

# Using 1:1 to Unlock Learning



Helping you move towards  
powerful and engaging  
1:1 Learning, Teaching and  
Assessment scenarios

Microsoft | education







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**At times it seems we have been discussing 1:1 computing in education for years. Everyone I speak to seems to understand that it is an important paradigm shift in terms of education delivery and one that pretty much every system in the world will adopt (or try to adopt) over the next ten years.**

As someone who has been involved in 1:1 deployments in schools across Eastern Europe, Russia and the Middle East. It constantly surprises me how slow we are to join up our thinking in the UK and how quite often projects fail or are abandoned because the basics aren't in place.

Born out of this frustration, this eBook, written in association with Microsoft UK, is my attempt to get people thinking about 1:1 in a more joined up way. Within this publication, I will talk about why 1:1 is important, the types of devices you should consider, policy considerations, how to make learning exciting in 1:1 environments and some emerging types of classroom practice from other areas of the world.

I'll also point you in the direction of some free tools and services from Microsoft that might help you on your journey. One of which is the Partners in Learning School Research Tool that will help you perform a diagnostic assessment of where you are, so that you can in turn create an action plan of how you move forward. Throughout the eBook, I've also provided a list of key questions that you need to consider before any 1:1 investment.

Finally, like all the other eBooks in this series, this is a eBook about learning and how technology can provide better outcomes for children and young people.

**As always, feedback is welcome...**



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## The aims of this eBook are to:

- **Enhance the understanding** of the benefits of 1:1 Learning, ICT and technology in the school improvement process.
- **Provide practical information** on what needs to be considered before any 1:1 deployment.
- Give teachers and school leaders the **confidence** to embrace 1:1 deployment by considering appropriate approaches to learning and teaching.
- **Reinforce the importance** of infrastructure, policy, and safe and responsible use in any 1:1 deployment.
- **Encourage** school leaders and teachers to consider future learning scenarios in a 1:1 environment.
- **Improve advice** on how academic institutions might tackle some of the common challenges encountered when trying to deploy 1:1 Learning Environments.



“school leaders have really started to see the value and impact of 1:1 computing.”



## Chapter 1: What is 1:1?

Using 1:1 to  
Unlock Learning



*"Young people, I happen to believe,  
are the world's most precious natural resource."*

*Nicholas Negroponte, Founder of Massachusetts Institute of Technology's (MIT) Media Lab  
and founder of the One Laptop per Child Association.*





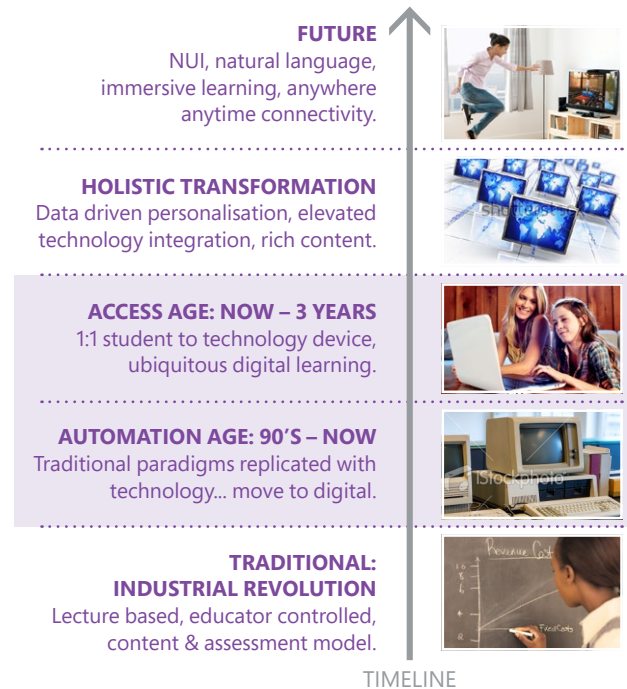
## 1.1 It's not a new concept

One to One Computing in education is the simple concept of every child and member of staff in a school or institution having access to a personal computer. Over the years, the definitions have evolved to replace the words 'personal computer' with 'laptop' and more recently 'device'. A device might include a laptop, netbook, handheld or tablet.

One to One (1:1) is not a new concept. It has been around and promoted for a number of years but only in recent times has it started to become mainstream as devices have become more readily available and affordable. At the same time school leaders and policy makers have really started to see the value and impact of 1:1 computing on pupil motivation and raising attainment.

Indeed 1:1 Computing is increasingly seen by education visionaries as a key component within the bigger picture of how we deliver education to young people. Anthony Salcito, the VP of Education Worldwide at Microsoft, describes this as an evolution from a traditional (industrialised) approach, through the automated and access age, to an age of holistic transformation<sup>1</sup>.

## Education Transitions



As the model above shows most countries in the economically developed world are currently in the 'Automated Age' and moving towards the 'Access Age'. If the model is to be believed then many countries around the world will start to move to ubiquitous 1:1 learning environments within the

next 5-10 years. Some countries such as Macedonia, Portugal, Turkey and Venezuela are already amongst the early adopters. It is quite rightly perceived that countries with a technological advantage in schools could well lead to an economic advantage in the future leading to other schools and school systems adopting 1:1 in a domino style effect in the short to medium term.

Of course, we know that the adoption of 1:1 in isolation will not be enough in itself to drive the holistic transformation that is needed within many education systems. Infrastructure, good pedagogical practice, school leadership and teacher professional learning are all key ingredients for success.

For the schools and systems that get this right 1:1 computing has the potential to unlock the wonders of an education future that we are only just starting to imagine such as data driven personalisation, learning analytics, seamless collaboration, rich meta-tagged content, stage-not-age assessment and technology enhanced reflective practice.

We hope that within this eBook we can start you on your journey and get you thinking about some of the benefits and challenges of 1:1 environments.

“many countries will start to move to 1:1 learning within the next 5-10 years...”




## 1.2 The device

The concept of 1:1 could include a variety of devices, but for large scale deployments across schools and systems the device tends to be one of the following:



### Laptop Computers

Portable computers that can be used with or without the Internet (eg: Lenovo X1 Carbon).



### Netbook Computers

Portable computers that gain most of their functionality through the Internet (eg: Classmate PC).



### Tablet Computers

Portable computers that fall somewhere in between laptop-like computers and large smartphones, all are wifi enabled but some also allow for 3G and 4G connectivity (eg: Nokia 2520).



### Hybrid Computers

Portable computers with touch screen capacity that also have a keyboard. The computer can be used as both a tablet and a laptop. Sometimes the keyboards are detachable (eg: ASUS Transformer T100).

It is unusual for a smartphone to be included as part of a 1:1 deployment. The reality is that many students already have one of these devices. In the best 1:1 learning environments Smartphones are used alongside the main device (normally a laptop or tablet). They are often referred to as **companion devices**.

## 1.3 Why go for a 1:1 learning environment in the first place?

Different people will tell you different things when it comes to actually describing the benefits of 1:1 Learning Environments, but generally speaking the research suggests that when used in the right way:

- Most students are more motivated to learn in 1:1 Environments.
- 1:1 Learning environments allow for students to access a greater range of personalised learning opportunities and have the additional benefit of being able to learn when and where they choose.
- Differentiation can be easier to achieve with 1:1 – including stretching and accelerating the learning of more able students.
- Communication improves between staff and staff; students and staff; students and students; and the school and home.
- Over time 1:1 can improve the administrative functions of the school, making systems more efficient and allowing resources to be better deployed elsewhere. Pressure is reduced on other school resources eg: computer labs.



### 1.4 Why is 1:1 the best ratio?

It might surprise you to find out that actually it is not the best ratio all of the time. But, 1:1 will be the best ratio some of the time.

In terms of the question, “What is the best ratio?”, there is no easy answer to this. It really depends on what it is you are trying to achieve. But it is important to remember that sometimes 1:many (one device for many learners) is fine and that there is also absolutely nothing wrong with a lecture style presentation.

