PEARSON UK – Policy "Hot Breakfast" meeting at Makerversity
Transcript

SLIDE 1 Policy "hot breakfast" briefing: the classroom of the future
at Makerversity, Somerset House 31 March 2014

*Images of the meeting, the Pearson lab, displays, breakfast

SLIDE 2 A look at how technology is starting to change the nature of learning.

Steve Besley, Head of Policy, Pearson

This is the first of our hopefully new series of Pearson Policy "hot breakfasts" these things that we've been running for some time, we're just resurrecting the programme. It will be run at different sites as you can see, such as today, when we'll be trying to tap into Education Development as part of the build up towards the General Election, so it's great to see you all here today for the first of these particular events.

The thing for today is technology, or more particularly learning technology or even more particularly technology in the classroom, learning in the classroom that sort of thing. Let me just give you one or two reasons why we've taken that as our thing for the day. Earlier this year the Guardian ran an article – so it must be true – that a family had written in and said that the first words that their new born child, had not been mummy or daddy but "ipad" and it can makes you sense that perhaps an learning technology is beginning to take over all our lives, but generally it's been said that one area where learning technology has not perhaps taken over and that's been in the classroom. Indeed to quote another familiar old story it's often been said that if a time traveller returned from Victorian times and visited perhaps a hospital or workplace or indeed a shop they'd be amazed at what changes there were but if they were to go into a classroom they would perhaps typically see groups of kids sitting in rows facing the front, a teacher at the front talking to them in groups and so on. So, perhaps learning technology is yet to have an impact on the classroom and yet having said that there is a sense that there is a momentum building up driven perhaps partly by the fact that, you know, we've got a much more tech-savvy generation coming up, we've got a much more adept workforce and of course both political parties have taskforces working in this area. So it's on that background that we say we're looking at learning technology, the classroom of the future, that sort of thing.

I'm going to hand over to Jan Murray in a minute, who many of you will know as a learning columnist and commentator who will introduce our speakers today and hopefully we'll have a good session. We try and do these things within an hour so that everybody can get away and off to work as soon as possible but there's plenty of food and drink to keep us sustained as we go through the next hour. So thank you very much, great to see you all here and over to you Jan.

Jan Murray (Education Journalist)

Thanks everybody for coming, I'll just quickly introduce myself before I introduce the panel so, my name is Janet Murray and I've been writing about education for the Guardian now for about 13 years and have written about education for pretty much most of the nationals during that time as well but mainly now I write and edit for the Guardian. I also, when I'm not doing that, I spend time helping people to get press coverage, I've got a media training company so I spend time showing people how to get into the paper and how to get on the telly in the meantime. When I was asked to do this debate it was quite relevant because I'd just covered a story for the Guardian which was about this kind of topic and somebody had said during this debate, do you know what if all of the technology went wrong in schools, schools would still just carry on as normal, even if everything broke and we had no internet access schools would just carry on and just manage and I thought that fitted into the debate that we're going to have today.

So I'm going to go around and introduce everybody and then they're all going to talk for about 3 or 4 minutes and then we will open up for questions if anybody has got any, if that's okay. So I'll start with Steve who's already introduced himself, Head of Policy at Pearson, formerly Head of Policy at EdExcel and he basically keeps everybody at Pearson and beyond up to date with what's happening with Education Policy – would that be a fair comment.

Steve – I do my best I think is the answer to that!

Then we've got John (Elledge) who is the Editor of EducationInvestor Magazine, also occasional contributor, or more frequently, to the New Statesman, the Guardian, you've pretty much written for most of the Nationals over the years.

John – whoever will take me!

So also a very prolific writer. And Tom Tobia, this is all your idea and you're going to tell us about it in a little bit more detail so the co-founder of Makerversity and started off as a graphic designer he was telling me before, who was really into working with groups of people from local community groups to big big organisations exploring ideas for social change – but he's going to tell you more about him in a second. Ed Lawless, Principal of Pamoja Education, have I said that right?

Ed – some people say Pajama!

So you started your career working in International Schools and you're the former head of Professional Development for the IB (International Baccalaureate), has lived all over the world, studied all over the world – New York, Borne (?), lived in the US, Singapore and Australia and now has an Australian passport he was telling me just before and Louis who is on his way.

Louis – I'm here actually! I'm from Demos, the cross-party ThinkTank and I work in the Centre for the Analysis of Social Media, so we're really concerned with how the internet affects learning and education, big areas.

Okay, can we start with you then Tom?

Tom Tobia (Co-founder of Makerversity)

Good morning everyone, thank you very much for finding us down here at Makerversity, it's not necessarily the easiest, the only thing harder than finding us here is finding the toilets! So apologies for that as well and just quickly before we start, if there's a fire alarm, no ones told us that there's going to be any test so we all need to hot foot it back out the way we came in and get out on the street out there so that's that bit done, Health & Safety!

So, welcome to Makerversity, I set this up with about three other guys about seven or eight months ago, the idea was first born about a year ago. The idea really, I'll be as quick as possible, is that we're a centre for making and learning so we are home to about 50 or 60 Maker Businesses now all of whom are exploring something around emerging practice so we provide them a great deal, basically we offer them really affordable space ranging from free to below market value, access to a range of kit and tools for them to prototype and develop their businesses, a pretty active network of activities and things that helps them develop and the trade off is that they have to become part of our faculty. So we ask all of them to share their expertise with young people, whether that's school age kids or particularly employable age kids, so anyone from 14 plus really who is thinking about how they might get into the world of work and what that means. So what that means is we have a decent body of people with very relevant and perhaps new skills employing a lot of new technologies and in high growth markets in theory, hopefully. So we're looking at being able to offer young people a route into work, into jobs that may not even exist yet or maybe in their infancy and that will be much more prevalent by the time they're actually looking to get into the world of work. So we're trying in that sense to provide a viable and free alternative to Higher Education and one that's based much more around the idea of sharing networks, building things like confidence and resilience and all the skills that you need to be employable these days, so we have an adaptable, flexible workforce of young people.

