reignited interest   in a "children's machine,"[2] and over the next decade, a

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[1] Seymour Papert, "Child Power: Keys to the New Learning of the Digital Century." Speech delivered at the eleventh Colin Cherry Memorial Lecture on Communication at Imperial College London (June 2, 1998), http://www.papert.org/articles/Childpower.html.

[2] Seymour Papert, *Mindstorms: Children, Computers, and Powerful Ideas* (New York, Basic Books: 1980).

significant number of pioneering schools across Australia and the United States initiated what became known as 1 to 1 programs. These programs enabled students to have 24/7 access to their own fully functional, portable, personal computer, which at that time, was a laptop; on school days, they would Bring Their Own Device, their laptop, to school.

In essence, while the term BYOD has only really been popularized over the past four or five years, for all intents and purposes, it is simply another way of talking about 1 to 1—the concept of every child having 24/7 access to his or her own device.

However, what the term BYOD does help clarify is ownership and access. BYOD implies the device belongs to the child or family (rather than to the school), and that the child will have access to it for school and personal use.

Student ownership of the device overcomes some of the misapprehensions about whether the device should be taken home, and it clearly assigns responsibility for all care and maintenance directly to the student. Whether the device is actually owned by the family or is leased through the school or a third party is immaterial; it's the perception of ownership that is important.

Additionally, the concept of BYOD broadens the options for device choice , which can be seen as a continuum.

School community choice   Student choice

Structured BYOD   Open BYOD

Structured BYOD

A *structured* BYOD initiative would assign responsibility for specifying an acceptable or "approved" device to a group of stakeholders from the school community, which usually would include teachers, parents, students, and technical advisory staff.

The level of detail of specifications for a BYOD device varies greatly depending on the school culture and community, but would range from a

narrow definition (one specific model from one supplier) to a broader definition (platform, form factor and core features, such as preferred CPU, battery life, and possibly screen size).

For reference, all 1 to 1 initiatives up until the late '00s ran what we would now call *structured* BYOD programs, in that they most often sought to limit the options for students by approving one or two models from a single supplier. This was equitable and made both classroom and technical management easier, providing a stable and predictable platform on which teachers and students could depend.

However as prices dropped, laptops commoditized, and alternative form factors evolved, choices widened dramatically, as did device penetration into the home market, which gave rise to new possibilities.

Open BYOD

These shifts in the market gave rise to what we now refer to as *open* BYOD, which assigns more of the choice of device to students. In the extreme, a school taking this approach might implement a policy that says, "If you have a device at home that you wish to use at school, you can bring it."

> *Who* defines what technology is appropriate for use by students is *not* the most important decision, or, in fact, even the first decision a school leader should make.

As ideal as this might sound—and as inevitable as it might ultimately be —at some time in a school's future, it can also give rise to significant challenges, which we will address later in this paper.

In the end every school will make its own choice about the level to which it wishes to specify what devices may or may not be used within the school; many will likely end up somewhere toward the middle of the continuum, which will best suit most schools' needs. Defining a **minimum specification**[3] is a reasonable starting point for most schools.

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[3] "Bring Your Own Device at Sydney Boys High School," Sydney Boys High School, http://www.sydneyboyshigh.com/byod.

There are however, many factors to consider, which we will discuss shortly. But despite all the rhetoric and debate, *who* defines what technology is appropriate for use by students is *not* the most important decision, or, in fact, even the first decision a school leader should make.

What Matters Most?

The truth is that what matters most about BYOD is **not** the technology or who chooses it. What matters most is **what BYOD makes possible,** and **why** that is important for your students.

What, then, is your vision for providing a device for your students, and what will it make possible for them?

The pioneering school leaders of the '90s were not distracted by the technology, nor, for that matter, by choice. They saw the laptop as Alan Kay did, as an "instrument whose music is ideas,"[4] and they understood the very real possibilities ubiquitous access to a personal computer offered their students. They recognised that it would give their students unprecedented learning opportunities, and so they committed to providing the learning medium that could best make that a reality: a laptop computer.

