Futurelab conference transcript

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Designing for change

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Sean:
Good morning, everybody. Welcome to Stakeholder Design and my logo brought to you in widescreen. It's meant to be quite square but it's one of the themes that I'm going to be looking at today, that things aren't always as they seem. So although you're looking at this logo stretched out like that, it is actually squarer. Unfortunately, the consequence of this projector is that, as we're looking at all the images throughout this presentation, they're all going to have that stretch. Now I was talking to a guy recently. You can probably tell from my voice that I'm from Belfast and we were talking about how things aren't always as they seem and we got talking about the Titanic. And he goes, oh yeah, that was a terrible disaster. I said actually the Titanic wasn't a disaster; what happened to the Titanic was a disaster. And he looks at me and says, you're right, they should never have built in Belfast.

I thought that was really interesting because Belfast as a city, its history is of innovation. We built the world's first sinkable unsinkable ship. We invented the pneumatic tyre; we used to have the world's biggest rope works, we had the biggest shipyard. Lord Kelvin, the physics teacher, was born in Belfast. And yet somewhere in the last 100 years we seem to have forgotten all of that history; we've forgotten how to create things. So Belfast is now coming back to life again after decades of trouble and hopefully they've now gone forever. But it's clambering around trying to open factories that will make T-shirts, opening call centres, all of the cheap service stuff based on the fact that it doesn't cost so much in Northern Ireland as it does somewhere else. And what they haven't realised is that it doesn't cost as much in China as it does in Northern Ireland.

So we need to recapture that imaginative capacity and what I'm going to be suggesting today is that about 150 years ago there was an incredible explosion of creativity and innovation in the realm of education. We moved from not having an education system to having something that fuelled the growth of an empire. Educated people working as missionaries and teachers and diplomats and soldiers and manufacturers and industrialists, all of them came from that education system. They're people whose names we've forgotten now, people like Henry Wilderspin who actually invented the playground. And one of the speakers was talking about the time before we had things: well, there was a time before the playground. Did anybody ever consider that before?

So we need to just hold on to this idea of change, that it comes like a big neutron bomb going off and then, because of its brilliance and because of its scale, we tend to just accept it for what it is and, before you know it, we've stopped innovating, we've started perpetuating. So I wrote an article for Futurelab a few months ago and I was looking at this question of change. And I was drawn to this book about the Millennium. Do you remember just before the Millennium when we all thought that planes would fall from the sky and our laptops would stop working? We were caught up in that same Millennium myth of this epoch changing over. And a guy wrote this book called Millennium and he said, do you know, if there was a museum in a distant corner of a galaxy and it had an exhibition on Earth, it would just have two items in it. It would have a can of Coke and a piece of chain mail and it would say Earth, 1000 to 2000. And it got me thinking: what two items would we take forward and put into this galactic museum if the subject of the topic was Education in Britain from 1850 to 2000? What two objects would it be? And I thought, well, it might be a blackboard and a whiteboard; that would be pretty good. It could be a piece of chalk and a marker pen. But actually this is my favourite one [shows images of a slate tablet and

a tablet PC]: 150 years of constant change and development. And it raises the point that a lot of our focus as educationalists seems to be on the design of end products. We're not doing very much to design the service itself, as provided.

I just want to give you an example of that now, ranging over about 150 years. This is the earliest photograph of a classroom that I can find. It's back in by popular request, by the way, because people love seeing these pictures. But, if you look at this classroom, you'll see that in fact it resembles a church more than probably anything else. Here we've got all of the people who've come in and they're sat silently in rows facing the front. They're dressed up for the occasion. Shortly, in will come the parish priest who'll stand at the front and he'll deliver the sermon pretty much as I'm controlling the session now. And this is not really broadcast; this is very narrowcast in its approach. It's quite interesting if you have a look at the furniture that they're using. That furniture is far better than the furniture that we use in our schools today; it is durable but, as you can see, they're sat quite high up. Their posture is more like sitting on a horse and they've got sloping desks and they're upright and they're able to maintain their concentration much better. Probably more important, they were interested because the rest of their lives were so full of drudgery that coming to school was actually a novelty and it was a route to go on and do better things. Today school is a chore and I think our mission as educationalists and as designers is to put the delight back into going to school. How can we make school so interesting that it doesn't have to be compulsory?