The other side of what we do is much more classroom based, which is probably more relevant today. We're starting to explore how some emerging technologies can work their way into the classroom as they become much, much more affordable, it becomes much easier to do that when you're sitting in a room with about seven or eight 3D printers sat on the various shelves and walls around here *camera pans to them*, you can see that these things, I mean they're manufacturing tools, but they are now at the size and at the price that means they could be used in a learning environment across the board and so we're starting to explore how some of that stuff might look. To be honest we don't necessarily know what we're doing *laughter* but we do know that there is a bunch of things we want to challenge and experiment with in a classroom setting. For example this idea that the way that we access information, the way young people access information is changing so rapidly that is the school environment the right

place to be disseminating information to them or can we accept that they can probably do that anywhere at any time or should we be using the time in the classroom to experiment and create content as a way of learning rather than just digesting it. So that's one thing we're looking at and on a kind of, I guess a more practical sense, what do you do with a 3D printer if you've got one in the classroom, how can you make the most of that. How can you run a maths or physics lesson using a 3D printer? How can you use this idea of creation and creating tangible things which is an extremely powerful vehicle and a very very motivating vehicle for people whether you're young or old in a classroom setting so that it's actually relevant and it's not just something that is deemed as fun or art or whatever you want to call it.

So the final thing I'm going to just quickly say is we don't think that that necessarily needs to stop at curriculum or lesson planning. We're also exploring and looking at how we might be able to create a classroom that kids could actually create themselves, without necessarily needing to use power tools, which is always a benefit! So we're looking at what you can create using things like 3D printing, brackets and bits and pieces so that kids can be perhaps more invested in their learning environments because they can adapt them to suit their needs themselves, so that's something else we're exploring. We've got lofty aspirations I suppose, we'd like to see elements of making and exploring this kind of application of digital technology in every classroom – whether we do or not remains to be seen but it's a nice thing to aim for, definitely. I think the driving force behind all of that is simply the idea that young people should hopefully feel more ownership over and more control over what they're learning, when they're learning and where they're learning it and in particular with that employability in mind there are a vast array of very exciting, very high value jobs that exist or are starting to exist these days that would maybe have been deemed as manufacturing or as getting a trade, or whatever you want to put it, and the perception of that has always been lower than the idea of going and studying Philosophy at Cambridge. There's nothing wrong with studying Philosophy at Cambridge for sure but it's not for everyone and it's also not at a price point that everyone can afford, so we're interested to see how we can bring the perception of manufacturing, which is kind of happening anyway, up to a similar level. Coding has been through the same revolution so the idea of becoming a coder now is something you don't need to go to University for but you could get an extremely high value job from. So we're interested to see how this explosion of micro manufacturing can do the same.

Jan – thank you. Ed?

Edward Lawless (Principal of Pamoja Education)

Sure, I'm not sure how many people are familiar with the International Baccalaureate, it's a two year university recognised secondary qualification and having been in education way too long but still loving it, I started in 2010 with Pamoja Education. We're based in Oxford, it is a social enterprise established exclusively to broaden access to IB Diploma courses and that is for

mostly IB schools who might not be able to have students access courses in those subjects that might be low enrolment or they can't find staff for. So it might be courses like Psychology, Philosophy, Beginners Languages and Economics and things like that. When I started here in July 2010 we had 120 students, a very small start, I think we had about 10 teachers across a dozen schools or something and we started this year with just under 1,400 students across 70 countries in over 340 schools around the world. So as such you can imagine that that global online campus means that we are supplementing some of the educational opportunities in schools, that we're bringing students around the world together in an online learning environment and as such you can imagine that those courses are mostly asynchronous courses with synchronous opportunities. But the big difference is that we try to make this as intimate and humane as possible running counter-culture to the big MOOC hype of mass online learning, kind of free range work that goes on. Our classes are affectively around 1:25 teacher student ratio but those students have access to all 1,400 on their global campus. They're moving in weekly units that are pre-established and approved by the IB featuring very dynamic content so that the students can interact with the content and each other in a dynamic way for collaboration and engagements but it's also under the guidance of an experienced IB teacher who has been specifically trained in online pedagogy and that's vital and I think the most important point is that old adage – any old teacher who can be replaced by a teacher, should be, and that is why I don't think anybody has anything to fear about online learning and online technology. They will always, no matter what platform, require qualified skilled caring educators. And, I'd like to think that's what we concentrate on. The other thing that's a little bit different about what we do in that intimate setting is we insist that every school that works with us has what we call a "site based coordinator". Think about it as somebody there on the campus that's bringing the pastoral care element while they build a strong relationship with our online teacher that student needs to meet with somebody once a week for the human element, a set of eyes and hopefully a caring heart who is there to make sure that that student doesn't fall behind, or that their concerns go unheard. So that's an important liaison and if you think about it as a kind of a healthy triangle between the student at the top, the online teacher on one side and the site based coordinator on the other. So, basically that's what our courses work like and around the world you can imagine that those students are going to collaborate, they're going to have some live lessons but they're not necessarily going to wake up at three in the morning in Japan to access a lesson offered by a teacher in New York or Paris so we try to provide as many options for collaboration. It might not just be live synchronous work, they're doing chat, they're doing blogs, they're doing wikis, they're doing discussion forums all the standard things that you would expect leveraging social media and online technology for a good result.