Of course an advantage of all learners having their own device in a lecture environment means that they can provide feedback and ask questions during the presentation (sometimes referred to as back channelling). Devices can also be used to follow up links that the presenter has mentioned – these can be bookmarked for exploration at a later date or quickly shared with others across social networking spaces. One important consideration during this type of environment is that this type of interaction, although powerful, does not come naturally to young people – it is a skill that is required to be taught and practiced if it is going to have any real impact.

As well as 1:many, there are also lots of examples when 1:3/4/5 (one device for three, four or five learners) might be appropriate. These are all good ratios to support collaborative learning and group work.

The use of a tablet or hybrid device can be useful if there is going to be more than two learners to a device on a collaborative activity. A laptop screen can sometime become a barrier to learning and prevent others in the group from seeing what is going on.



Research from Professor Sugata Mitra<sup>2</sup> (University of Newcastle) and others has also proved time-and-time again that 1:2 (one device for two learners) is also another great ratio for learning (particularly for younger children). It's small enough to allow opportunities for children to get time on the computer without arguing who should be in the driving seat, BUT it also allows dialogue and conversation between children as they work to solve real world problems and consolidate their learning task.

#### ! DON'T FORGET:

Technologies like Microsoft Mouse Mischief can allow more than one child to contribute through one PC.

Of course the nice thing about having 1:1 (one device for each learner) is that all of the above can be achieved but children can also work with their own device where appropriate.





“good teachers with great technology can really raise the bar of expectation amongst young people...”

### 1.5 Beyond 1:1

Schools who have been making use of 1:1 for a while now are also noticing that in reality many students use at least two devices to help them with their learning. Their main device is normally a laptop or a tablet but increasingly a companion device, such as a smartphone, is also being used.

What we have observed over the past few years is that students tend to use the main device for the bulk of their work. But the companion device is used as a communication tool (to ask questions on social networks etc.) and for its other more portable functionality (for example to take pictures, or to carry out quick web searches).

It is important for educators to remember that this is the way that many young people work at home (many adults work in this way as well). Our challenge is allowing young people to work in this way in a school environment.

#### ? KEY QUESTION:

How will you ensure that all members of your learning community (staff, students and parents) understand the advantages of a 1:1 learning environment? How can companion devices be used safely and efficiently in the school environment? Does allowing the use of companion devices create equality issues?



### 1.6 Does 1:1 improve standards?

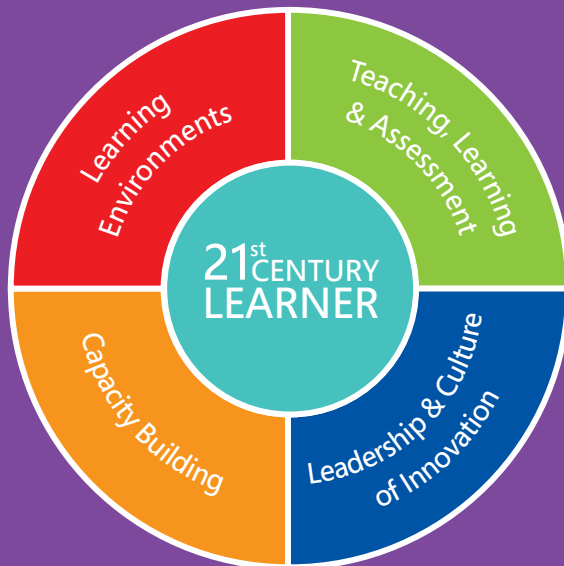
There is no evidence that 1:1 (or any technology for that matter) in isolation improves attainment standards. A weak teacher with great technology will still not deliver the results that our children deserve. However, there is growing evidence that good teachers with great technology can really raise the bar of expectation amongst young people and deliver improved experience and results.

However, I truly believe that a good or excellent teacher, who is committed to professional learning and who is supported by great technology has the potential to transform lives. It is also important to remember that technology is only part of any model for educational transformation.



## 1.7 Setting the scene for Educational Transformation

As already mentioned, appropriate technology is only one of the components needed for true education transformation. This means that as a school or a school system you need to make sure that you have all of the other pieces in place if you wish your 1:1 deployment to have real impact where it counts – creating 21st century learners in the classroom.



Above: Microsoft Innovative Schools – Innovation Framework of Educational Transformation.

This educational transformation jigsaw includes building a Leadership and Culture of Innovation (at national, local and school level) and is the element that gives teachers and school leaders the capacity and permission to transform education. A key failing of most education policies is that people don't actually understand the policies or have time to read them. Good education policy must contain specific objectives as well as higher level strategic advice. In short, people need to know which way they are aiming!

Good policy also gives permission to develop new methodology around teaching, learning and assessment in engaging learning environments. Again the two must match up. You can't have high-level policy that talks about preparing children for life in the 3rd millennium and then develop a curriculum that re-invents something from the past. Or a system where the only way of verifying children's learning is by a hand written assessment when they are about to leave school – this is just not joined up.

Policy, curriculum and new assessment methodology must be based on sound academic and action research. But it must also be based on local need. Evaluation must be on-going at a system, regional and local level. Most of this type of resource should be put into evaluation at a local level – rather than a regional or system level that it

is at the moment. While comparing one country to another country through standard measures such as PISA<sup>3</sup> might be important to politicians – what is actually going on in the classroom must remain the most important thing for students and teachers... This is one of the reasons why the Partners in Learning School Research (mentioned in Chapter Five) is so important.

### KEY QUESTION:

Do you have the systems in place at policy and curriculum level to ensure that 1:1 learning will be a success in your school? How will you measure the impact of your project on learners to ensure future investment and sustainability?

Over the next few chapters we will tackle all of the above but we will start with some of the common questions first, such as, what type of device should you deploy and how will you fund your project? Both of these things are important to build your 1:1 vision.





Although 1:1 Learning sounds really simple in practice, in reality it is a lot more complicated. As well as the technical barriers that need to be overcome in any 1:1 deployment there will also be significant pedagogical barriers that will need to be solved to ensure that there is maximum impact on improving learning.

**?** KEY QUESTION:

How will staff change and adapt their learning and teaching approaches to maximise the benefits of every student having their own device?

*"It's quite fashionable to say that the education system's broken – it's not broken, it's wonderfully constructed. It's just that we don't need it anymore. It's outdated."*

*Professor Sugata Mitra, University of Newcastle*



### 2.1 What type of device is best?

Although we mentioned some types of device in Chapter One (Laptop, Netbook, Tablet etc.) and I'm not disputing that hardware specifications are not important. Neither of these factors should be the main drivers in deciding the best type of device for your 1:1 deployment.



#### ! DON'T FORGET:

It is important that your 1:1 vision is driven by the needs of your school and your school community. All of the best 1:1 deployments have been adapted appropriately for local needs.

Before worrying about specifications and the specific device type you are going to opt for to help drive your 1:1 deployment, it is important to first ask yourself the following:

- 1 What are we trying to improve with 1:1?
- 2 What do we want our students to be able to do with their devices?
- 3 What do we want the learning to look like in a 1:1 environment?

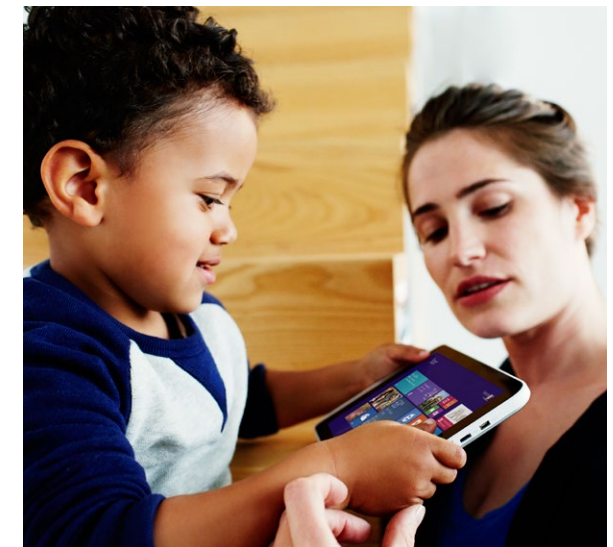
#### For example:

- Are you trying to improve literacy?
- Are you trying to improve numeracy?
- Do you want your students to be more digitally literate?
- Do you want your students to mainly use their devices for accessing content (from the Internet or from procured resources)?
- Do you want your students to be able to take photographs with their devices?
- Do you want your students to be able to type on their devices?
- Do you want your students to attach peripherals (eg: a keyboard or a projector etc...)?