Well, let's just have a look at the various initiatives that have been introduced over the years to take us from there to where we are now. Over the last 150 years we've gone from an agricultural economy in which, until 1851, most people in the UK lived in the countryside. We've got from that to an industrial revolution. The agricultural age lasted about 6,000 years; our industrial economy was with us for about 150 years. We've had the rise of the service economy – and let's just pick the National Health Service, 1945, as a symbol of when that got underway. About 80% of our wealth in this country is now generated by services but that's seriously under threat now from countries like India where they have 1,000 universities providing law courses, they have the same common law as we do, they speak English, they're in a better geographic position for most of the world's trade and they're really hungry. And our economy is now giving way to this new thing called the Knowledge Economy which is still conceptual. None of us really know what it looks like and we don't know how long it will last, but we do know that the tools and the skills that we're providing our children with right now are not suited for it. Well let's have a look at how our classroom's developed over time. So they went from this to this, to this, to this and there's one that we took about three weeks ago.

If you look at the posture of these children, what has 150 years of development done for posture? And those early ones were set up to benefit those children, to help them to learn, and today the furniture that we buy is bought because it's cheap and it's bought because you can stick it on top of the table at the end of the day and that makes it easier to vacuum the room. They also make it completely impossible to concentrate after more than about 20 minutes. To be fair, no, you can't concentrate; you have one thought running through your head the entire time: my bum's sore, my back's sore. Look at the positions they're in. And that's what happens when design is approached just from a product point of view, and it's what happens when educationalists who are specialists in the delivery of learning but aren't specialists in the delivery of change are allowed to lead the situation. Now I'm not saying that they shouldn't have a place in it; what I am calling for is a partnership. When the first explosive burst of innovation and education happened the people brought together were from different disciplines and different areas and they worked in partnership to meet the needs of a whole community. And I'm saying that, as we move into a new economy, we need to do the same thing again.

So I'm going to talk a lot about 'stakeholder design', which is the idea of working with stakeholders, as opposed to working for stakeholders. Because as teachers, you might recognise, you spend a lot of time working for your stakeholders and the challenge is, in

fact, if you're going to get into personalised learning, Every Child Matters, to start working with them. And what I'm calling for is more of a partnership between the design industry and the education area as well. So here are some examples of it. Over on the left there I'm doing some work in Lancashire with the Director of Children's Services. What they're trying to do is think about Every Child Matters and, rather than how do they squeeze it in on top of all the other policies that they've got, how can they just reshape themselves so that they can live and breathe the spirit of it? And they talk a lot about the different silos that have been set up and how these silos and systems that they had were all set up to help them do something but, over the course of time, it's reached a point where those silos, those isolated areas where you can get on with things, have become a problem. And the systems that were set up to allow you to stay on top of things have now mushroomed to a point where they're preventing you from getting anything done. So they're looking for ways to do something better and that's an area of service design. On the far right there you can see a seat which actually has quite a lot in common with those early Victorian ones and I helped to design that with the manufacturer, Anthony Hill of Stage Systems. And this is a prototype which was put into the classrooms and we actually invited the children to try and wreck them – and they did. The lessons learned from that were the ones which allowed us to make it better.

I read a book when I was on my research trip and it said that the discovery of the North Pole was accomplished in stages and, as each wave of exploration set out and failed, the learning from their failed effort was applied by the next to help them get closer to their goal. And we have to contrast that with the kind of policies that we've got whereby you send a memo going, from next September all schools in England will do the following. Now, back in the Victorian era when everybody was white and everybody lived in the countryside and everybody was interested in learning, you could get it right in one parish and you'd probably get it right in every parish. And today, with 150 languages spoken within a mile of where we are right now, if you can get it right in any parish you're probably doing well. And the danger is that, by having this institutional approach, it will actually go wrong everywhere. So let's have a think about the idea of culture and not renewing our buildings, not thinking about our schools as a place where we do things, but thinking about schools as a way of doing things and asking yourselves are there any other ways we could do that might be better than the one we've had before. And I'll be showing some examples of that as we move through this talk.