Now, rather than going on about what we do I'd just like to emphasise how important I think this is, and as I said before how important I think the human element is. Somebody asked me to address what the barriers not just the advantages – the big barrier is fear, fear of the

unknown and the preconception that it's all about the technology, for me it's not about the technology the technology is the spark in the same way that Guttenberg's Printing Press was the spark for an educational revolution. It's about pedagogical revolution, it's about shifting power and as you just mentioned, when you put the power of learning into the student's hands that is terrifying. It's terrifying to people who have invested in the educational institutions that dominate the economy and societies around the world. It's terrifying to parents who believe that they were taught that way therefore they know that that's the way that their children should be taught and it's terrifying as well, as you can imagine, for teachers who are going to be pushed out of their comfort zone. But at the end of the day this is a power shift and when I mean that I don't mean technological power I mean pedagogical power, shifting the role of the teacher from being a master of content and a curator of content and an intermediary for content to the role of a mentor for learning and a creator of learners. When you think about it you all remember your first university class where you struggled and realised "my god I have no idea what I'm doing, I do not have a teacher any more I have a professor, his or her job is simply to profess content, to transmit it and it's my job to learn it" and frankly I think that online learning technology is a great opportunity for us to develop self-regulated learners so that they can make that leap not just take that leap and frankly I think schools, governments and communities that do not confront this opportunity, do not embrace it are endangering their children, they're limiting their opportunities both in the academic world and in the careers that they're going to be able to pursue in a global economy and frankly as citizens both locally and globally and I will now get down off my hobby horse!!

Jan – okay I'm going to pass on to John now, the Editor of EducationInvestor. I just want to say, I was saying to Sam on Friday how clever he is and how much he knows about everything and he's written on the top of his paper "Pearson thing Monday morning" – but he is very clever and he knows about lots of things.

John Elledge (Editor, EducationInvestor)

Also you will notice I'm so tech savvy I'm the only who bothered to print out (the details). I thought I would point out a couple of things that are blindingly obvious but I don't think we talk about enough. Firstly we are all set here about technology as if it's a thing, as if it's a monolithic idea and it isn't. What we mean by technology is basically new stuff. When we treat computers or iPads or whatever in the classroom as if it's this weird new force we have to deal with I think you're already putting yourself one degree of removed from the kids for whom this is just what the world is like. More than that though I think it also means we kind of lump a lot of different stuff together which we should probably talk about separately, like when we talk about technology we sometimes mean communications systems, we sometimes mean databases, we sometimes mean educational content, sometimes it's hardware, sometimes it's software. There are different things going on with each of these subcategories and by lumping them all together

we end up talking in a way that isn't that meaningful necessarily. The other thing I wanted to talk about a little bit was the development of educational technology in a specifically UK context. You wouldn't necessarily know it if you're from outside the sector that the UK is a bit of a world leader in educational technology – I don't know if anyone's been to the BET Trade Show but it's absolutely enormous and people come from all over the world to see what the new educational technologies coming out of the UK are. But that's basically been possible because the last Labour Government chucked an enormous amount of money at this stuff, there's an anecdote I particularly like – I have no idea if it's true, let's not be telling it – about how when he was an Education Minister Charles Clark needed something to announce, he needed a new policy to talk about at BET and then he saw an electronic whiteboard and he thought these are fantastic, every school is going to have one of these so he created a pot of funding so the schools could go out and buy this stuff and then as the years went on there were other pots of funding for learning platforms or management information systems and all of this was separate from schools normal budgets. There are a couple of results from all this – one is of course that the schools went out and bought all this stuff because you're not having to choose between a computer and a teacher it's just extra money to buy this stuff so why wouldn't you, but there is also what's termed as "full cupboard syndrome" which basically means that schools went out and bought this stuff but they didn't necessarily know how to use it because whilst there may have been money for the hardware there probably wasn't the money for the training! There is another possibly hypocriphal anecdote I'm going to tell now which is that whilst there was a pot of money available for schools to buy whiteboards, whenever they needed to replace the bulb in the projectors that had to come out of their own budget and these were quite expensive things so there's a lot of schools, the bulbs would go pop and they'd just stop using the whiteboards because they didn't have the money for the new bulb and they weren't particularly integrated into the pedagogy so they just kind of slipped out of usage. So we put all this stuff in classrooms without actually working out how we're going to use it. So, Steve was talking about how technology may still be alien to a lot of schools, I'm not sure if that's true in terms of whether it's actually there in the classroom, I think in a lot of schools there's an enormous amount of technology they just haven't really folded it into the teaching properly.

The last point I'm going to make it to relate it to the idea that there were lots of different pots of funding for different types of schools technologies meant you kind of got lots of different subsectors to the educational technology industry because every school went out and bought management information systems, every school got a learning platform and a whiteboard and.. and.. and. I'm not sure that schools actually need all those things, I'm not sure if things had been left to develop naturally that's how the market would have looked. I suspect that actually would probably need fewer products but that actually work better together and I think the story, from an industry point of view, for the next few years is going to be one of consolidation because there is probably not enough money floating around to support all these different

companies and we're going to see a certain amount of mergers and acquisitions because, in the same way how you access the internet these days is pretty much controlled by two companies, you will access it via Google or via Apple and they get a lot of control out of that. I think we're going to see something similar in Education Technology so I think the story for the next few years is going to be the fight to control that sort of ecosystem, who actually gets to own access to the classroom. So you're going to see whiteboard firms and publishers and hardware firms all competing for that space. What this means for the kids I have absolutely no idea!