..perhaps those possibilities were best outlined by Danny Hillis..

> …the true power of the computer is that it is capable of manipulating not just the expression of ideas but also the ideas themselves.
>
> The computer is not just an advanced calculator or camera or paintbrush; rather, it is a device that accelerates and extends our processes of thought.
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> It is an imagination machine, which starts with the ideas we put into it and takes them farther than we ever could have taken them on our own[5].

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[4] Alan Kay, "A Personal Computer for Children of All Ages," Xerox Palo Alto Research Center, 1972, http://www.vpri.org/pdf/hc_pers_comp_for_children.pdf.

[5] Danny Hillis, "The Pattern on the Stone"

Fast-forward twenty or so years, and what is the reality today?

Since those early days, there are now more than 25 million students worldwide with 24/7 access to their own device, with the number growing almost exponentially; however, the context is now substantially different in several ways.

First, no longer is the question "Should we be doing this?" but rather "*When* should we be doing this?" Indeed, in most developing countries, there is a growing sense of obligation to provide students with access to their own device as a primary medium, or tool for learning.[6]

Second, the imperatives have changed.

It is no longer visionary school leaders who need to convince parents that BYOD is in their child's best interests; very often, it is the other way around.

Most parents can now see the impact technology has on their lives, and they can see the inevitability of a digital learning medium for their sons and daughters. They may not be sure what that will ultimately look like, or of exactly what the impact will be for their children's classes, but they know digital learning is inevitable.

Third, cost is no longer a significant factor.

Certainly for most, there will be discussion about affordability, but in comparison to the $2,500[7] to $3,000 those early adopters were paying, in today's dollars, cost is not a significant factor.

While there will always be some who seek to find a reason for inaction, few schools today—at least in the developing world, if not beyond— would suggest that 24/7 access to a fully functional laptop or tablet for around $2 a week was beyond the capacity of the majority of their parents. That is of course not to suggest that provision shouldn't be made to give some support to those most financially challenged, but no longer is the cost prohibitive.

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[6] Right to Learn, Anytime Anywhere Learning Foundation. Seattle 2010

[7] All currency in this paper is expressed in U.S. dollars.

Ultimately what matters most to parents is not the type of technology, form factor, or platform, or even the cost. What they really want to understand is the benefit to their children.

Which brings us to the second question.

Why Consider BYOD?

The critical point to understand here is that, despite the distracting discussions you may hear around platform bias or form-factor fetish, this is not a decision about technology; nor is it a decision about whether students should bring a computer of their own choosing. The most important question is WHY they should even have one in the first place.

> "Do we want iPads?"

> "We need tablets."

> "We should use Android."

These are simply NOT the sorts of issues that school or policy leaders should concern themselves with until they have a better understanding of the scope and opportunity ubiquitous access will provide for their students.

Some answers you will hear from colleagues may appear to be little more than clichés, others poorly informed; and yet without a rationale, a reason, a clearly articulated and shared vision for what BYOD will make possible, any initiative of this sort is doomed before it starts.

Unfortunately, too often discussion can start with the superficial:

* We no longer have the budget to provide adequate computer access for students, so we need to ask students to bring a device from home.[8]

* The students want to bring their iPads to school.

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[8] Alan Bender, "After losing laptop funding, WA high school goes BYOD," *Computerworld* (September 17, 2013), http://www.computerworld.com.au/article/526669/after_losing_laptop_funding_wa_high_school_goes_byod

- We'll save money if the students use their own devices.

- Everyone is talking about BYOD now, and it seems inevitable.

While at one level, some might find the above statements reasonable, they can in no way become the foundation on which to implement a BYOD program. They are simply opinions or statements of fact, which, while they may have value, are in no way vision statements.

By contrast, let's consider some more serious possibilities:[9]

- We are going to address inequity in our education system and ensure every child has access to personal technology; reducing the Digital Divide.[10]

- We want to unlock the possibility of personalized learning for all our young people.

- We think it's time to extend the place of learning beyond school walls to better embrace informal learning opportunities.

