Tim Rudd

Speaker key

TR Tim Rudd
IE Interviewee

TR Hi there, I think we'll make a start, I was asked to hang on for about five minutes because people are getting lost, apparently; so, I think, we'll kick off now. I'm going to kick off with a small bit of video, some of you have probably seen this little bit of software, the reason I did this is because I've been working with some pupils around the country this week actually, and I was trying to think of different and easy ways for them to be able to take images and then be able to comment on things they like and don't like; not just in the school, but generally, just to get their ideas and the visioning going.

My name's Tim Rudd, I'm from Futurelab. We're probably best known in terms of our innovation in technology areas, but we're particularly interested in trying to transform education. We're not just talking about using technology for the sake of it, we're thinking about how technology can be used to actually transform and improve learning. We've also got a theme around learning spaces at Futurelab, and most of our work is around visioning and trying to get people to think differently, trying to get people to make sure that we don't just build new old schools, more stainless steel and glass is not going to be an answer, and the presentation today is around that.

For anybody who just wants to stay three minutes you can use this little video and then clear off, and if the music's a little bit loud for you, I apologise, I'll try and turn it down.

[video]

TR Okay, sorry if that's woken you up a bit too much at the end of a Friday afternoon. But that little piece of software used, called Animoto, allows you to create videos quickly using image and text. Basically if you've got a bank of images or images you've just taken, it's online, they've got a little engine where you mix your own video, take these slides, put them in there, drop text in and then you just put it in their engine and their engine does the rest. It took me 20 minutes, it's a really effective tool if you want children to actually start expressing themselves around learning spaces and what they actually think about it.

As I said, I'm from Futurelab, and, as you'd expect, we want to try and look at learning spaces in a slightly different way. So today's presentation basically is going to be partially an individual slight rant and partly a Futurelab position on some of the things that we think are missing from the learning space redesign programmes that are going on. Given that it's a £50 billion sum, I think, what we should really be thinking of it as transforming the learning rather than just actually producing new old schools.

I'm going to start really by saying we haven't had enough time. These building programmes have come into existence over the last few years, but we haven't had the same sort of time to really think about what the vision is, what the future of education is going to be like, what sorts of technologies are going to change the way we can learn, who we can learn with, when we can learn?

The biggest one, probably over the last few years, and don't worry, I'm not going to go into lots of detail because I'm sure very many of you are rather bored, or possibly well into what you're doing around personalisation. I think there needed to be more time, ideally when these programmes kicked off, to think about if we are moving towards a more personalised education system and what that means in terms of translating it into design. Just to take you back in terms of the personalisation, when it was introduced, and the more theoretical underpinnings; I know there have been some terrible aberrations of personalisation since, and also some very narrow interpretations.

Basically we had three core theoretical models underpinning personalisation. The first one, which came largely from the government originally, was based on the changing patterns of consumption and production, the move from model T approach to more customised, 'Japanised' or customisable set of production approaches; that we build more products, different products, different makes and models of everything, we get more choice over what we buy as consumers, when we buy it. Of course, it was applied to education, and there are serious problems with that interpretation, whilst there was some good thinking around it. That was a very crass overview but I hope you get the point.

There are other people who came from the more humanist or person centred perspective who said that application of consumption models to education is wrong and dangerous, but would still sign up to the fact that we do need to personalise education in terms of putting the learner at the centre and focussing our curricula, our practices, our services and so on and so forth, around the learner and not to actually serve the needs of a system.

Then you have a third broad concept of personalisation which were those who came from the kind of 'network logic' school of thought, in other words our society has changed so dramatically since the current schools that we have were built that the systems, the practices, and skills taught are no longer relevant or as appropriate. We don't actually normally learn in isolation or in groups of 30 outside of school, - most of you in your jobs as teachers, I know, probably do to some degree, but the rest of us probably don't do that. We're kind of networking with people all over through different technologies either virtually or in person moving to a different site or location; we're using all sorts of different tools and techniques to do that and we seldom are assessed on a 3 hour recall of things we've learnt over the last year.