So there are a few points just to consolidate that section of the talk. I think that our challenge is to design new ways of doing things as well as new things. I would invite you to think about the creation of our national railway infrastructure which, when it was done in the mid-Victorian era, was a world first and everybody watched and everybody learned. And that's why we've got a terrible railway system and everybody else's is quite good. And now that we're doing BSF, I promise you exactly the same thing is happening again. All sorts of countries are watching us and they're learning about what we're doing and the folly of our policy is that we're trying to do it in one go everywhere. And we are at serious risk of building the very last examples of the old way of learning at vast expense when, in fact, the opportunity is to be the first explorers, the pioneers, marking out a new way of doing things with experimentation, consolidation and knowledge, applying it to an ever better type of school, an ever better system of education. And all we have to do is input into that the idea of continuous improvement, as opposed to perpetuation and tradition. I think that the approach that we're taking to schooling is quite uniform; it's interesting to have schooling, uniform, put people into a class, working class, middle class. Are we really going to make personalised learning work in that way?

There was a time when the guy who founded IBM said that he thought that we would probably only need five computers. And I imagine he thought there would be one on each continent and there would be the king and the rest of us would be the servants receiving this cascade of information down. And the fact was, what actually happened was that we all got mobile phones and we're getting rid of them every six months and this communication is happening on a much lower level but there's more of it. And again, can we do something

like that with our schools? Could we take out of our head the idea that a school is a self-contained physical unit that is ultra powerful, has everything centralised? And could we replace it with the idea of network learning and could we, as teachers, become the facilitators of that change? So these are some questions for you. Here is why we have to do it. I was speaking at another conference recently and I found out that 80% of black children leave school at 16. Now, in 2012, the year of the Olympics when we all come together as one, half of all the jobs that are advertised in London will require a degree.

So we are automatically and inevitably, within one seven-year school cycle, moving into an apartheid system in terms of employment whereby all managers will be white and black people will end up doing the administration jobs. Our system is failing those people and here we are; we keep asking ourselves how can we shape these people to the system, how can we get them to come to school, how can we get them to pay attention, how can we get them to pass these exams? And maybe what we should be asking is how can we shape the system to those people because, believe me, intelligence is sprinkled randomly absolutely everywhere. If intelligence is sprinkled randomly then the system is benefiting the middle class more than the working class and we have to consider how we're going to change that. And I also worked in foster care for a while and was really shocked when I found out that children in foster care were officially exempted from the school results. So, in other words, because your parents were involved in a car crash, you might not get to go to university, and that's the kind of thing that Lancashire is trying to come to grips with now and it's quite hard, and it's a real honour to work with them on it. I think we're going to get there but I promise you that their system of dealing with children's services in five years won't look anything at all like it does now, but it will be a lot more effective.

So that's setting the scene. I'm asking now how can Britain recover from that kind of slow and stately decline that we've seen. How can we turn it round? And I was really lucky because, over the summer, I was able to spend about three and half a months travelling around, looking at real innovation and learning environments internationally. Unfortunately, most of that was in the southern hemisphere so I'm now having my third winter in a row. But it was a true privilege to be able to do it. And I want to start off here by showing you that picture up in the top right. Does anybody know what's happening there? It's a statement which is an obvious statement. These are children moving between lessons but actually they're in secondary school and they're engaged in an experiment because, at that school, teachers traditionally have been the ones who have moved between lessons and it's the children who've had ownership of the room. And all the kind of uncertainty that you can see in that image is because the teachers are thinking this will never work, it will be chaos, children moving around between lessons, imagine that. And they're chaperoning them around, bringing them together, and it's the same approach that we have when we consider the idea that maybe the children should have the rooms and the teachers should move around. So the attitude to risk seems quite uniform and it's interesting to see, even in an example there, of how people have to work through a process of change. And they'll get it right of course; by now the children will be happily moving back and forward between classrooms themselves and the teachers will be asking themselves, is this better or worse than what we had before.