- Research now shows ubiquitous access to a computer improves academic outcomes, and consequently we want that for all of our students.

- Providing ubiquitous access to personal portable computers will extend and improve our assessment alternatives.[11]

- 1 to 1 will allow schools to replace physical textbooks and provide expanded resources for students.

- Providing students with their own personal portable computer gives our students the "learning medium of their time."

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[9] "Vision and Purpose," Kent School District, accessed April 29, 2014, http://www.kent.k12.wa.us/Page/3380.

[10] Mark Warschauer, "Demystifying the Digital Divide," *Scientific American* 289, no. 2 (August 2003): 42-47, http://www.education.uci.edu/person/warschauer_m/docs/ddd.pdf.

[11] U.S. through the Common Core guidelines for online assessment.

- 1 to 1 will allow students to be better informed and make better decisions about what they do and learn in the classroom, becoming true self-directed learners.[12]

These are, at the very least, ideas worth considering. They are in fact drawn from the experiences of schools and education systems from around the world that have gone on to implement successful BYOD initiatives.

But they can also form the basis of critical conversations—and even workshops—that should be conducted among all stakeholders to build ownership of the vision by the whole school community.

So once you've developed a clear vision of **why** you are considering BYOD, then it's time to think about your *implementation strategy*: **what** you need to do, **when**, and **how**.

Three Critical Questions for BYOD Success

BYOD implementation will not be addressed in detail in this paper (that will be the subject of another paper). However, there are three critical questions that school leaders must address as priorities.

> If not managed carefully, BYOD can easily become a license for inequity.

The first of these importantly relates to equality of access and opportunity.

1. How will your equity policy ensure all students can participate in your BYOD initiative?

If not managed carefully, BYOD can easily become a license for inequity, which, rather than creating a digital divide, engenders a significant learning divide. It is therefore contingent upon the school to ensure funding options are available to support those students whose families may be financially challenged.

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[12] Singapore Ministry of Education, "MOE Launches Third Masterplan for ICT in Education," August 5, 2008, http://www.moe.gov.sg/media/press/2008/08/moe-launches-third-masterplan.php.

There are many options to explore here, not the least of which being co-contributions, where families and the school share the cost (usually on a lease basis) of the provision of the device.

While a co-contribution model is often the basis for funding more broadly based programs for all students, it can also be used to supplement initiatives when some families are not in a position to purchase a device outright.

Additionally, this option highlights one of the benefits of a minimum specification, as it eliminates any possibility of a student's device functionality being directly related to its affordability.

It is also worth highlighting that equity is not only a financial issue; it can also be seen as having a pedagogical context. To be truly equitable, a school leader would want to provide students with teachers who were equally adept in leveraging the technology in their teaching.

While the world is surely not a perfect place, this is another perspective that gives rise to discussions around appropriate professional development opportunities. These will usually include a range of possibilities, including the extent to which the school is going to support teachers by way of the provision of devices and/or time for their own professional learning.

2. To what extent will the technical expertise within your school be able to address the demands of BYOD?

There is a very simple rule in answering this question. The more open the device specification, the more complex the technical support needs will be.

This rule, illustrated below, can help leaders be well informed about the implications of moving along the BYOD continuum outlined previously, from *structured* to *open* BYOD.