Basically the argument is that we have become a more networked society, and therefore the skills and abilities and competencies that we need to encourage children to have are very, very different now. Whilst those three broad areas, and, I know, there are many in-between, are very different in terms of where they come from, there were some consistent messages. What we have at the start is that personalisation should lead to systemic change, it shouldn't be tinkering at the edges of what is

already happening, at least in the longer term. Okay, it might be a very evolutionary process, in some cases, where we start to try it, see what works, see what doesn't, it carries on; but, actually, it was about system transformation, and not just tweaking around the edges of what we're already doing in the longer term.

Again, it was learner focussed, it was centred on the learner rather than the system, and out of that we'd start to get more participation and engagement with learners as they started to develop their own negotiated curriculum pathways, and specific learning experiences; so more diversity over the choice of what they're learn, when they learn it, so on and so forth. Again, this was drawing more on the network logic side of things, it was this notion of more co-creation, more participation, more active learning, and the two central tenets, - it doesn't matter which of those three perspectives you choose to follow, - were choice and voice; more choice for learners, but also more voice.

We don't mean some sort of post-hoc, would you prefer A, B or C, we mean real participation and voice, we mean actually learners having an influence over the form and function of their school life and what they do in their school day, or beyond; and the question being, should we even call them schools anymore when we're talking? We've got building schools for the future, but should we really even be thinking of these as schools, because there's such an institutionalised set of baggage that goes with that, it actually narrows our thinking of what is possible?

In terms of personalisation, you could argue if you spend more time aligning BSF or PCP with the concept of personalisation it would take a long time. You'd have to have lots of workshops, discussions and debates about the purpose and future of education. What sorts of things might happen, well, you might have more collaborative spaces, more specialist areas where people can make things, maybe even more technologies to allow children to start to link experts in different fields; or, maybe, other learners with similar interests in different institutions. Thinking it through even very quickl;y you can begin to see the implications for design.

Those sorts of things are the things we might initially start to think of, but, also we might start thinking about the approaches that enable people to learn across traditional age stage barriers, across locations. Perhaps, in the future, we won't have children that belong to one specific school all the time, and we're seeing developments around 14 to 19 areas that potentially could make that possible.

Again, there are aspects of the time and the depth of personalisation in terms of thinking about your design, if you want to go in a more evolutionary manner, you want to kind of try something and see if it works. You might try redesigning the single class where you start to try it out, look at learning, or, maybe, just particular classes in each year group; it's got a depth to it. Also, you need to start designing in how personalisation is going to change because it's not a kind of final point, it's not a point you ever reach, it's something that evolves, it's actually a process personalisation.

So you need to think about it in timescales, how far can you realistically expect to get in one year, two years, five years, 10 years? We're currently working on a project with a number of different partners, DEGW, Penoyre and Prasad and Edisonlearning

on a project called Space For Personalised Learning, where we going to be working with 10 schools. First of all in some pilots, taking a particular space, work with the schools to say, what would personalisation look like for you, and how do we design for it?

We've done a lot of background literature research so far, and we've just got some of the schools signed up to start the pilots and then we'll be doing full-scale projects where we work with the schools to make their whole design briefs, trying to help them inform their design briefs around the concept of personalisation. There will be quite a bit of material coming out from that project, and I encourage you to go and find it as it emerges; if you come to the Future Lab site we'll obviously have links and things to the outputs and tools over time.

The first thing we did is a whole literature review of personalisation, but also personalisation around design. The design teams and the architect team came up with the first four of these concepts to start us thinking about personalisation in terms of design. The first one being responsiveness, the ability to change things very, very quickly, whether that's the environment, your heating, your light, your sound, those aspects, and how much of that is considered in the design brief.