And there on the left you can see a bus that is parked in the school and they've just allowed it to be converted into a private study area for the children, so they've shown quite an unconventional approach to the use of space. It's a really nice idea; the kids love it. It's their space because it's different to a standard classroom. And that quote says: do not follow where the path may lead; go instead where there is no path and leave a trail. To have that in your face as you arrive at the school every day and to have teachers smiling on you when you try to set a new trail is a really wonderful concept, and in Singapore, where they live in constant paranoia of being overtaken by the other economies in their area, they're doing the best they can to stay ahead and you have to applaud them for it. I'll be talking a bit more about the robotics as well. This is Rulang Primary School and they say it's a primary school and the kids I'm going to tell you about were aged 7 and 8. And they spoke English, took me around and showed me without the teacher needing to be there,

and they have ordinary classrooms just like most schools but then they also have a robotics centre. And the robotics centre looks extremely like a design studio, which is to say it's a mess. It's full of junk; it's full of bits of machinery that you can put together using some software called LEGO Mindstorms. It's fantastic. The complexity of that language onscreen is frightening the first time you see it and then it's even more frightening when you realise that these 7 and 8 year-old kids have taken to it like a duck to water and are completely at ease with it.

So the task that was given to these children, this is completely true. Singapore is a small island; it's also the home to the world's second largest oil refinery business and so they were told that Islamic terrorists had planted bombs on the refineries. One of them had gone off and, as a consequence of this, they were told to imagine that the oil was now leaking out all over the sea around the island and that the oilrig itself was now too dangerous to go onto. So it would be their job to conceive of and then design and build some robots that would be capable of finding their way around an oilrig on their own, identifying the bomb by feeling for it, diffusing it, could then jump into the water and clean up all the oil. Not only that, because their parents are very worried about the situation, they have to write a website keeping it up to date with how they're getting on so that everybody can feel safe or understand where they are. And because the process of innovation is likely to result in new software code or new ideas for products, they also had to put together a business plan to sell everything that they knew at the end. 7 and 8 years old. And I would show you a video of it happening but the noise levels in it, because these kids are totally engaged, they're collaborating, they're working together, and the thing that comes screaming out at you while you're there is just how much they're learning. And they learn by problem solving. The other thing that they're learning is all those soft skills that will help them to get employment in their life, working with others, teamwork, collaboration, integrity, work ethic, application, a sense of personal confidence within your own ideas – it's all right there. So, rather than show you a video of them at work, I'm just going to show you another video and you can start to imagine the kinds of things that it's possible to do with robots. So these are made by Sony.

[Video clip - can be viewed at www.zippyvideos.com/4781086334682216/sony_06]

So, onto New Zealand where, again, you see there's this kind of paradox in action whereby the schools that I was recommended to go to struck me as disasters in many respects but, with a little bit of routing around, I found some quite interesting stuff. And that's often the way with innovation; innovation is never really a showcase or a demonstration project. It's always a kernel or a thought or a concept. So I'll just talk very briefly about some of these. Top right there is a school called Botany Downs. I met the principal there, a fantastic guy, really very clever, very committed. He inherited this school that was designed virtually at the sole command of the previous principal. This was one of the recommended schools that you're supposed to go and see and, first of all, what really struck me was how much like an airport it was. If you've been in an airport you'll know that it's about mass movement of people. You have these channels that you move down, you have the departure gates, all of that. And here we've got the same lines of movement and, instead of the departure gates, we've got the classrooms all arranged for a purpose. And then the longer I was there, the more I thought how long would it take to turn this into a prison. And I thought about a weekend. If you put some cameras at each end, maybe put a few machine gun posts at the far end and put some bunkbeds into the classrooms, you'd have a prison before you'd know it. And the operation of this building is all about mass movement under control, just like an airport. So the principal there, Mike, was quite upfront about it. He said towards the end, our children do really well here and they're very focused; I think they're focused because they know we can always see them. And you have to ask is that really the kind of conditions in which any of us would like to work. If anyone's worked in an office, can you imagine working, knowing that someone can always see you and what you're doing? It's not a pleasant experience but it's one where you've got very little choice.