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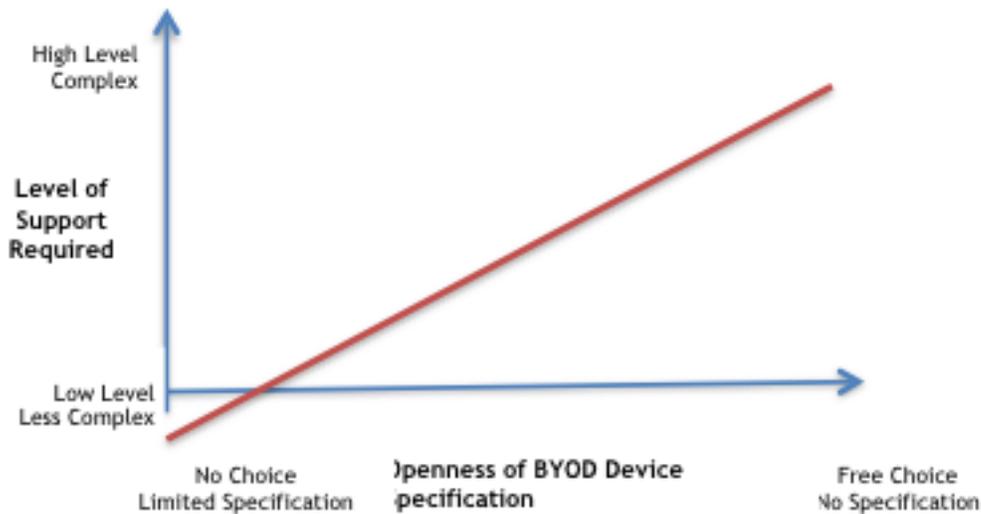
Levels of technical support include network and infrastructure management as well as a help desk and device service and maintenance. Obviously, many schools will be challenged if they leap into an *open* BYOD program without careful attention to resourcing it appropriately.

Managing a variety of platforms and devices is clearly more difficult and time-consuming than managing a more *structured* BYOD learning program. If you do not have the expertise, resources, and budget to effectively manage a variety of technologies across a variety of platforms, it is imprudent to embark on a student-choice *open* BYOD model.

On the other hand, schools with substantial expertise and experience may well have in place both the staff and policies to oversee a more ambitious initiative. In either case, the role of the students can be critical, and in turn many schools establish very effective support programs run by their students as first-line help desk and technical support personnel.

One obvious consequence of schools moving to a more student-directed learning environment, is that students would be totally responsible for all care and maintenance of their devices. Ultimately this both empowers the student, and frees the school of such responsibilities.

The final question relates to the classroom.

3. To what extent will classroom culture be impacted by BYOD, and how can you best monitor and manage changes?

Addressed early, change can be a positive—as it should be—but without an investment in policy guidance, it can be a disaster.

The best way to deal with the impact of BYOD on classroom culture is to set up a multi-stakeholder group to develop a suite of usage policy guidelines that will ultimately be agreed to and accepted by all. This group will include students, teachers, parents, technical staff, and leadership and will address issues such as access to games and personal software, security and servicing, and carriage of devices and effective battery use.

Staff, also, must be comfortable with the **shift in the classroom dynamic** that is inevitable with the introduction of ubiquitous access, and so issues and challenges around effective classroom management should be addressed as a priority.

Ultimately you want to ensure all of your teachers are comfortable, competent, and confident about managing a technology-rich and diverse classroom at whatever is the most appropriate level of diversity for your school community.

Defining Functionality

So the core task is clearly to articulate what functions the student's device will be required to perform. While this may seem like common sense, it is sadly not common enough. It is too often at this point, that key decisions give way to emotion and platform allegiance, form factor bias, and the allure of the "next big thing," which can too often interfere with rational decision-making.

An easy way to avoid such mistakes, is to use reductive reasoning: i.e. if you start with the full functionality of a laptop, ask your selection team, "which features or functions do you think your students will not need, and are superfluous?" Taking this approach will usually protect your decision from the minimalist strategy of trying to do 'more with less'

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which inevitably compromises what students will ultimately be able to do with their device.

A fully functional laptop, as Gary Stager, author of *Invent to Learn*, best describes it, is "an intellectual laboratory and a vehicle for self-expression."[13] We cannot afford to compromise on functionality in the name of simplicity. Sadly, the recent rise of ebook readers and limited-function tablets has opened the door to this possibility.

Part of the problem is the inherent complexity of an initiative such as this, which means the decisions are often handed off to a third party, who in turn may not have a complete understanding of either the vision, goals, or priorities of the initiative.