Jan – I'm going to go to Louis now.

Louis Reynolds (Demos)

So I'd like to associate myself with the previous comments, it's wonderful to hear people talking about this in not so much as an add-on to normal learning procedures, as in this is the changing shape of education. I'm going to speak in slightly more abstract terms perhaps because as a Think Tank worker that is my role. The way in which people access the internet, particularly young people – I'm going to talk particularly about internet technology – increasingly people trust the internet and they trust newspapers and radio and television less and as they become more trustful they're also gaining much more access. So it's something like 50% of people between the ages of 12 and 15 have access to the internet independent of their parents from their own bedroom or whatever and this is changing the role of the teacher and again, your previous comments, the change is really this – that young people are accessing content without a gatekeeper so the teacher is not going them a textbook and saying you must learn this, they're getting prescribed books from the library they have access to a wealth of information that 20 years ago would have seemed absolutely technologically impossible. Certainly it would not have seemed that it would be socially common and we need to understand that this role has already changed and catch up to it. So it's not so much about changing education policy it's about adapting to a very different way of consuming information. So what does that mean in practical terms, well like I said people increasingly trust the internet more than any other source, again in young people this is unsurprisingly more the case, but this trust and this self-professed digital literacy does not always have with it, it is not always accompanied by actual digital fluency. So young people don't quite know how to process all the information online and the wealth of information is absolutely suffocating, they don't quite know how to access the information critically. The assumption is often that young people know much tech than everybody else and therefore we don't need to patronise them by teaching them these things, it's much more central than that it's to do with critical thinking and the ability to make their own judgements based on the information. In the classroom this means that increasingly – we've surveyed teachers as part of a number of projects related to this – conspiracy theory is coming into the classroom, misinformation is coming into the classroom. If you talk to young people about how they judge the veracity of information online often it'll come down to things like site

design or the way in which it is presented and this is a serious problem, but obviously the answer is not in censorship and this often comes back to and we talk about particular problem content online. For instance, to be specific, pro self-harm or pro anorexia websites which can be deeply damaging to young people, these kinds of things. We often talk in ideas of a concept of censorship, but I think we're past the point now where we can reduce the access of young people to information and I don't think it's ever been a good idea but what we need to do is we need to teach them the skills to evaluate the information online and to make their own judgements. And when you talk to teachers as well they're not sure where this should go, a lot of people think this is an IT thing, some people think this is for English or History and they're not quite sure they have the skills either. So, for instance, if you talk to teachers about how does a search engine work, well a search engine (and you were talking about the power that google has) is the single greatest tool in terms of accessing information but no one is really sure how you get the results when you type them in, what comes up and even these simple explanations of well it's an algorithm based on your previous search terms and therefore if you search in a particular area for a prolonged period of time it will start to introduce a bias into your results. These kind of ideas are completely alien to students and teachers.

So really what I'm suggesting is this, that we put time aside, serious time, in order to develop not just the digital fluency of young people but their critical thinking skills. Things that actually probably were extremely relevant before the advent of the internet but that we are being forced to confront rapidly now and if we fail to do this, this isn't just about losing an opportunity for learning or losing an opportunity to empower young people in their own education there's a sense of threat that we might end up with a generation of young people who are overwhelmed and all of our research previously has shown that unfettered access to digital content without quite knowing what you're doing can be extremely harmful. So it's about adapting to a changing world essentially and giving young people these skills in order to deal with this new digital landscape, they're the same skills that will help in life when they're looking for employment, when they're going to university and so on and so forth. So yes, it's about empowering young people but it's also about catching up because 72% of young people under the age of 18 have social media and 90% of them have internet access and one in every 12 minutes awake is spent online so we really need to catch up with this and not just install some new shiny policy ideas.

Jan – thank you. Steve, are you going to talk for a few minutes?

Steve Besley

Right well I'll just say a few very quick words. Four brilliant presentations, I mean just some of policy perspective there's obviously a huge number of issues here as John has already implied Pearson will be one of the operators within some of these issues but let me just quickly highlight three policy issues:

One is about the digitalisation of resources and what impact that has on pedagogy and that is a major piece of work of course and that's when an organisation such as Pearson is very active at the moment, there's a huge amount of work going on, so that's a big policy area.

I think the second one is about the impact of the curriculum changes, we know this is the year of coding, we know that Computer Science is now an EU backed subject and so on but there is just a sense as to whether a more formalised curriculum that seems to be emerging from this September onwards with the National Curriculum and so on about what impact this will have on information learning, technology and so on so I think the importance of curriculum changes.

And third one is one we've been grappling with for a long long time and that is about assessment and assessment technology and how much that is a tool for reassurance and we can use for assessing in different ways and how far we can fit regulatory requirements and gain public confidence in it is also something we're grappling with. So just to kind of bring those four brilliant presentations together those of three policy areas that take us back into the classroom and the sort of thing we're grappling with at the moment.

Jan Murray

Thank you. I've certainly got some questions of my own but I'm going to invite you to put questions to some of the panellists and if you wouldn't mind saying who you are and where you're from that would be great.