Once you have worked out the answers to these and other questions you can then start to consider the minimum hardware specification that you will need to implement your vision.

#### ? KEY QUESTIONS:

What do you want your students to be able to do with their devices? What do you want the learning to look like in your school in a 1:1 environment? Once you have considered these questions, what will be your minimum hardware specification?







### 2.2 What is BYOD, BYOB and BYOT?

Educators just love abbreviations, don't they! However, these three terms can get a bit confusing but they are quite important as you consider the options that are available to you as you roll out 1:1 in your school.

Bring your own device (BYOD) is the term used to describe the process where students and teachers bring their own device (normally a type of computer) into school to help them with their learning. Bring your own technology (BYOT) basically means the same thing! Bring your own browser (BYOB) is similar again but emphasises that the device being brought into schools should be able to access the Internet and in turn subtly emphasises the importance of browser based and cloud based technologies.

The advantage of BYOB models is that young people have got a degree of choice as to what device they can use to help their learning but the browser is the key to being able to access their learning. Windows 8 devices are ideal for this type of concept because there are so many manufacturers who produce devices (at various price points) for Windows 8. Windows 8 comes pre-installed with Internet Explorer 11, which is a fast modern browser.

For more information on Windows 8 in Education see our popular 'Windows 8 in education' eBook<sup>4</sup>.



Moving forwards, for the purposes of this eBook we will use the term BYOD to encompass both BYOT and BYOB. For further information on BYOD check out the Microsoft eBook, 'BYOD in Education: A practical Guide to get you thinking'<sup>5</sup>.



One of the pedagogical challenges of BYOD (that we discuss in more detail in the BYOD eBook) is how do teachers manage and direct learning if the software and hardware specifications on student owned devices is different? Different schools often tackle this in different ways.

One way is to reinforce standardisation and specify that if a student is going to bring in their own device it must be a specific brand / model. However, a more modern and flexible way that really embraces the original concept and philosophy of BYOD is to allow students to bring in their own device as long as they are Internet ready. As mentioned above, Windows 8 devices are ideal for this as there is so much choice at a variety of price points available on the market. However, no matter what the device is, the learner experience is unified by the Windows operating system and Internet Explorer 11.

By adopting the latter approach and by limiting the content consumption and content creation tools to those available within the browser, you can provide an inclusive, technology rich learning experience for your students but at the same time give them the flexibility to drive this experience through the personalisation of their own hardware.



### 2.3 How are 1:1 projects funded?

Just like any type of education procurement, funding can be complicated and even if you intend to base your 1:1 project on BYOD some families are still going to need financial support and most are going to need some sort of advice on what to buy.

Different schools fund 1:1 deployments in different ways, including some of the methods based below:

School procurement (outright) of devices that are then given to the students to own, maintain and look after. This should normally include an up-front warranty payment to cover the cost of the device for its predicted length of service. NB: bonus – don't have to pay VAT.

School procurement (subsidised). Some schools have adapted the above model where students pay a small cost to buy the device from the school (eg: 25% of the total cost of the device). By doing this, students may feel that they own the device more than just being given it – this in turn means they are more likely to respect and look after it. Shape the Future, an initiative led by Microsoft, is one possible way to cost effectively help supply 1:1 tablet and laptops to UK state schools.

Leasing is when devices are 'borrowed' from a third party or manufacturer. You pay a fee each month to borrow the device.



At the end of the leasing period there is normally the option to buy the device or you may even be given it depending on the terms and conditions of your leasing arrangements.

Free-for-all is when students are just allowed to bring in their own devices. In this model they would normally be expected to meet the schools minimum hardware specification and security protocols.

Blended funding solutions blend 'school owned' and BYOD models. They are becoming increasingly popular in the UK and other countries. This is when the school or college provides the device for younger students but they are required to provide their own device when they get to a certain age or stage. This is normally when they start to study for a national award or certificate (eg: iGCSE, A-Level, Scottish Higher etc.). This allows students to purchase a PC that is most relevant to their studies.

For example, a student studying graphics or art may require a machine with a high specification of graphics card or a student studying PE may want a more portable device for video analysis. As well as cost saving for the school the experience is also often better for the end user because they end up with a machine to meet their specific learning needs.

#### ! DONT FORGET:

If your 1:1 vision includes BYOD there will always be situations where students do not have access to their own device. This could be for a variety of reasons eg: repair or device cost. In the interests of inclusion and continuity of the learning experience it is important that your institution is able to support these students.

#### ? KEY QUESTIONS:

What funding model is best for your 1:1 project? How can you make your project sustainable over a short period of time? How can you make use of initiatives like 'Shape the Future' or leasing to provide the best possible value in terms of cost and experience for your students?





### 2.4 What software will I need on my devices?

Software is important, very important – people often forget that it is software that drives the user experience. From your operating system to your web browser it is important that you get your software build right.

With this in mind, before you make a purchase, it is important to think about what it is you want the software to do. Again, ask yourself the question, “what are we trying to improve?”

Education software can also be expensive. The key here is negotiation and although software suppliers are getting better, they still often need to be reminded of the different possible funding models which are more suitable for a 1:1 environment. During your negotiations ask questions like, “can I have a bulk discount?”, “What premium software do you offer?”, “Does this license cost include home use?”, “Do I really have to purchase one license for everyone when only 30 people will be using the software at any one time?” and “But, I can do almost the same thing with this piece of free open source software? What else can you offer me in this package?”.

#### ! DON'T FORGET:

You can lever significant savings for your 1:1 deployment by negotiating pre-installed software on the hardware at the time of purchase. This is one of the reasons why ‘Shape the Future’ represents such good value for money as it includes an Office 2013 Pro license.

Microsoft has just announced Student Advantage, a new benefit to qualifying institutions that will make it easy for students to use the latest and best full version of Office at their education institution and at home. So what does this mean? From 1st December 2013, any institutions that license Office for staff and faculty can provide access to Office 365 ProPlus – which includes Word, Excel and PowerPoint, and offers the ability for these to be locally installed on up to five devices – for students at no additional cost.

One other thing to consider is the time implications of loading and up dating the software onto your devices. Indeed, another good question for software vendors might be, “Can your software be pushed out and up dated remotely

#### ? KEY QUESTIONS:

What are you trying to improve? What software is best to drive this improvement? How will you decide what will be on your standard build? Who will test your software build in your local environment?

over the network?”. You should also try to get your software build as complete as possible before you give your devices out to staff and students. Consider surveying end users for their software wish list (free and commercial software) and then trialing the software builds on a few devices with users. Give them the brief of testing the devices to destruction – a bit of time getting this right will save you days and weeks of time in the long run.

Also, what about apps? Apps play a significant role within any 1:1 initiative and offer educators new and exciting ways to transform teaching and learning.

More information around apps, app management and mobile device management will be addressed within our Windows 8.1 in Education eBook (Coming January 2014).