As Stager says,

> There are pronouncements of how iPads will revolutionize or transform education, without a coherent vision of what that might look like or a single example rooted in practice. The iPad provides an illusion of modernity with no real challenge to the nature of schooling—a win-win proposition, unless you're a child.[14]

However, amidst the complexity, there is a simple   principle that underpins the key question all stakeholders in successful 1 to 1 initiatives have adhered to:

> *What are the functional specifications that will best allow you to achieve the vision you have for our school community?*

The particular challenge here is that in many respects, rapid changes in the technology world mean that some of the key questions are fast-moving targets:

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[13] Gary Stager, "Edtech Expert Discusses the Revolution in Computing," *California School Business* (Summer, 2013), http://issuu.com/aosinc/docs/casbosum13_web/20.

[14] Gary Stager, "For the Love of Laptops: As learning tools, tablets don't cut it." *Scholastic Administrator* (Winter 2013), accessed June 19, 2014, http://www.scholastic.com/browse/article.jsp?id=3757848.

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> *Does your BYOD program ensure that all students have access
> to devices and software that provide the same level of
> functionality?*

Successful initiatives are based on the principle that any software
application used within a school should provide an equivalent level of
functionality for all students—not just for the affluent, gifted or financially
privileged, but for every single student.

There is a range of **different form factors** and **user interface options**
for computing devices and some emerging discussions about how those
options might map against various learning requirements and
capabilities.

Among those are questions about form factors—the laptop vs. tablet[15]—
with some discussions about whether a laptop may be more appropriate
for certain age ranges of students (older students) and a tablet more
appropriate for others (younger ones).

At the moment, individual programs are working through this question,
which clearly raises the issue of whether it makes sense to choose a
one-size-fits-all device for schools as opposed to different devices that
can be optimized for different age ranges.

The decision of what device each student should use is too often made
without an eye to optimizing the pedagogical use of the device. Instead,
the decision is based on personal preferences, which can be driven by
trend and fashion or, more significantly, on what the administration
perceives students can afford.

However, as mentioned before this can significantly impact functionality.

- If devices are used for a class activity, the teacher needs to cater to
  the least powerful device in the classroom.

- Often the least expensive devices are designed for consumption,
  rather than creation. With these devices, even when creation is

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[15] Dan Brenner, "Day of the Tablet: In classrooms, it's the right tool for the job." *Scholastic
Administrator* (Winter 2013), accessed June 19, 2014, http://www.scholastic.com/browse/
article.jsp?id=3757849.

possible, it is difficult, so it is important this is accounted for within any minimum specification.

- All students sometimes cannot use the same program/application, even if the teacher determines it has pedagogical value.

Ultimately what really matters most is **pedagogical functionality**. In other words, will the device being recommended allow students to do the things that really matter?

In the end, balance can provide the best answer, and many schools will offer a simple balance between *open* and *structured* BYOD, with an awareness of the essential elements that have been raised in this paper. A plan might look this:

> Over the past 12 months we have been investigating the benefits and research associated with our students having 24/7 access to their own personal, portable, fully functional computer.

> Next year our school will be implementing a BYOD initiative that will start with two grade levels and will require every student in years 7 and 9 to have an approved device from September 15.

> We will be publishing the minimum specifications for an approved device shortly. Those students who have such a computer will be able to bring it to school for use in their school work.

> Additionally the school will be introducing a co-payment program for families that either do not currently have a device that meets the minimum specifications or who wish to purchase another.

> We will release the details of that program with the other information, but as a guide we have structured the program at a level we believe makes this an affordable option for all of our students. Any parent who has concerns in this regard should contact the school business manager.

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> *The co-payment option is also open to any students, whether or not they currently have an approved computer, and it is being provided to ensure all students are catered to.*
>
> *Before the program starts, there will be more detail regarding usage policies, but we are committed to every student in the school having access within 3 years.*

Every school community has different needs, and what matters is identifying the parameters that will allow you to scope a program suited to your school. Today you have an enviable range of choices, most of them eminently affordable, and with few barriers to adoption.

However what must be uppermost in every school leader's mind is the vision of what this will make possible for his or her young people.

Keeping true to your vision is the ultimate measure of the success of your commitment.

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