Qu: I'm Paul Wright and I'm an Independent Education Consultant and I'd like to pick up on Steve's second point about curriculum policy and particularly the introduction of the new National Curriculum and with the exception of one or two things which you mentioned like the introduction of coding which was mentioned, everything that we've heard today which seems inspiring and exciting seems to be absolutely antithetical to what the current curriculum changes are being presented, both philosophically in terms of content, everything you said is almost the antithesis of what the current government is seeking to do. So I was wondering, I mean even to the point where I think that at one point in the early drafts of the English National Curriculum the world text was excised because in previous versions obviously text is a much more open word to be replaced only by books**.** So we weren't allowed to talk about text we were only allowed to talk about books, I think that might have changed but certainly in an earlier draft that was what I'd heard. So my question is, what does this mean for the notion of a National Curriculum, that are we increasingly, with academies and free schools who don't actually technically need to follow the National Curriculum are we looking at almost a kind of gorilla schooling that's almost ignoring what the National Curriculum is and is that going to mean a huge and growing gap between perhaps less forward thinking or forward looking schools which are going to be delivering a thin gruel of facts and straight forward transmission knowledge and the more forward looking schools that are going to embrace a lot of the things we've been talking about today, pedogically, technology, in terms of the things that they're

teaching – so is there going to be a split and what is the impact of that going to be, just the random chance of where your child will end up?

Ed – I can jump in and say I have absolutely no idea! Number one my headset doesn't make me qualified to answer to that but also, look I love the term and I can see a Rambo movie called gorilla education out there. I think just my gut response, I think that will happen and in fact I think it's already happening in some ways. Again I can only speak for the International Baccalaureate, that's what I've been most experienced in and obviously the IB has grown in popularity around the world but also here in the UK although it's plateaud a bit but I think part of its appeal has been that it has attracted exactly that end of the spectrum of parent and student and as we know it is flourishing in independent schools mostly and I can only say that that's one example of where it might be headed, that's all I can speak to.

Jan – John, any thoughts?

John – Yes, I instinctively think that you're right but that's not new necessarily, I think to a certain extent schools have always been dependent on things like budgets and the enthusiasm of their teachers as to how enthusiastically they embraced this stuff. It's certainly true that this government was not interested in education technology in the same way that its predecessor was and that it barely spoke about it for the first couple of years, that is starting to change, there is now an "interest group" I suppose you can call it, but they have got a bunch of educationalists and industry figures and Higher Education types to sit around a table and talk about what technology in schools should look like which I think is an initiative from Matthew Hancock the Skills Minister – they did this in FE and it seemed to work so they're trying to do it in schools now as well. How successful that will be I have no idea but at least they're kind of engaging with it again after four years of totalling washing their hands of it.

Jan – I should probably add – although I'm supposed to be chairing and maybe not chipping in – but I visit an awful lot of schools and I'm already seeing a huge difference between the kind of curriculum that's being delivered for example in free schools compared to schools that are still under the local authority rule shall I say, or leadership as it were. I'm already seeing a really big difference, you go into a free school and you can see something really buzzy and creative and even those people who maybe don't agree with that way of doing things often you can see something really really innovative and creative and you go to another school that can be a lot more traditional – so I think we're already seeing that. I don't know if that's something that you've come across at all but I've certainly seen that we can already see a divide and I visit lots and lots of schools.

John – That was kind of the point of the policy in some ways, to create that kind of diversity so it's not a bug it's a feature; whether it's a good feature or not is a different question but this was the intention.

Jan – Do we have any other questions from the floor?

Qu: Hi, Joshua Perry from Ark Schools. I guess the question is do you not think, coming exactly to the point that you've just made really, the structure of schooling, education but particularly schools in the UK makes tech innovations really hard because there are 25,000 commissioning bodies / schools around the UK and they are occasionally grouped into academy groups like Ark or occasionally under the umbrella of a local authority but not really for tech commissioning and an individual school of 1,400 people and sometimes 210 if it's one form entry school, how much are they really going to understand the complex, leading edge technologies that might innovate and might change their school and how much are they actually going to be able to innovate and be the first that other people can copy and even free schools that you're talking about, they can innovate to an extent but they can't innovate with a budget of tens of millions of pounds which are likely to several people and get something working really well. So the question is, do you not think the structure of education at the moment actually does make tech innovation really hard and that's one of things we're talking about.

Jan – Do you mean in terms of funding?

Joshua – I mean in terms of commissioning and expertise and in terms of the fact that the organisations I've worked in before that have been able to innovate with technology generally have budgets of tens, hundreds of millions or billions and therefore can employ 5, 10, 20 or 30 people to get something working and if you've just got one man or woman who sits there and does clever things that the rest of the school can use that's tricky or if you're an individual teacher in a class you can come up with something clever but it won't be systemic for the whole school it'll be just for your class, so it's that problem.

Tom – I'll give it a go. I guess I'd say that the challenge to bringing more of this stuff into the classroom is probably less to do with budgets and structures in that sense, in a macro sense, and more to do with the amount of time that an individual teacher has to do anything experimental or the validation to do that. I don't think it necessarily matters if people explore this on an individual basis in terms of teachers but there needs to be some space for them to do that I guess within the curriculum. I don't know how that looks, I'm not an expert on this at all, but the idea that I certainly know that teachers are continually flat out to the point that any kind of change to their routine strikes fear into their heart. A couple of good friends of mine who are teachers and are extremely creatively people have basically had that bashed out of them over their fledgling careers to the point where they spend most of their time recycling material that they've created already just because it's easier than trying to do anything else. So how you can buy them the time to experiment a bit – I mean most people who are experimenting and exploring with technology like we have in this room are tinkerers, people who do it in their spare time and there's absolutely no reason why there aren't an awful lot of teachers who would do the same if they were given the freedom to. The technology itself, which has been touched upon, is not the answer the technology is hopefully an enabler to learn in different and more

exciting ways, it's not expensive at all, particularly if you're given the time to play and experiment with that and perhaps then you'd feel more like sharing your knowledge and expertise with other teachers rather than honing in around you, so I would say that's the sticking point and I don't see there being a problem with individual approaches to that stuff within schools and I don't think it's necessarily a budgetary issue either.