Then, possibly, something you're more interested in, we could have a room like this and we could divide it up into 30 spaces, if we had the right materials and the right furniture, relatively quickly; it's that kind of flexibility, how do we move structures to create different sized spaces, different atmospheres, those sorts of things? Then the adaptability, where you have something more permanent, but actually it's not kind of fixed and it's not kind of load bearing and that sort of thing; things that can be taken apart, maybe knocked down readily and moved and reconfigured later on. Then you've got diversity, different types of spaces and what kind of economy of different spaces do you want in your new building. The fluidity as well is an interesting one, that's the kind of between spaces, the corridors, the little recesses, how can you use them, what will they do, will they provide a different function.

Then there's partialism or incomplete or partially completed design. This is where you design something that's incomplete, and it actually might evolve over time, you actually design something so it can be moved around, it can be played with, it can be tried again; and, actually, over the space of time the real function of that space becomes more apparent, then maybe you might put something more permanent in there.

The argument being that over-design, as most of you probably know in the schools you're in, actually locks in a particular type of learning to a degree. You can change things to a point and you can have more flexibility with different furniture and different lighting and different conditions and different numbers of teachers and pupils, but actually, there's only so much you can do with a relatively small rectangle. The idea that we try to consider that and not lock in particular, I say it now looking at 50 to 60 people, but maybe we try to not lock in certain sorts of information transmission designed spaces if we're to move to more personalised surroundings and approaches.

The fifth one is slightly different in the fact that reconfiguration, by that we mean a space that's in constant change, so you maybe have spaces that don't have particular or fixed needs; that they don't actually ever become a particular department or learning space; the just become things that are changing all the time. Added to that is a kind of reconfiguration related to new technologies, in terms of programming softwares and that sort of thing, and I'll show you a project later that might explain a little bit more of what I mean. Reconfiguring technologies through computer aided design, so on and so forth, changing the ambience, the atmosphere of a space or designing something in that space that can constantly be used owned by children, changed by children, programmed to do something else and react in different ways.

So these five aspects, I think, are really quite crucial when thinking through your design brief; if you're going towards a more personalised future, - some of you won't be and some of you will have very particular views of what it is and how it's going to be operationalised already.

There again, it got me to thinking, we had this big policy coming through, this big agenda around Every Child Matters, and as yet, I don't think I've had anybody even having the kind of theoretical really deep conversations about, forget the subject for a minute, what if you actually designed an environment just around those key principles of Every Child Matters. What would it look like, how would it be different, how would it feel, who would be talking to who, what would the relationships be, who would be on site, so on and so forth?.

I did actually hear somebody saying, well, we've incorporated the safety aspect straight away, it was the first thing we did; their interpretation of safety was high walls, more CCTV. My understanding of Every Child Matters is about the kind of holistic support and safety for young children, which is a very different thing from high walls. Well, you may need it in some areas, I'm not knocking that, but it's a very different thing than just going towards a more panoptic institution, it's about how do you bring those other services in, which may not be formal services, it might be kind of institutions, associations, groups, different people, who made part of that community. How do you actually think of a school as a learning community rather than just an isolated school, which many schools often are, they often operate largely on their own.

Again, with the Children's Plan and Children's Act, talking about multiple services, but thinking back to personalisation, and these project, it may be argued that some of these policies, whilst they're very focussed on children and for children are actually still delivered by adults. How do you actually switch your perspective to actually think, what about if we really did design them with children, for children? The United Nations Convention of The Rights of the Child, how do we allow children to be heard, how do we support them, what sorts of mechanisms do we put in place? Not just let them be heard but actually take action to make a change as a result .

I did go into a school the other day that did say, big sign on the wall that says, 'learner voice, have your say, Wednesdays, one till three, Fridays two till four'. I think we really need to be moving away from that, and thinking, learner voice should be part of the way the school operates, and moving to a different sort of emerging curriculum, a

different sort of emerging practice that goes on there which will be very different in different schools.