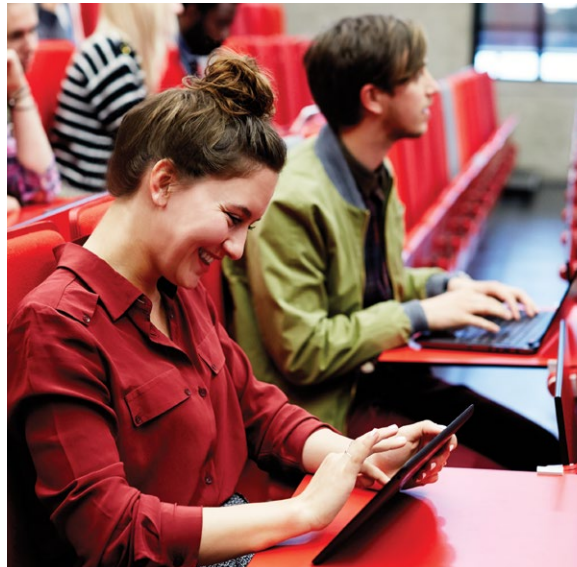
## 2.5 Fighting Digital Inclusion and releasing future economic benefits

Another argument for 1:1 centres around digital inclusion and importantly the Economic Case for Digital Inclusion and the cost of digital exclusion as increasingly public tools and services migrate online.

The 2009 Experian Report 'The Economic case for Digital Inclusion'<sup>6</sup> is useful as it focuses on quantitative updates to two key pieces of research which look at the impact of eradicating digital exclusion. This research is as follows:

- A bespoke impact model provided by the Arnold group to Microsoft (originally in the US but using a Commonwealth version which has used UK national data).
- The PWC analysis commissioned by Martha Lane Fox for the Race Online publications (based on work for a similar Home Access Program).

In both cases, the underlying conclusion is that for a certain cadre of person, having access to a Home PC means that their educational attainment will improve.



For example, improvements in GCSE results meaning more young people going on to study A-level and in turn some of these going on to University.

The models then both assume that those that make these improvements go on to have significantly expanded lifetime earnings and opportunities, equivalent to those currently seen in members of the population who already perform at that level.

Examples within these models estimate for some people, 1:1 PC generates £300k in additional earnings excluding impact of further digitisation.

Assumptions	Outcomes
4.5% of digitally excluded children would go on to achieving 5 good GCSE's - discounted additional earnings of £120,000.	This could equate to additional lifetime earnings of £300,000 for some.
20% of these would go on to A level and thus accrue in addition £82,000.	Over the entire programme it equates to around £6,600 additional lifetime earnings per digitally excluded person helped.
50% of these would go to university and accrue an additional £100,000.	UK wide this could amount to £6.6bn in increased lifetime earnings if all digitally excluded were included.

Whatever model you go for or arguments that you need to ensure 1:1 learning for children and young people, making sure that you have the right policy and procedures in place will be very important. We will discuss this in more detail in the next chapter.





However you decide to implement BYOD in your school you will have a number of policy considerations to take into account. Some of these considerations are detailed in this section.

*"Good management is the art of making problems so interesting and their solutions so constructive that everyone wants to get to work and deal with them."*

*Paul Hawken*







### 3.1 Ownership and Insurance

As previously suggested you will need to make some decisions on the ownership of your student devices. Although this might sound simple different schools prefer different models. In reality, there is no right or wrong way – but you do need to make a decision and ensure that everyone in your school is giving out the same key messages.



#### Here are some things to think about:

- If the school owns the devices can the students take them home? What procedures will you put in place to support this?
- If the school buys the devices and gifts them to the students does this mean that the devices will now be covered on parents home insurance?
- How will you transfer the ownership and the responsibility of the device to families? What procedures will you put in place to support this?
- If you increase the amount of devices in your school will this have an impact on your capital insurance?
- If students are expected to bring their own device into school, how are they insured?
- Will students be able to connect their device to the Internet when they are at home? Will their device be able to be used by other family members?

#### ! DON'T FORGET:

Before introducing 1:1 into education, many institutes run parent's briefing evenings to make sure that everyone understands their role within any deployment and what is trying to be achieved in terms of teaching and learning. These evenings can also be useful to facilitate the signing of devices over to students/families.

#### ? KEY QUESTIONS:

What procedures do you need to put in place to ensure ownership and responsibility within your 1:1 project? Who do you need to contact to make sure that the devices are insured on school property? Who will organise and lead your parent's information evening?



### 3.2 Responsible Use

Your school should already have a policy on ICT acceptable and responsible use. However, with the introduction of 1:1 it is very likely that you will need to up-date or adapt your policy. You need to be very clear about what is and what is not acceptable on a schools network and behaviour that is expected of young people, along with any sanctions that you will action if the rules are broken.

As well as formal procedures it is also useful to work directly with young people so that they can create their own rules around device use (and this should also include the use of social media). Schools that have worked with students to co-create acceptable use policies have found that they are more likely to be adhered to in the long run. Co-created acceptable use policies help give young people ownership over the 1:1 project and create a sense of collective responsibility.

“be very clear about what is and what is not acceptable on a schools network...”

One important thing to remember about any acceptable use policy is that there is absolutely no right or wrong way to write one. Your policy needs to reflect your organisation, who you wish to communicate with and what you feel comfortable doing. It is also important that it is reviewed regularly – the best acceptable use policies are regularly ‘hacked’ by users using a wiki or collaborative document to ensure it is constantly up-to-date.

Also as well as including specific references to 1:1 in your institute’s ICT policy you should also make sure that it is included in your Learning and Teaching Policy – after all, why are we doing this in the first place if it is not to improve learning and teaching?

1:1 and other projects that improve the access to computing in classrooms is also likely to lead to increased use of Social Media in your school or institution. As a result a specific mention of social media is also worth including this in your emerging policy. For reference, one country that is very progressive in the development of Social Media Policies in schools is Australia, in particular Victoria. They have provided some good social media guidance on their website: ([justice.vic.gov.au/socialmedia7](http://justice.vic.gov.au/socialmedia7)).



### 3.3 Equality of access

For 1:1 learning to be successful you must insure that there is equality of access. This means that you are likely to have to put systems in place to ensure that students / families who do not have their own device can be provided with one or are provided with some capital funding to purchase their own device. It is important that you have clear guidance on this to ensure that children are not deprived of their digital entitlement but also to make sure that the model you are proposing for your school is financially sustainable in the long term.

Some schools, for example, allow students to sign a range of devices out of the school library in the same way that they might sign out a book or game. The library (or learning centre) can also double up as a location where you can get your devices serviced or training on a specific piece of software or an App. In the most successful examples these 'service desks' are run by senior students.

#### ! DON'T FORGET:

Having a spare bank of devices is important. Students may forget their device, it may need to be repaired or it may just take some time for a software up-date to download.

Shape the Future<sup>8</sup> (already mentioned in chapter 2), an initiative led by Microsoft, is one possible way to help supply 1:1 tablet and laptops to UK state schools at a reduced price. What is great about this particular programme is that the hardware come bundled with some great education software such as Microsoft Office Professional and Kodu game maker.

"Some schools, for example, allow students to sign a range of devices out of the school library..."



#### ? KEY QUESTIONS:

How will you make sure that your 1:1 project is inclusive? What will you do about the learners who do not have their own device? Could your school benefit from Microsoft's Shape the Future Initiative?





### 3.4 Minimum Bandwidth

Infrastructure and bandwidth are particularly important in 1:1 deployments because most of the content that students will be required to access and the content that they will be required to create will be web based. Having wireless infrastructure in your school is not enough on its own – many schools around the world already have this. But, by moving to 1:1 you are about to move your computing ratio to at least 1:1 (some students and teachers will want to be logged onto your network with more than one device). This is likely to put significantly more pressure on your institute's network than the current amount of devices that you have connected.



#### ? KEY QUESTIONS:

Alberta Education outlines a number of key questions to ask related to wireless technologies for 1:1 deployments:

- What are the projected requirements per student/staff?
- What is the current wireless capacity and configuration? What is the number of supported users per access point? Can you manage the network centrally?
- What is the gap in bandwidth? Wired network capacity? Wireless coverage? Network configuration? How will you close the gap in the short-term?
- What will the network look like in the long-term?
- What will be your projected adoption rate, i.e., growth rate among students with personally owned devices and subsequent upgrading of your infrastructure?
- What model will your school or school authority use for recharging personally owned devices?