Louis – Just to make an additional point and build on that, so the teachers we have spoken to they're not dinosaurs they know how important these digital skills are and they see the evidence of digital learning everyday because it's not just about what you do in the classroom, obviously this session is about that, it's about where the young people are getting their information and they get it remarkably online. But people we have spoken to they're not quite sure where it should fit in digital technology, is it English, is it History or even to that kind of level that it's hard to categorise but beyond that teachers have so much to do and so much information they need to convey and they almost uniformly say yes, well this is hugely important but of the 100 or so things that I should be teaching that I don't have time to, this is one of those things. So we need more structural change to facilitate this changing emphasis in learning, we can't just add it as another subject shoved into Citizenship...

Jan – One thing I wanted to add, just from my own experience because I was covering a roundtable at the Guardian recently which featured teachers and Head teachers from all over the country and one of the things that came up which really shocked me was that some of the schools were saying they still had problems with reliable broadband and particularly schools in rural areas and for somebody to be saying that, at this stage, and saying well sometimes I plan to do a lesson like this and I have to adapt it or I have to scrap it and the kids just have to write it in their books because sometimes our broadband just goes. And I think this is what you were getting at and maybe in a small primary school the person who is looking after the IT is somebody who is quite handy but they maybe they don't actually have the level of expertise needed to get that up and running quickly and activities have to be abandoned and you have to go back to traditional routes just because you don't have, you know...

Joshua – Correct, I think it's that and I think it's John's point about the enabling tech within the classroom, the learning platform, the MIS and at Pamoja you must work on actually quite an advanced platform, I don't know what LMS you use I'd be interested to talk about that separately but you will have enabling technology that involves smart people getting it set up and getting that technology enabled is generally down to one person in a school if it's secondary and in a primary who? And broadband is another good example of that so if that's not working you can be as enthusiastic as you want but you can only solve the problem for your classroom you can't solve the problem for the whole school.

Jan – is there another question here?

Qu: Yes, it sort of follows on from that, David Walker I'm here representing Futureversity this morning. I was interested in what the panel thought the implications were of technology particularly on increasing the quality, helping challenges in terms of poverty, social mobility that sort of approach. There are just two anecdotes that I have having been a School Governor in a primary school for nearly 15 years I've seen a dramatic increase, as you said, in terms of the use of whiteboards and ? the biggest problem – they've just finished building works that's been ongoing for five years – the increase in the size of children and the amount of power meant that they've regularly been tripping and had to have a new sub-power station put in to cope with the amount of electricity they were using because we were regularly tripping out the entire school which is a problem in terms of access so kids were having lessons scheduled, not only whiteboards, to use technology and found that they couldn't use it – you end up with a whole load of challenges. The other is a friend of mine up in Humberside who is Head of Technology/IT at an academy where every child has access to an iPad they rent for £1.50 a week and I think they're using Pupil Premium money to help towards that and that's clearly a significant investment in technology and there is obviously that challenge between those young people who have ready access to technology throughout their lives, whether that's the smart phone that they have, and ready access to a range of devices at home or those that basically rely upon what they're getting from school. I wonder what implications the panel thought that was going to have on education and educational achievement.

John – I suspect in the long term we're going to move towards something that looks a lot like "bring your own device" policies and the majority of kids in the not too distant future will have smart phones or tablets and there will be a small enough number who don't have access to those things that you can fund it out of the pupil premiums and such, extra money that goes to schools that teach kids from particularly deprived backgrounds. So I suspect we will feel our way towards a solution but how long that will take or how easy it will be I don't know. I don't think it will be a problem in 15 years, I think it will be a problem in 3 years.

David – I think it's a problem at the moment.

Jan – I just wanted to add to that question, the comment that I made right at the beginning was about how hospitals or other kinds of organisations that would literally grind to a halt without technology but again I've said around another Guardian discussion that I was covering and teachers were just saying well, you know if the technology goes wrong we just manage and you know if the broadband goes down for a few days we just manage. Why is it that schools haven't managed to get to that stage where they just can't rely, where they can't get on without technology, why is it that schools still seem to be operating...

Tom – is that not a positive thing though? So if technology went down in a school and they managed to carry on anyway is that not a good thing?

Jan – it is a good thing, but is holding schools back because it's almost giving them an excuse to say, okay well we don't do that because we're not sure our broadband can handle it or we're not sure if we're going to trip everything out, is it holding them back?

Tom – I guess, that is a good point and I would say that the focus of this or a few of the things we've just been talking about is too much on the actual hardware itself and not enough on the mindset I suppose. We took that 3D printer to South by Southwest a couple of weeks ago and it broke as soon as we got there, at a trade show and so we brought a glue gun and some sand and some cardboard and started showing how 3D printers work by doing that and the idea of technology breaking being the be all and end all is definitely not the issue I would say. It's being given the freedom and the validation to adapt accordingly if that does happen and to adapt to user technology as and when it becomes available in a classroom, so the idea that they are resources for experimentation rather than an answer I think is really important.

Jan – Does anyone else have any thoughts on why schools haven't caught up, why they're still happy to revert to pen and paper.