Where we come from in Futurelab in terms of actually trying to do this, we obviously don't run a school, we're not the teachers, but we do get involved with schools, and what we try to do is actually ensure that most of everything we do, - and it's easier in some projects than others, - is based around getting children involved as co-designers. For me, and I do a lot of work with local authorities and schools, the first question I ask is, to what extent are the children involved in BSF? Usually I get, well, they haven't yet, there's plans to do it later; we're talking about often schools that have kind of got their first ideas of their vision or their design and there's been no consultation.

The consultation is usually afterwards saying, this is three possible school models, designs, which one would you prefer? That's not co-design, that's kind of consultation aspects, and then usually there are not many mechanisms to allow them to change anything on the basis of what children do say. So it's about embedding those real deep processes, which can be messy, they can take a long time, they can actually be quite frustrating, obviously, but actually allowing children to be part of that design team. If it was up to me tomorrow, that would be the first thing, I want the children to be really part of this co-design practice around new buildings.

It's a once in a lifetime opportunity, if we've got these other policies, they're talking about systemic transformation, increasing learner voice, increasing choice; isn't it a great opportunity to let children be involved as designers around something like this. It may not be about the whole school, it may be about different children being involved in different aspects, but the range of different exposure to experts and skills and problems and debates that they will have as a result of being engaged with that is quite phenomenal.

The skills and competencies, if you take something like the QCA curriculum and just think about the core bits, forget all the other guidance that's around it, just think about the core bits. Then think about what happens if you involve children in co-design processes of something they will see, a real artefact, so it's meaningful, it's engaging, it means something to them, they see the fruits of the labour at the end. Then tick all the boxes, all the different kinds of abilities, competencies and skills that they will actually encounter during that time.

It requires new engaging and different practices, it's difficult because often there doesn't seem to be time for it, and often the teachers will think, well, I'm actually trying to deliver two curricula at once, the kind of more formalised one and then there's this other one going on around design and co-design.

From some of the work that we've done, and these are just some of the kinds of areas where we've actually found there are being great developments, some of the areas that children will look at around sometimes relatively simple co-design projects in the top layer; team working, project management, communication, collaboration skills, all those are developed if it's done as a real co-design project.

The various tools and mechanisms and resources that they maybe see that they wouldn't have seen before, and the way they're used; the way we use maths in school is different, for instance, to the way maths is used outside. The way we learn history is very different to the real history, the way we look at geography as a curriculum subject is very different to the real geography. We had a school who started to look around a project that I'll talk about in a minute, about how they could incorporate more formal subjects in a very fluid, flexible way. So they mapped the actually process in the formal and informal curriculum, it can be done, it takes time, but it's actually much more rewarding at the end of it.

I'm just going to mention this project very quickly which is one we were partners with Stakeholder Design and Luckwell Primary School, which is a primary school of about 200 pupils. A few months ago we actually stopped the research on this, it was the second year, the fountain is now built and the children are now managing it, deciding when it needs to be maintained, how it's going to be maintained.

The idea came from Stakeholder Design who came to use and said, I want the school to build a programmable, interactive, intelligent water fountain in the school. Our first reaction was like, why have you come to us, we don't build fountains, and why would you want to build a fountain there anyway? Then we read further and we had more conversations, and the idea was that it wasn't actually about this specific artefact, it happened to be good because there are certain things around water, and the fact that it was programmable and interactive, it was great.

Actually, it was co-design principles, it was the whole school, the learners and the teachers were going to do this together, and were going to be supported by a range of other professionals in all sorts of areas. We were going to come into the school and help them come up with the ideas and decide what it was going to look like, and do and that sort of thing.

So, for us, it was a real exercise in applying learner voice or aspects of personalisation and choice through a co-design process around a particular artefact. For the school, what they saw was an opportunity that they'd been waiting for, for a long time. They actually wanted to use this to actually try something, try and be a bit more radical, try and actually model their co-design processes and think of them in terms of how would they translate to the different practices and co-design of curricula, different learning areas, and so on and so forth, with the kids being at the forefront.