Answering the question of minimum bandwidth is a tricky one as there cannot be a one-size-fits all model. For example, some schools will be bigger than others and at certain ages and stages within a school it is likely that students will use different types of digital technology that may or may not be more bandwidth heavy than other tools and services (eg: online video editing vs reading a text heavy web page).

That said, in Scotland the recent recommendation to the Scottish Government by its ICT Excellence Group is that every school, regardless of its size, should have a bandwidth capacity of at least 100 megabits per second (mbps) 'duplex', meaning both upstream and downstream. Furthermore, all schools should have sufficient bandwidth capacity to provide 2mbps per concurrent user (average for every student).

These recommendations are in line with a guide set by the Department for Education in England and Wales, which says that bandwidth of 100mbps for secondary schools and 10mbps for primaries "typically meet the needs of most schools and enables them to take advantage of future developments".



Although these figures are helpful, in reality, is 100mbps really enough to support learning in places where the ratio of devices to people is at least 1:1? The answer is probably not and moving forward we need to be much more ambitious with our bandwidth requirements, particularly as more and more services move to the cloud.

Research and recommendations from the 2012 publication “The Broadband Imperative: Recommendations to Address K-12 Infrastructure Needs”<sup>9</sup> suggests an ambitious but much more realistic target where from 2017-2018 schools should be aiming for at least 1Gbps per 1,000 students / staff.

**? KEY QUESTIONS:**

What is your current school broadband speed and how will you increase this speed over time?

Broadband access for Teaching, Learning and School Operations	2014-2015 School Year Target	2017-2018 School Year Target
An external Internet connection to the Internet Service Provider (ISP)	At least 100 Mbps per 1,000 students/staff	At least 1 Gbps per 1,000 students/staff
Internal wide area network (WAN) connections from the district to each school and among schools within the district	At least 1 Gbps per 1,000 students/staff	At least 1 Gbps per 1,000 students/staff

### 3.5 Teacher Professional Development

This is the most important but often the most overlooked aspect of any 1:1 initiative or technology deployment designed to change culture and teaching methodology. By creating a policy related to continuous teacher professional development and writing it into your roll-out plan you will formalise the need for training within your staff team.

Professional development should include both technical and pedagogical training. It should also include a blend of face-to-face (expert and/or peer led) and on-line learning. Staff should be given as many opportunities as possible to share ideas and learn from each other’s practice.

Microsoft Partners in Learning (PiL)<sup>10</sup> is a 10-year, 500+ million dollar global initiative aimed at improving teaching and learning. Since 2003, it has led the way in partnering with education professionals, helping nearly 8 million educators and reaching more than 190 million students in 114 countries. At the heart of PiL is the Partners in Learning Network, an online professional development community that helps educators and school leaders connect, collaborate, create and share so that students can realise their greatest potential. For more information of PiL join the online discussion today at [www.pil-network.com](http://www.pil-network.com).

The focus on Learning and Teaching is really important to ensure the success and impact of any 1:1 project and this is discussed in more detail in the next section of this eBook.



There is no doubt about it that if you allow every child in your school, class or district / local authority access to their own Internet enabled device your normal model for learning and teaching is likely to change.

It is important that teachers have thought about what this new type of pedagogy might look like before any large scale 1:1 deployment. If you have not done this then the technology is more likely to become a distraction to learning rather than have the transformation impact that it could have.

*"...technology is not going to make teaching easier, it's going to make it different".*

*Chris Kennedy, Superintendent of Schools.*







### 4.1 Teaching and Learning

When we consider what Teaching and Learning might look like in a 1:1 environment it is important that we focus on what makes learning good and how technology can improve the learning and teaching process. Rather than just focus on the technology and then trying to think about how it might be used.

The concept of Exciting Learning<sup>11</sup> (which is covered in one of our other Microsoft Education UK eBooks) captures some of the components that makes learning engaging for young people.

#### For learning to be successful it needs to be:

- Culturally relevant
- Include real-time Interaction
- Provide different learning pathways
- Showcase learning achievements through authentic audience
- Accessible to all

#### ! DON'T FORGET:

Adding technology doesn't mean more learning and adding technology to a boring lesson may not make the lesson more interesting.

#### ? KEY QUESTIONS:

- How will you use 1:1 to make learning more culturally relevant to your learners?
- How will you use 1:1 to include more real-time interaction in your classroom?
- How can you use 1:1 to provide different pathways for students work and motivate learners through choice?
- How can you use 1:1 to share with a web-based audience and provide authentic feedback to students work?
- How can you use 1:1 to improve accessibility for learning?



The table on the next page provides some further background on each of these principals and also about what they might look like in the classroom in a BYOD / 1:1 Environment.



EXCITING LEARNING PRINCIPAL	DESCRIPTION	IN PRACTICE
<b>Culturally relevant</b>	Learners learn best when they can see the point of what they are learning and how it is related to them. We can also help them engage with their learning more by using tools that they like to use.	<p>Luckily for us technology is highly culturally relevant at the moment and 1:1 learning opportunities are likely to motivate your students.</p> <p>In particular 1:1 offers opportunities for using technology which is both interesting and engaging. Methods such as using social media, using computer games and making extensive use of web based creation tools (such as digital video editing, sound and image manipulation).</p>
<b>Include real-time interaction</b>	Learners like it when teachers use information that is current and up-to-date. They also like it when they can engage with real people either face-to-face or via video conference. The ability to be able to collaborate digitally and in real-time is also an important 21st Century Business Skill.	<p>1:1 gives learners opportunities to connect individually with experts in real-time using web based video conferencing technology such as Skype in the Classroom<sup>12</sup> or Microsoft Lync (which comes free as part of Office 365 Education).</p> <p>Ubiquitous access to the internet through web searches such as Bing also give learners an opportunity to individually explore and manipulate a wide variety of up-to-date data and news information.</p> <p>Students can also use digital tools to collaborate in real time using services such as Microsoft OneNote and/or Office Web Apps.</p>
<b>Provide different learning pathways</b>	Learners like to have a choice of output. Sometimes it is this choice of output that can be incredibly motivating as it gives an end point for people to aim towards.	For example, in writing tasks 1:1 offers learners opportunities to individually present their work in a number of different ways (rather than just a hand written essay). Perhaps for example they turn their writing into a video production (using Windows Live Movie Maker), or a podcast (Microsoft Songsmith), or a presentation (using Microsoft PowerPoint), or a newspaper report (using Microsoft Word) or a digital poster (Using Microsoft Publisher) or they just type it up. The important factor here is choice.
<b>Showcase learning achievements through authentic audience</b>	Learners like to have work that they are proud of showcased to people who they care about. Authentic audience is an important aspect of motivation.	1:1 access means that it is very easy for learners to publish their work to the web for others to see and provide feedback on. Tools such as Office 365 Education allow this to be done in a safe and secure way where learners can choose who gets to see their work and who doesn't have an opportunity to look at it.
<b>Accessible to all</b>	Learners need to be able to learn in a variety of places at a variety of times. This includes in school, at home and everywhere in between. Technology can also make learning accessible for learners who have additional support needs.	<p>1:1 helps blend the learning experience between home and school. This helps break down silos and helps learners understand the connections between formal and informal learning.</p> <p>Students with additional support needs can also be supported via a range of accessibility Apps (such as those built into Windows 8) and other software packages.</p>



### 4.2 Assessment

Good student assessment should use a combination of both summative and formative techniques. As you would imagine 1:1 offers opportunities for both.

For example, summative tests can be administered to learners individually through the use of multiple-choice tests and other assessment generators such as Quiz Maker Plus for SharePoint 2010<sup>13</sup> or the Windows 8 FlashMe App<sup>14</sup>.