At the other end of the spectrum we've got a school called Unlimited which is in Christchurch. And there they have literally subverted every single convention. It's not recommended, but I recommend it. It was set up by parents and I'd just like to read out the core values of the school. Students are central in directing their own learning. They follow individual interests and enthusiasms. Curriculum and qualification needs are met through a student's chosen path, not a prescribed route. Learning experiences extend beyond boundaries of place, time, age, methods and areas of study. The entire community is a learning environment. And it goes on. Unlimited is actually built on the top floor of a shopping centre and it's nomadic. Instead of using all that money that you have to put into rates and rent and maintenance of buildings, they take that annual money and they use it to rent this huge space right in the heart of the business district. So they get these wonderful empty buildings, the top floor of an office block or its basement, the shopping centre, and they can reconfigure it all the time. The kid you can see in the bottom right corner there, he's 16, goes to university. The reason that he does that is because he's running his own business at Unlimited and he's been exempted from all sorts of components of his business studies courses. He's far too clever to be doing the work of a normal 16 year-old so the school allows him to go to university. And it's quite a typical experience there.

The other end of the spectrum, here in New Zealand there's a really serious problem to do with children from the Pacific Islands and also the Maori community who, through their lifestyle, have experienced particular difficulties in terms of going through the normal established Western educational system. They're not stupid but they find it very difficult to adopt what are somebody else's cultural patterns for a few hours and then to go home. And they're very good at working with their hands; it's part of their culture. So I met a head teacher in Auckland, an absolutely fantastic guy. These kids here, each would play truant on average for over 100 days last year. And he brought them back and he started talking to them about why is this and he eventually found out that if you offered to work with them, say, building something, they'd be much more interested. So that was fine; he showed one of them how to make a wall. The kid came back the next day. He said, do you want to build another wall. Yes. How many bricks do you think we'll need? And he started working it all out. Do you want to fill that hole in? Yes. How much cement do you think we'll need? He's using construction manuals as a way of encouraging this particular child to read. And whereas two years ago I think he told me that there were 17 children and his expectation is that each and every one of them would have ended up unemployed and probably in prison - one of them had a brother already in prison for murder – he said, of those 17, 15 this year have secured apprenticeships. And he was being told off by their inspectorate because he was excusing them from school for half the week instead of forcing them to come.

So the more open-minded we can be, I think the better. This is Unlimited, the shopping centre. Look at this: this is a school. They've got a meeting space there. Remember the bus in Singapore? Unlimited has a bath. Why not? If you want to have a chat in the bath, why not? They've got gaming machines that they get from junk shops and the kids work and fix them and they put the money in and the money's used to buy new ones for them to fix as well. And they've got this epic collection but they've also got people here, effectively scientists and programmers and engineers, putting stuff together again. That's one of the teachers on the right. And again there's Tom on the left. Let me just play you a short video clip of some of the students talking about the businesses they've set up at Unlimited and, when you see this, I just want to point out to you that the interview took place in the only office in the entire school. They weren't going to have one but then eventually they concluded that, from time to time, in order to have confidential meetings, they needed one office. So that's where we were when this happened.

[Video clip]

So that's the child's view of school and their school. They had three children last year who came top in the whole of New Zealand in particular subject areas, so it has no implications for their exam performance. It's just that more children pass the exams.