There are many, many stories, some successes and failures, but this was a final kind of floor plan that was designed on the basis of the children's designs and inputs. The started off from the usual perspectives, some very young children saying, I want a chocolate fountain, we had to say, look, this is a co-design project, it doesn't mean you get your own way, we've got to discuss this, now, would a chocolate fountain really be viable?

We had all those kinds of really adult discussions with these kids from the start, and then they kind of start to refine their views, they started to think about where it was going to go, would it be safe, would it get vandalised, would everybody be able to see it, those sorts of things; then they started to talk about things like colours.

They started to talk about the interactivity and we had to do lots of exercises where we tried to work with basically the programming technology around very simple, we call them drawbots, where you put the pens onto a little motor and they make nice patterns, to get them to think that this thing could do something, could be programmed or controlled, could do something different every day, and that they could control it.

Eventually the children kind of finished the designs, started to work on how do we use the Lego mindstorms software to actually control what this does? How do we use the simulation software so we don't have to keep running out into the playground and seeing what the fountain is doing every time we programme it? It took a couple of years to do this and get it installed, but we finally got there.

We had an independent researcher for it, and these are some of the things, the co-design process was active, it was hands on, it was dirty, it was messy, but it actually had a tangible output and there were ups and downs, but that was kind of part of the resilience learning as well as being kind of quite depressing at times. We had setbacks, we had issues around the kind of steel and how long it would take to actually build this fountain.

The children were learning in mixed age groups, mixed ability groups, had longer periods of time, they were kind of mentoring each other. The children actually now train the teachers on the programming software and they then do it together to train the other pupils.

The bottom bullet point there is the main issue, these are the reflections of the teachers, we didn't kind of do any sort of standardised baseline assessment of this. Talking on the kind of subjective feedback largely, so it's hard to say it definitely had this impact, but you could see it in the difference in the children, their self-esteem, their awareness, the idea that this was a kind of community project, they could actually affect the outcome of things, and they could see it happening day by day.

The children could have adult conversations with a range of different experts, and the teachers reported about how, with many children, they were very, very surprised at the range of skills they had, and it kind of made them feel a little insecure at the time, thinking, we didn't actually understand that child could do this, that or the other; they felt a bit guilty about it. They've now moved to the point where they're actually looking to extend this model with a wider transformation around the curriculum and the school, and it acted as a really good impetus to explore whether they wanted to go towards those different sorts of models or not.

Whilst we're talking about outdoor playing and learning, another real issue around BSF and probably PCP as well, is the lack of emphasis - because it's building schools and everybody automatically starts to think about the structure - is the lack of emphasis placed on outdoor play and outdoor learning as well, so you can still formalise a lot of learning outdoors, and, I think, it's something we do very, very badly in this country, as a whole, in terms of exploring those outdoor spaces.

Going back through various different pedagogies and approaches to learning in terms of experimentation and exploration and children learning by discovery, particularly in

the primary sector, do our environments really constitute areas that kind of really stimulate people and get them to think and relax and play as well? It's ratified within the United Nations Convention on the Rights of the Child, and I was at a school the other day, and I'm thinking, is this school actually breaking convention? They had no space, but not only did they have no space, they didn't link to the various, and there are a lot, there are some brilliant people out there doing wonderful things around outdoor learning and playing.

This is a thing that kind of really worries me is that, do we make enough connections with those other groups, and they're doing fantastic things, I'm sure you're very aware of who they are and what they're doing, but this school had no space. I spoke to the teachers, and they were saying, well, we do the odd field trip here and there, and that sort of thing, but these children, very young children, didn't have any opportunity to play, relax and think about different things in their school day.

It was almost like that's not really our duty, and the children themselves reflected it. I'd tell them to do an ordering exercise around different sorts of spaces, transitional spaces, personal places, small groups, large groups, and got them to order which they liked best. Play was right down at the bottom, and it was because they said, 'well, we come to school to work and learn'; they hadn't made the connection that play was an important aspect of the health and well-being thinking back to the Every Child Matters agenda.