However the real power of 1:1 is the opportunity to build on current formative assessment practices and to provide learners with digital feedback on their work and progress. For example, 1:1 allows learners to comment quickly and digitally on other student's digital work. It also allows students quickly to be able to record their achievements through digital learning logs and e-portfolio solutions (such as SharePoint Blogs, which are also part of Office 365 Education).

The always on and always available nature of 1:1 also means that feedback can happen at any time of the day and not necessary confined to traditional school times. The sharing of digital work means that this feedback can come from a variety of peers as well as the classroom teacher and / or mentor.

In recent years as 1:1 has started to become more common we have also started to see a variety of award, recognition and praise systems that compliment ubiquitous access to technology. This includes Digital Badges (such as [www.classbadges.com](http://www.classbadges.com)<sup>15</sup>) and free behavior tracking software such as Class Dojo<sup>16</sup>. Although some may argue that reward systems such as these duplicate traditional praise systems the reality is they are incredibly powerful because students can't lose their rewards, they can be awarded discreetly if needed, they can be awarded at any time and it is very easy to share praise with parents and families.



#### ? KEY QUESTION:

- How do you see 1:1 computing improving your approach to summative assessment in your school?
- How do you see 1:1 computing improving your approach to formative assessment in your school?
- How could you capitalise on 1:1 celebrate student achievements through systems such as ePortfolio?
- How could you use 1:1 to embrace new rewards and recognition systems such as digital badges and positive behavior monitoring?





### 4.3 Personalisation and Choice

Personalised learning includes the engagement of students through their personal interests, personal needs and personal regulation of learning<sup>17</sup>.

1:1 lends itself for personalised learning experiences as every student has their own device and is therefore free (with support) to pursue personal interests and passions.



Internet enabled devices can also be used to assist with the personal regulation of learning through a variety of built in productivity tools, such as calendar, electronic mail and tasks. As previously mentioned access to 1:1 can also support learners to self-reflect, track and be reflective of their own learning journey.

#### ? KEY QUESTIONS:

- How might 1:1 Learning help change your whole school approach to personalisation and choice?

### 4.4 Classroom Management

The clue is in the title! This is about classroom management, rather than classroom control. The control of the devices needs to be handed over to the young people but the classroom practitioner needs to manage the learning.

That said, teaching in a 1:1 environment is very different to a traditional classroom environment and it's the simple tips that you pick up over the years that can really make a difference from day one.

On the next page there is a list of ten pedagogical and ten technical classroom management tips that might be useful to consider before and during a 1:1 deployment.

“The control of the devices needs to be handed over to the young people..”



PEDAGOGICAL	TECHNICAL
Get your class to develop their own dos and don'ts for the use of 1:1 in your classroom. The co-creation of 1:1 classroom and school procedures is important if you want to have impact. Make sure that what you agree is reviewed regularly and on display (physically and digitally) so that it is easy to refer to.	If bandwidth is an issue ask students to turn off all automatic up-dates while at school.
If you want the full attention of the class ask them to shut laptop lids or turn tablets over.	Ask students to charge their devices at home. At the start of each lesson ask students how much power they have – this may influence your seating plan.
Develop your own classroom management procedures. Such as if a teacher shuts a laptop lid, only a teacher is allowed to open it again.	Before lessons test sites you will use to see if your school isn't filtering resources you need (do it in advance as you may need to unblock something). Filtering can vary greatly between school and home. It may be worth testing a student's computer (as staff and student build may vary).
Hold regular 'show and tell' or 'app slams' with your students. Where they have 1-2 mins to share something they have learnt to do with their device – you may be surprised to know how helpful these sessions can be. Asking one or two students at the end of each lesson to share can work well.	Many hardware vendors have classroom management solutions built into their core software such as the Intel Education Software that is built into their Classmate PC.
Set 'finding good apps' as a home learning task. Get students to review them in the Windows 8 Apps Store and discuss the reviews as part of a literacy assignment.	The more devices in your school the more technical problems you may have. Train a group of students to act as troubleshooters. The most innovative schools give them a space to work and provide systems so that staff can contact them (from pagers to online ticketing).
Past technology was confined to classrooms due to electricity and internet. Modern laptops and tablets now have good battery life and wifi. Be more creative about the places that student's learn, such as outside, canteen, library or corridors. Invest in modern furniture to accompany your modern way of working.	Use the control software built into the device to limit access at certain times of the day to resources that may be a distraction for students (eg: non-education games and catch up TV apps).
Screen management software (see classroom management technical tips) should not be a substitute for MBWA (Management by Walking Around) or any other approach to learning and teaching. Use distance (on-line and physical) to influence behavior.	A learning community can thrive on collaborative work. Use technical software solutions (such as Office 365 Education) to transform the learning and teaching.
Empower students by helping to make their learning personal and meaningful. Inquiry-based, connectivist, constructivist lessons will create opportunities for students to take responsibility for their learning. There is not really an excuse not to do this in a 1:1 learning environment.	Create back channels (see next chapter) for students to stay engaged during classroom discussions.
Differentiate and personalise student work. Accommodate ability levels, learning styles, with a variety of learning, and assessment options. This can be challenging in a traditional classroom setting, there is not really an excuse not to do this in a 1:1 learning environment.	Learn to identify possible signs when students may be off task. These may include; screen-fixated eyes, typing off normal pace, colour reflections that don't match the rest of the class, reactions or emotions that don't match the activity.
Put Internet Safety, Responsible Use and Digital Citizenship at the heart of everything that you do. Make sure your regularly discuss online experiences and concerns with the young people in your class.	Don't just rely on locking and blocking. Put Internet Safety, Responsible Use and Digital Citizenship at the heart of everything that you do (see classroom management pedagogical solutions).



“Consider where you are now as a school and start to imagine what learning and teaching might look like in a 1:1 environment.”

**! DON'T FORGET:**

It is important to share classroom management tips and tricks with staff across the school or a group of schools. During the early stages of a 1:1 deployment create opportunities for staff to share ideas, challenges and solutions to problems.

**! DON'T FORGET:**

Adding technology to a classroom will not solve the problem of a teacher with poor classroom management skills. School leaders must work with underperforming staff to get the basics right first.

Good learning and teaching is the key to school improvement and the advice we have already covered should be enough to start to get people thinking about the direction that they want to move in. It is also useful to consider where you are now as a school and start to imagine what learning and teaching might look like in a 1:1 environment. This is discussed in the next chapter.







*"Technology is a mindset, not a skillset."*

*Kim Cofino, Yokohama International School*

## Chapter 5: Re-imagining classroom practice

Using 1:1 to  
Unlock Learning



### 5.1 Where are you now?

Understanding where you are now is the key to school improvement. One thing that will help you make a judgment on where you are is the Microsoft Partners in Learning School Research (PILSR) tool.



PILSR provides individual schools with an online research tool to measure their own innovative teaching practices that develop the skills students need for life and work today. Based on globally-recognised research, the PILSR research tool is international in scope, enables school-specific measurement of innovative teaching, and provides a common language to drive community dialogue and systemic change.

The research tool validates the role/importance of technology (including 1:1) and is based on globally-recognised research that measures innovation in three key areas:

- Student-centered pedagogy (teaching/learning)
- Extend learning beyond the classroom
- ICT used for teaching and learning

PILSR is a free, easily accessible tool that is simple to administer and distribute to staff and school leadership teams with a minimum time commitment. The results are powerful and personalised for each individual school to allow school leaders to make data driven decisions.



#### ? KEY QUESTIONS:

How might you use the Partners in Learning School Research (PILSR) in your school or institution? How might PILSR help you leverage funding from other sources?

“PILSR is a free and easily accessible tool.”





### 5.2 Emerging Practice

As well as using tools like PILSR and other self-evaluation tools it is important that educators keep up to date with the latest emerging practice when it comes to 1:1 learning and teaching.