John – I wonder if it's because schools have two functions they have got to play at the same time which is the educational one and also the kind of babysitting/crowd control one and the last thing you want if you're a teacher is to be distracted for 20 minutes trying to get the broadband working while the kids run riot, you need something to keep them occupied now so I think they would always want those kinds of insurance policies of a non-technological lesson plan in their back pocket, I don't think that's going to go away.

Ed – I would add to that, that it gets back to the comment before about how do you get something that's initiative, that's a fringe dwelling kind of trend firmly ensconced at the centre of a school community and I mean that as, again not just as the technology, but the full infrastructure of learning and the ideology of learning and like any trend, if you've ever been a teacher and an experienced teacher, you sit in the staff room waiting for it to go away because you know "this too will pass" and the problem is until you have – and I don't know in the UK what the drivers for authentic change is – is it a political party, is it industry, is it university, who is calling out for core change and how is it integrated and where is it integrated? Is it integrated at the school where you expect to snap your fingers and make a change or is it integrated at the Teacher Training College as in institutions that are forming the next generation of teachers and learners. I don't know the answer to that I'm a stranger in a strange land in that sense – no, it's not a strange land let's make that clear! *laughs* - but I don't know the answer to that but I would say that as long as it's seen as intrinsic then power cuts won't matter and people will fall back upon the old ways and if a brain surgeon all of a sudden had no scalpels, what would he do? He wouldn't operate.

Jan – I know, before I went into journalism I started as a teacher and that was 13 years ago and even back then just the thought, it was a fear, you stand up there you try and do

something and as John said, it goes wrong and while you're trying to put it right the kids are hanging out the windows – well in my classroom they were!

Ed – that being said I think it's a real credit to the profession of educators that you can unplug everything and they should be able to pick up a pen and paper or go to a chalkboard and say right, let's take these same concepts and work with this technology and I do think that's a credit to a fully developed comprehensive teacher.

Jan – It's worth adding actually, that when I've been out to see coding and computer science in schools, some of the best computer science teaching I've seen has been on pen and paper rather than actually using computers which is really interesting.

Qu: Before joining Pearson I used to install Managed Services into schools. Two things surprised me doing that job, was that you can become a fully qualified teacher without using an interactive whiteboard, without using any of the educational technology and you can become a Head teacher with less than the skills required to get a GCSE in IT and at the same time in most secondary schools the person who knows the most about IT is someone that's left school three years ago who sits in a basement somewhere with loads of wires and machines around – isn't a simple thing to do, could just be to up the skills to start the requirements to be an educator, to know more about IT.

Jan – It's a good point. There's a lady there in the pink?

Qu: Katie Theobald, 20:20 Delivery. I think it's interesting because we still seem to be blurring the line between the concept of very specific knowledge like Computer Science and making a website for example and just basically living in the modern world. I mean if any of us lost internet access we wouldn't know what to do, basically, and yet in a school it's quite possible as you say to carry on but the interesting question there is what impact does that have on young people when they go out into the wide world where you can't function anymore. A really interesting single example is that they've looked at how people learn from screens and from paper and people's ability to monitor when they've learnt is much stronger from paper than it is from screen and one can argue that's because they've spent their whole life learning from pieces of paper and they know for example they get to the end of the page, they've spent so long doing it they've still got this much left to read. So how do we actually move from a situation where at the moment the feeling is, this is a bit of leaning you do in the subject to do with technology to just actually the modern world runs on it and so how do we make our schools run on it.

Jan – if we can take a couple more points and then maybe put a final question that tries to bring all of them together I think.

Qu: Jonathan Simon from Policy Exchange. Just on the comparison between schools and hospitals a couple of quick points. One is don't assume that all hospitals are the same, so some

hospitals are really really teched up and some are not and really struggling and they have exactly the same discussions in the health sector. The other comparison between hospitals and schools is that if you're in a hospital there is absolute slam dunk concrete 20 years of peer reviewed evidence of what technology will do to outcomes so you know the benefits of key hole surgery versus something else, you know the benefit of gama therapy, you know the benefit of protein growth therapy, you know you cannot make somebody stay alive unless you operate on them in a technologically enabled way. There is no equipment in education, there is no slam dunk 20 years worth of stuff that says unless you teach somebody through technology it won't work and that's why it doesn't happen in schools. There isn't the equivalent of saying for £5,000 per pupil you could only get somebody their GCSEs if you use this tech and once that happens then it will get adopted hugely wholesale.

Ed – I couldn't agree more. One of my most frustrating moments was my iNACOL Conference, this massive online learning conference and I felt like I was coming into a Star Trek convention and I didn't speak Vulcan and I was trying to keep up, my first time, but I cannot tell you how many times I heard people touting the phrase Best Practice and I finally stirred up the courage to ask "Shouldn't we be calling it Emerging Practice" because as you say, without a deliberate effort to have concrete evidence through careful research then we're shooting around in the dark. And the other issue is we're still having, in some cases, to find to the terms. People still debate what is online, distance, remote, hybrid, blended, all of these terms for learning still people debate. So you're absolutely right what will actually push us to an area where we can fight the good fight for change that lasts and brings change to the centre not keeps it as some time of marginal interest with one guy who is a techy in a closet serving that same kind of "well we ticked that box" mentality. The only thing I think will get there is exactly what you're talking about that kind of hard evidence.

Jan – A quick comment from Louis?