There's another issue being, that outdoor spaces make a brilliant place to actually maybe trial some of this kind of co-design approach; if you want to go down that way, and maybe trial more personalised approaches. Let learners have a voice and trial all the different kinds of decision making mechanisms, it can be great sometimes and absolutely horrendous to try and manage it other times.

Actually, we've got different roles often in outdoor places, haven't we, we'll have roles where we let children out, and we often let children out to burn off energy and come back better behaved. It should actually be a more dynamic environment there, where actually children feel like they've got much more ownership of those sorts of spaces. Therefore, if you're starting to do co-design process and you're not comfortable with it, you're not sure how to manage it and that sort of thing because you're an adult.

Often if you're an adult teacher the children will respond exactly how they think you want them to respond, that you're actually going into their environment to a larger degree, you're actually going into their space that they feel more ownership of, they feel more comfortable, they'll feel okay about having a silly idea about it, which actually you have to get young children particularly to have silly ideas and say it's okay, and then pick out the theme and the things that come back and the things that reoccur, and do that sort of analysis so you're not just doing a one-off snapshot because the children haven't got used to kind of coming up with their own ideas, you have to keep working at it.

That is a great area to do it, outside spaces, and that may not be the school, we're talking about outdoor spaces, you may get them involved in a project and do some initial co-design in a community space or a space that already exists, or, perhaps, an

area in another school. Often under-utilised, if you actually stop and look at the outdoor spaces, and particularly where we've got issues around kinds of numbers of pupils, also maybe when we've got issues around kinds of lack of community spaces. You'll often walk past a school and see, for probably 80% of the day, those spaces are often unused, whether the kinds of general playgrounds or the sports fields, not value for money, but value for square metre, are we getting enough use out of those, could they be designed differently, could they be used differently?

A lot of ideas can be taken from, if you go back and think about the really good designs in nurseries and pre-school areas and a lot of primary schools still do really great stuff with, exciting, interesting, different places, places with different surfaces and so on and so forth. Why don't we think and take those ideas further into our secondary schools, our colleges and so on, why can't they be interesting places, why can't we really glamorise those? I know there are a lot of really good examples out there, but actually some of the best outdoor spaces still happen in the community because there seem to be less formal and fixed rules about what it looks like and feels like.

The SEN area, in terms of how many kinds of senses might be provoked and how children might play is still kind of very different in terms of the outside area, but, for us, it's kind of new technologies. My argument today is varying from what you might normally expect from Futurelab in terms of the technologies and how we look at them. I think, we've had a raft and a very long time in this country where we've had kind of mass ICT programmes, ICT programmes that say, some of the technology acts should be in all schools, because it's 'the future'. It's like this technology will kind of make our schools more modern or more futuristic, or it will serve that purpose. And they're not - most of the times, it's just glorified boxes to deliver the same content in the same way. Okay, there's some great stuff going on, but actually you think of the use of different technologies over the last 15 years in schools, and they're actually used as more efficient mechanisms to deliver similar or the same content.

If you're thinking about outdoor spaces, not just in your school grounds, but outside, and how you can use mobile devices now, particularly with more local technologies, technology doesn't know where you are, where you can drop information into a certain space and you can go back to a piece of software and know what you did there, what you dropped off there, it can be an image. Cell technology, you walk down this road and you'll pass probably 30 mass or so; each one of those has a particular cell. So there's no reason, and it will happen very quickly, we will probably navigate cities by picking up information as we walk down the street which will tell you where restaurants are, where local libraries are, so on and so forth, and people can create their own content or information - that kind of situated learning in the outdoors offers so much more opportunity.

I could go on for several hours about the possibilities of things like mediascapes, where you can overlay virtual landscapes onto real landscapes and actually change what that landscape means to somebody else. To get learners to actually make the content for that, decide what it is, tag it, put a video in there, embed a video in that particular space, embed a cell, embed an image in that space for other people to look at, access, talk about, learn from.