Three learning and teaching methodologies are mentioned here – they are not particularly new and should not be seen as the complete future solution for teaching and learning, but they are rapidly becoming established in many schools across the globe.



#### 5.2.1 Flipped Learning

Over decades the traditional pattern of teaching has been to assign students to read textbooks and work on problems outside of school, while listening to lectures and taking tests in class.

In flip teaching (sometimes called backwards classroom, reverse instruction, flipping the classroom and reverse teaching) the students first study the topic by themselves, typically using video lessons prepared by the teacher or third parties such as the Khan Academy<sup>18</sup>. Then, in class students apply the knowledge by solving problems and doing practical work. The teacher tutors and coaches the students when they become stuck, rather than imparting the initial lesson face-to-face.

Flipped classrooms free up class time for hands-on work. Students learn by doing and asking questions. Flipped classrooms also provide really good opportunities for peer-to-peer learning and support.

Flipped learning is not exclusive to a 1:1 Learning environment but as the pedagogy relies on students accessing digital content both inside and outside the school, a high student to computer ratio is useful if you want to develop transformation change.

As well as the third party content (such as the Kahn Academy, mentioned left) teachers can also produce (and students respond well to) teacher-generated content. Tools such as Microsoft Live Movie Maker and screen recording built into Windows 8 can help teachers prepare for this sort of lesson. Videos, along with follow up tasks and questions can then be hosted in online environments such as SharePoint Online, which is part of Office 365 Education.



“Flipped classrooms also provide really good opportunities for peer-to-peer learning and support.”





“A great way for students to demonstrate that they are following what a teacher is saying.”

### 5.2.2 Back-Channelling

In recent years Back-Channelling has become popular at education conferences using tools and services such as Twitter #Tags and Today's Meet<sup>19</sup>. The same principles that have been used at conferences for a while are now starting to be applied to classroom learning and teaching scenarios.

Back-Channelling is a way for students to demonstrate that they are following what a teacher is saying and that they understand the content. Backchannels can also provide an online space for students in the lesson to talk about some of the concepts being discussed, to help other people in the class understand the content (via peer support) and to ask questions that can be followed up at a later date by the classroom teacher.

One important consideration during this learning and teaching scenario is that this type of interaction, although powerful, does not come naturally to young people – it is a skill that is required to be taught and practiced if it is going to have any real impact and not be a distraction to learning.

Office 365 Education and Yammer are both tools that can be used to support Back-Channelling in the classroom.

#### KEY QUESTIONS:

How will you share and develop other emerging pedagogies such as flipped learning and Back-Channelling across your staff?





## 5.2.3 Virtual Learning and Teaching Spaces

For schools that are really keen to embrace 1:1 it makes sense to have some safe and secure digital learning and teaching spaces as well as a range of productivity tools that students can use with their devices. Tools such as Office 365 Education provide a great way to digitise the traditional schooling experience.



As well as being free for education, the benefits of Office 365 Education are displayed in the table right. But in short, the suite of online cloud based tools will help unify the learning experience for students across your 1:1 Deployment.

### KEY QUESTIONS:

Who will be responsible for managing your school online spaces, such as Office 365 Education?

TOOL	BENEFIT AND APPLICATION
<b>Email, Calendar &amp; Contacts</b>	Hosted email with 25GB inbox, calendaring and contacts through Exchange Online. Designed to provide the control you want and the security and reliability you need. Protected by built-in antivirus and anti-spam filters.  Improve communication between school and home, email assignments, book parent / teacher appointments, share whole school events and class deadlines.
<b>Virtual Classes, Online Meetings, Video and Voice Chat</b>	Use Lync Online to transform any conversation by email to include high-resolution video-, application-, and desktop-sharing and be fully present without physically being there. Plus keep track of chat sessions with conversation history.  Conduct online classes, record them and share with others for playback anytime, online or offline. Connect with the right person at the right time and in the right way.
<b>Class &amp; Group Sites</b>	Keep everyone informed and on track. Designed to work with familiar Office applications, it's easy to save documents directly to SharePoint, and work together on projects in real-time because everyone has access to the documents and information they need from virtually anywhere.  Create class and group sites to share documents and information with SharePoint Online.
<b>Online Documents</b>	View, edit, and share Microsoft Word, Excel, PowerPoint, and OneNote files online with SharePoint and Office Web Apps.



### 5.2.4 Learning through collaboration

Obviously, if used in the right way, 1:1 (one device for each learner) does offer opportunities for independent learning. But the reality of it is the digital collaborative learning opportunities are far greater with 1:1 than without. It is also important to remember that 'independent' learning doesn't necessarily mean 'learning by yourself'.

I think there is a time and a place for children to learn independently but then I also feel that as human beings we achieve our greatest learning feats through collaboration and copying. Just think how you learnt to walk, talk and read. Isn't it a shame that education is still one of the only aspects of society that still calls copying, 'cheating'!

I know I know, collaboration is nothing new (we call it group work!). However, collaboration is becoming increasingly important in the modern world, as we become more connected globally. The rise of cloud computing and faster internet connections have enabled collaboration in business to move from strength to strength. And, it is important in schools to transfer traditional collaboration skills to the digital world to help prepare young people for the future.

One of the challenges of developing collaboration in 1:1 environments is changing teacher attitudes so they don't just re-create the same thing, e.g.: learners sat around a table doing group work with computers. Indeed, the real power of collaboration is learners being able to collaborate with others (peers or experts) in different parts of the classroom, school or globe.

Collaboration tools like Skype in the Classroom and Office 365 Education (mentioned before) give opportunities for learning that were beyond our imagination ten years ago.

"As human beings we achieve our greatest learning feats through collaboration."







### 5.2.5 MOOCs and Ad Hoc Learning

Ad hoc is a Latin phrase meaning “for this”. It generally signifies a solution designed for a specific problem or task. A YouTube Instructional Video is a good example of Ad Hoc Learning – it has been made for a specific purpose and because it is didactic it provides very little in the way of personalisation. This type of learning resource is good for finding out things that you really need to know quickly and are personally motivated to find out. Often your personal motivation is what makes you stick with the video (and often watch it again) rather than the engaging content (as you already know, most YouTube Videos have quite low production values).

One of the beauties of 1:1 and the sheer volume of Ad Hoc Learning resources on the web is that it allows learners to find a resource that is matched to their own needs and learning style. Where as in the past one resource would have had to serve the needs of all of the class e.g.: playing a video to a class of 30+ students.

A massive open online course (MOOC) is an online course aimed at unlimited participation and open

access via the web. In addition to traditional course materials such as videos, readings and problem sets, MOOCs provide interactive user forums that help build a community for the students, professors, and teaching assistants (TAs).

MOOCs are a good example of more formal Ad Hoc Learning. They are ad hoc because the participant chooses if they would like to take part or not and if they complete the course to its end. But they are structured into a logical progression and link other participants together through online forums and communities. You can participate in a MOOCs for free on most things these days.

The transformational power due to the choice of MOOCs and Ad Hoc Learning are just another reason why 1:1 is so important in the future of education.

Once you have made some of the difficult decisions and answered some of the Key Questions already mentioned you will be ready to formalise your plans and get things started. The final chapter prepares you to tackle some of the questions you might get from staff and parents.

“Good for finding out things that you really need to know quickly.”





In this final chapter of 'Using 1:1 to Unlock Learning' we will examine some of the challenges that you may encounter when trying to integrate some of the ideas and concepts that we have mentioned in this eBook.

To help you tackle these challenges we have provided some answers to frequently asked questions. It might be worth mentioning that some of these issues have been touched on earlier in the text...