Louis (Pearson) – Hi, it's Louis from Pearson, that leads to my question about data because the only way you can reach that point of evidence is if you start gathering the data and using it appropriately so the difference between ipads and workbooks is there is a huge volume of data that goes into an ipad compared to a workbook and a lot of the data collection and analysis could be automated but the trick is what happens next, what do you do with it so that data can have different purposes, it can be used by the learner and their parents for actually learning and can be used by the teacher to help them teach, by the managers of the schools to help them manage the school or by policy makers for governance reasons. But I think there's a lot of work to do to improve our data literacy skills for all four different stakeholder groups and make use of all that data that's going to be generated because there's some pitfalls in there as we've seen in the US recently where if you use that data inappropriately, you don't communicate, it's

not clear who owns it and what it's been used for I think there are some potential trip falls ahead.

Jan – Do we have a couple of really really super quick points at the back there?

Qu: Increasingly teachers are hearing about the value of direct instruction and teacher taught which is often put at odds with discovery based learning and enquiry based learning and I just wondered if the panel had any thoughts on where this kind of technology sits with pedagogy – does it embrace one or the other, can it embrace the whole range of different pedagogy or it is creating a new one?

Jan – That might actually be a nice one to end on I think, if everyone wants to echo their final points?

Louis – Yeah, I think that it's important to recognise that the vast majority of learning takes place outside the classroom that the role of the teacher has to be really to direct and to shape learning, if I'm understanding your question correctly. I don't think it's about projecting information anymore I think it's about helping people sort the information that they encounter and I think it's the same in every single field, the problem is no longer giving people the correct information or getting people the right information it's helping them process vast amounts of information and I think if we thought about our day to day lives what skills do we most require that is one of them. So I think it's much more about facilitation than projection of information.

John – I know almost nothing about actual pedagogy so I'm not much use (on this question) – I do think we're still very much feeling our way, there will be some areas in which technology can totally revolutionise the way you learn things. I don't know if anybody has used DuoLingo the language app, I've been using that and thinking god if this had been around when I did my GCSE French life would have been so much easier! There are other areas in which technology probably is a distraction and it's not what you should be spending your money on and you shouldn't be worrying about the broadband and you should just be standing there with a piece of chalk. I don't think there is a straightforward list of which is which at the moment I think it's going to take a few years for any sort of consensus around that to emerge and as has been said we're going to need a lot more evidence before anyone can feel confident about that.

Ed – If I understand the question, I don't see the conflict between technology and the teacher talk model as long as when they meet in the middle the teacher talk on this end was "I'm ready to talk according to my script on my topics and you're ready to listen" when technology meets that the teacher is talking about what the student wants him or her to talk about, needs him or her to talk about, when they need to hear about that and so that dialogue as I said is directed by the learner not the teacher, so teacher talk I think is as important as ever but I would call it teacher student dialogue.

Tom – I think very much what they said to be honest. Yeah, I think the idea of the directed imparting of information versus the sort of sharing of exploring information is the key thing and, just coming back to the theme, teachers having the freedom I suppose to feel comfortable and confident to do that in any way they see fit whether it is a pen or paper or using technology, it's just another device, another thing. I just, really quickly as well, on the evidencing I just worry, the distinction between healthcare and education is interesting because particularly in the technological context if we're waiting until we've analysed and assessed every piece of technology to the point that we understand its value it'll have moved on so fast and so far that it's almost irrelevant so if you start assessing to that level whether an ipad is a good thing to have in a classroom then you should probably be thinking about google glass or whatever is next and it'll be too late. So I think it's much more about, coming back to it again, creating the space for teachers to be able to experiment and feel validated in experimenting in these different things without the fear of failure because people will move on so fast and always move on so fast that if they can remain interested and inquisitive and open to new technologies and the forefront of that growth then that I think is the key rather than feeling like they need to be backed up with evidenced expressions of why that is a good thing.

Jan – Martin just has a question or point to add.

Martin – Martin from Pearson, just two quick follow ups, firstly thank you again everyone for being here and the fact that the session has overrun now probably means that it's been a really good free flowing discussion and we could probably go on longer still. The two points are; if anyone is interested in this extraordinary space we find ourselves in Tom has offered to give you a quick look round afterwards so if you can hang around afterwards Tom can give you the guided tour. The second thing to say is out of this discussion we'll be in touch with everyone who is here today because we would like to generate to polling questions to ask young people in terms of what they would like technology to do and to achieve. We've got a group of Youth Ambassadors that we worked with last year and we asked them over the weekend and probably the most interesting comment that has come back so far is that they want to understand from other young people as well as their own views, why technology works for them and the most interesting was someone said "it works best for me when I understand why I get stuff wrong and so it probably goes to the data points, that you get that sense of dynamic feedback and you a quick understanding of where you've gone wrong. So that's the winner so far but we'll be emailing you all to see what you think we could ask to get more insight into this topic from the learners themselves.

Jan – I just really wanted to sum up what I thought was the most interesting thing to come out of this discussion is it always comes back to people. We started talking about technology and we started talking about kit but I actually think that the things that came out most strongly really was the need to upskills, not only teachers but support staff in schools so that schools can

really be innovative and creative, and to make funding available for that. Also the role of teacher, what is the role of the teacher in relationship to the technology, those things came out really strongly. We didn't get a chance to touch on it but I know there's a school where I'm governor we have endless endless conversations about this but it's this fear about technology and the school where I'm a governor, for example, it really stunts their creativity and I'm always telling them this because they're so frightened for example of social media and they're so frightened of what will happen. You know we mentioned very briefly the bring your own devices for a lot of schools that just opens a huge can of worms for them and they're not ready to tackle so I think it's about up-skilling teachers and up-skilling support staff in schools and also I think this need for research about what works and what doesn't work.

So thank you very much to the panellists for all your thoughts and for your questions, I think you're going to be around for a bit if anybody didn't get a chance to ask to a question they can ask you.

*** END OF SESSION ***