The other aspect though, for me, which, I think, is rather interesting, and I haven't really made my own mind up whether I really like it; I kind of do because it's interesting , it's the whole idea around projection technologies, lights, sounds outdoors. We're often thinking about what happened inside, we don't think about the different technologies that we might use outside to change the ambience, to change how it feels, how it sounds.

Again, if you're thinking about projection technologies and how they're going to develop, there's no reason why, in a few years, you couldn't have the whole side of a building, in fact, we've got them in different spaces, you'll see them all over. You actually think about the different technologies, the lights the sounds, and the interaction that's built within those technologies in some installations in cities.

We've got the ability to change how a place looks and feels, we've also got the ability to change the way a play space or a learning space looks and feels, and what about getting the children to actually use things like sensors to kind of vote. They press a pressure pad and something else happens, a light changes, a spout of water comes up, and really embed those sorts of things deeper in our schools; actually have them as learning spaces and get children to actually think beyond just the kind of viewing and the passive of something, a light, a colour, to actually being interactive with it. Getting it to change, constantly reconfigure that space because if you don't constantly have things in there that can be reconfigured and reused you might personalise it for one cohort of children, when that cohort goes it's a legacy that the new children had done for them or experienced, - keep that reconfiguration in there.

Just to give you kind of ideas from the outside, I'm not saying you should do this to your school, but just to give you ideas how kind of lights and different sorts of technologies might change spaces and give a very different feel, particularly for people who probably want more emotional stimulation sometimes, or actually want to feel involved.

The top, left for you, you've seen the dance mat that the kids use, well, this is actually, I think it's in Tokyo, I'm not sure, but basically not only do you stand on the lights and so on and so forth, but it actually then starts to react based on what you're doing, so it's a whole piece of information decoration, if you want, it starts to do different things. People over the time have learned some of the programmes that are in there, and then react accordingly, so it's real interaction with the environment.

We've got great facades here, churches and a lot of our schools have beautiful Victorian buildings. From my perspective, we don't throw the babies out with the bathwater and get rid of some of those beautiful buildings, but think how we might change them, how we might make them feel. I was talking to a head teacher the other day who was in a real quandary because he didn't know what to do with his space, he had a particular vision of certain areas and the first thing he did is, oh, that big, old, drama studio, let's get rid of it. All the staff I spoke to and all the pupils really liked that space, not because it was beautiful but because of what happened inside it, how it was used, and actually with a bit of titivation, using things more imaginatively, perhaps that would have been a better spend of money than the likely outcome, which is, it's going to get knocked down and a square box be built in its place.

I just want to finish up with a very strange term that I came across whilst doing research for this handbook which we've just produced, which actually focussed on primary capital, but there is a lot of relevance to BSF and design of any learning spaces. It was this concept of biomimicry, now this is a kind of design or architecture turn on the one hand, and on the other hand it's a turn where it actually relates to how science and manufacturing draws from inspiration in nature, the cockleburrs and Velcro, birds in flight ands planes, those are the kinds of big ones.

What was really interesting talking to a group of architects the other day was that, actually this is one of the areas that kids love, you start talking about something abstract like an animal or water or something like that and get them to have their first kind of crazy, slightly mad ideas about how you might theme your designs, or what the elements might be. So they might then start to get more involved with issues around sustainability, of how an environment might become more efficient, like nature.

I just thought aspects like that are really nice ways, like the video at the start, take you such a small amount of time to do, but can be great tools to get kids thinking differently. We're all institutionalised, we've been through these systems; you ask what the school of the future's going to be and we give you a school, it might often be varied, it might have more glass and stainless steel, but often we will give you a version of a school. If you're going to get people to move beyond that and start visioning and going all the way further down to start thinking about the real transformation of learning and spaces, you need to get people away from that institutionalised logic, get them out of their kind of blinkers, if you want and move them beyond. Just throwing in ideas sometimes, particularly with young children, they go around thinking in a different way is a really valuable tool.

There's a few thank you's for the images used in the slides, but that's basically my presentation, so I think we've got about five minutes or so if there are any questions, if anybody wants to raise them, if not we can all go home, it is Friday!