*"One of the true tests of leadership is the ability to recognise a problem before it becomes an emergency."*

*Arnold H Glasow*





### Why the focus on technology?

This isn't an eBook about technology. It's an eBook about how you can use technology to unlock powerful learning opportunities for young people. Remember, as Derek Robertson from the University of Dundee says, 'Good Teachers Use Good Tools', and technology is an example of a tool that if used in the right way can transform teaching and learning. 1:1 deployed in the right way means that these opportunities can be available for all in an open and inclusive way.

As already discussed, use the Microsoft Partners in Learning School Research as a starting point to find out where your school is in terms of learning and teaching and then think about how appropriate technology could move your school forward and improve experiences for learners.

### What about professional development?

In the modern age teachers should be engaging in what is termed as 'Continuous Professional Development' (CPD), and the key word here is 'continuous'. As well as keeping up with changes to the curriculum, teachers also need to keep up-to-date with changes in learning theory (e.g.: how the brain works) as well as changes in technology.

The good news is that in the modern era technology is not actually that complicated and many of the ideas and processes that we have described in this eBook do not require technical wizardry! The reality is **the teacher is only required to drive the pedagogy and to assess the learning**. If you do get stuck with a particular tool or service ask your school ICT technicians for a hand (you probably have up to 30 of them sat in front of you most days!).

If you do want to be a school that embraces 1:1 technology in the classroom then the main thing that is required is a collective change of mindset. This is best done through support and swapping ideas. We have given you plenty of ideas to get you started in his short guide and now it is up to you to adapt them for your own local need and circumstance.

Don't forget services and existing networks like Microsoft Partners in Learning ([www.pil.network.com](http://www.pil.network.com)) and Skype in the Classroom (<https://education.skype.com>) offer opportunities, global connections, discussion forums and digital tutorials populated by some of the most innovative and enthusiastic teachers in the world.







### Will the children misuse 1:1 technology?

#### Children have always misused technology.

That's why the number 5318008 was so popular when calculators were first introduced to schools<sup>20</sup> many years ago and why you still get graffiti on school desks. The important thing here is trust, establishing rules, good classroom management and if necessary, sanctions.

Any misuse of technology in the classroom needs to be seen as a learning opportunity where the responsible use of technology is emphasised.

### Will the computers be powerful enough to create digital content?

**They should be.** But if not you need to take this into consideration when deciding what sort of devices to procure. Remember, young people expect a media rich experience these days where they can manipulate images, edit video and design games.

### How do I get staff motivated to make learning more exciting with technology?

**Strong leadership is important here** and you need to start with little steps and encourage staff to be adventurous in the classroom. One way to get started is to partly lead by example and partly asking for volunteers. Why don't you see if there is anyone in your school who might be willing to do one the following things to help get things moving:

- Leading on pushing out the Partners in Learning School Research and co-ordinating the data collection for your learning community.
- Unlock the power of technology by signing up for Office 365 for Education<sup>21</sup> for your class or school.
- Sign up to Skype in the Classroom<sup>22</sup> and connect with another teacher to develop some **real time interaction** around a global citizenship project.
- Use the Bing start page every day for a week as a lesson starter.
- Give your students **a choice of pathways** to publish a piece or writing – a film, audio recording, poster or blog post.
- Publish your students work online and give them **real audience** and recognition.

“start with little steps and encourage staff to be adventurous in the classroom.”

## Chapter 7 - Conclusion and next steps

Using 1:1 to  
Unlock Learning







This eBook has been written to get those who are considering implementing 1:1 strategies in their schools thinking about what a successful deployment might look like within their own learning community. Providing equipment (whether it is procured or BYOD) is simply not enough on its own to ensure success.

### The following should also be taken into account:

#### Leadership

The key to any successful technology deployment is strong leadership combined with the vision of how to improve education and at the same time driven by strong personal values and a real desire to effect change.

#### Shared Vision

A lone vision can be revolutionary but a shared vision will be needed in order to be transformational. This vision needs to be shared between school managers, teaching staff, students and the wider school community (including parents and outside agencies).

#### Strategy

Will be needed to ensure that your technology deployment gets translated from your shared vision into reality.

#### Pedagogy

Needs to be at the heart of what you are trying to do. Teaching and learning should look very different in a 1:1 environment. If it looks the same then you have got something badly wrong and need to re-visit your strategy.

#### Professional Development

Quality professional development that combines face-to-face with online training and reflection opportunities will be needed to ensure that staff embrace new pedagogies and new approaches to classroom management.

#### Responsible Use Policies

Will also be required for all those involved in your project.

#### Infrastructure

Is the thing that will bind your project together. You can have all the devices in the world but if you can't connect them to the internet or if connecting multiple devices makes your network speeds painfully slow then you need to re-think your plan.

Part of your infrastructure arrangements should also include access to **quality digital content, productivity tools and collaborative spaces**. This will help all users make the most out of your 1:1 environment.

Finally, no large-scale technology project is the same. Only through **the sharing of good and interesting practice with others** about strategy, devices, pedagogy, infrastructure, network and security will we eventually develop systems that are truly cost effective and have a transformative impact on learning and teaching.





A huge thank you to the following people who have influenced my practice and thinking on these issues over the years. In no particular order...

- **Anthony Salcito, Vice President of Education for Microsoft Corp.'s Worldwide Public Sector Organisation**
- **Louise Jones, Highland Council, Scotland**
- **David Gilmour, East Lothian Council, Scotland**
- **Andrew Brown, East Dunbartonshire Council, Scotland**
- **Derek Robertson, University of Dundee**
- **Charlie Love, Aberdeen City Council, Scotland**
- **Gillian Penny, Apple Education (UK)**
- **Shelly Shott, Global K12 Education Manager, Intel Corporation**
- **Professor Stephen Heppell, Bournemouth University and Heppell.net**

Also a huge thank you to Stuart Ball and Tim Bush at Microsoft UK for encouraging me to turn my blog rambling to eBook ramblings.

**Note:** The above acknowledgements does in no way indicate that the fore mentioned people have acknowledge or endorsed the contents of the eBook.



(Click arrow to go to link)

- <sup>1</sup> Reflections from Microsoft Partners in Learning Global Forum 2011 – Anthony Salcito (VP Microsoft Education, Worldwide) Keynote Presentation <http://goo.gl/T8Qbk>
- <sup>2</sup> Professor Sugata Mitra, University of Newcastle, Home Page – <http://www.ncl.ac.uk/ecls/staff/profile/sugata.mitra>
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- <sup>8</sup> Microsoft Shape the Future – <http://www.microsoft.com/publicsector/ww/programs/shape-the-future/Pages/index.aspx>
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- <sup>11</sup> Exciting Learning, Microsoft (2012) – <http://goo.gl/SRN3>
- <sup>12</sup> Skype in the Classroom – <https://education.skype.com>
- <sup>13</sup> Quiz Maker Plus for SharePoint 2010 – <http://goo.gl/NNnOX>
- <sup>14</sup> FlashMe Windows 8 App – FlashMe is a Flashcard Application that lets you create flashcards and organise them in Stacks called Decks. <http://goo.gl/WHt7XZ>
- <sup>15</sup> Class Badges – Create digital reward badges for your school or class. [www.classbadges.com](http://www.classbadges.com)
- <sup>16</sup> Class Dojo – Behavior management software. <http://www.classdojo.com>
- <sup>17</sup> The origin of the term personalisation of learning came from a definition by James Keefe (1989) “a systematic effort on the part of a school to take into account individual student characteristics and effective instructional practices in organising the learning environment.”
- <sup>18</sup> The Kahn Academy – <https://www.khanacademy.org>
- <sup>19</sup> Today's Meet – <https://todaysmeet.com>
- <sup>20</sup> Calculator Spelling – [http://en.wikipedia.org/wiki/Calculator\\_spelling#English](http://en.wikipedia.org/wiki/Calculator_spelling#English)
- <sup>21</sup> Office 365 for Education – <http://www.microsoft.com/en-gb/office365/education/school-services.aspx>
- <sup>22</sup> Skype in the Classroom – <http://education.skype.com>