So I'm going to close by telling you quickly about a project that I'm doing with Futurelab at the moment, and thank you very much to any Futurelab reps here; I do love working with you guys. The starting point for this was an idea. Have you ever seen one of those musical fountains, one that dances? Well, the thing is that if you were to turn off the volume at any point the fountain's just going to carry on doing this. It has no intelligence; it's just following instructions. So I thought what would happen if you were to fit out a musical fountain with stereo microphones so that it could hear what was going on and some motion detectors so it could see people as they were passing by. And if you hooked that up to a computer and maybe invited some children to select how the fountain would respond in certain situations and contexts, just to see what they get up to. The intention here is all to do with BSF, where you know we're building these great new statements, and the symbol of learning in the 21st century apparently is the atrium. And it serves no real function apart from allowing light to cascade in; it's an immediate reaction to dark spaces which was characterising the schools in the, say, '70s and '80s.

I thought, hang on a minute, those buildings are rigid and dry, they're fixed; we can't really configure them. What happens if we get wet? What happens if we engage in fluid learning rather than dry as dust learning? And what happens if, instead of specifying it on behalf of the children, we actually allow the children to create themselves? So that was the starting point and it's leading us into an area where we're having collaborative learning going on, multi-age group learning, cross-curriculum learning. The problem solving capacity, not only of the children, but also of the teachers, is improving. And they're getting something which is symbolic of the new way of learning, something that they can reconfigure and change in response to the needs of each generation of children. And as they do that, of course it reminds them to have a look at the systems and practices and see if they need to be changed as well. And of course the children acquire confidence really early on because they own a slice of the school instead of just having to be there.

So these are some ideas of what they might do. For instance, they might make a speed camera. You're running down the corridor and the fountain just comes to a complete stop. You start walking again and it picks up a little bit, that's fine, we'll put it onstage and maybe it will join in with your end of term performance. I don't know how it would do it. Or use it as a voting device with the different columns showing how popular different thoughts are. It's up to the kids to come up with it and then to make it happen and we're having a fantastic time with it. These are some pictures from when we were there just over a week ago and the children, first of all, applied a magnifying glass to their school, going around it, describing what works for them and what doesn't. And they built this gigantic mural that literally encircled their whole sports hall with ideas and suggestions of what they like and what they don't like.

And then we moved on from that to watching some videos of the robots that you've seen and the rollercoaster and the musical fountain. And I thought I'd just finish off with a vote actually. I can give you a choice: you can either watch a video that was made by a Year 6 girl at the school, following on from this day, and it took her about two hours, or you can watch a video of a gigantic musical fountain which is the one that inspired her to make that video. So, if you want to watch the student video, would you put your hands up, please? And, if you want to watch the musical fountain, OK. I think the students are in charge today, well done. So let's just have a look at that.

[Video clip - can be viewed at www.luckwell.bristol.sch.uk - follow the link to Fountaineers]

I could have shown you a video of children doing dances modelled on how fountains perform; I could have shown you pictures in their lessons. They're now working with their teachers and they've got this object that justifies the science lesson and it justifies the drama lesson and it's really leading to engaged learners who want to come to school. And I hope that we can get something like that going in every school; it definitely has to be led by the design of the service, the teaching and educational service, more important, I would

say, than the design of the building itself. So thank you very much and I'm very happy to answer questions.

Chair:
We've got time for one question before we have to move on.

Q:
I was wondering if you could say a little bit more about the role of teachers in Unlimited?

Sean:
Yes. One of the most interesting things about the teachers in Unlimited is that they don't see themselves as teachers. They see themselves as facilitators of learning and I'm sure there are many people in the room who would agree that that's how they see themselves. But these guys don't teach. Every six weeks the school has a vote on issues that the children collectively are finding interesting at the moment - it might be the war in Iraq or it might be New Zealand winning the Tri-Nations or something like that – and they then focus all of the learning over the next six weeks around those themes. The principal, who is an absolute genius, has discovered over time that he gets the most productivity from teachers who are fresh out of teacher training college. The younger they are in that respect, the better, because they come in, they still remember being at school. They identify closely with the children's experiences and they haven't yet been systemised and they know that they're willing to try new things out. So they stay there for generally two or three years and then they'll move on to another school where, in some cases, they've ended up applying to come back again. But it's a fantastic experience and the teachers see themselves not as leaders of learning but as facilitators of learning.