Hi there and welcome to the Moxie Podcast episode 11. This is the companion web show to the Moxie Sessions. Moxie Sessions is an internet economy discussion group held once a month in Auckland, New Zealand. Its purpose is to bring together a group of interesting technophiles from across the economy to talk about how New Zealand can take advantage of the internet to improve its economic performance. My name's Glenn Williams, I'm over here in London operating the switchboard here connecting our guests together for this podcast. Today, we're talking about education – what's going on at school that is relevant to the future of our tech economy? Are children really born digital, or do we need to teach them technology and entrepreneurship? At a Moxie Session just before Christmas – I think it was – there were three speakers: Andy Schick, who is a marketing manager from Network for Learning. He joins us on the line today. Hello to you Andy.

Morning.

Luke Nola who's from the production company: Luke Nola and Friends. They make children's TV shows. Hi there Luke.

Good day. Hello.

And Frances Valentine who co-founded the Media Design School and is now the head of Mind Lab. Hi there to you Frances.

Hi.

Lovely to have you all on and thanks very much for making time outside of the Moxie Session that happened before Christmas. I hope that the holiday hasn't fried all your brains and you still [chuckles] remember what you've done.

Yes, yes. I'll go. I don't want to end up there.

[laughter]

Well actually Luke, we'll start with you. Tell us a little bit about yourself and what you talked about at the Moxie Session.

Well, I have a production company that creates a show called Let's Get Inventing. It's a show that targets kids 8 to 12 years old on TV 2 here in New Zealand. And basically, it gets kids with great ideas. They come on the show and we build their inventions with the help of technicians and amazing experts who pour all their effort into making the inventions work. Out of a 100 inventions we've built, 11 now have patents and the show has done really well. We're so proud that it's in 73 countries around the world including on the BBC in the UK, where you are. I've learned a lot about kids, working with kids, and invention, and learned a lot about inventing and technology, so I'm very passionate about this question and very happy to talk about it.

I think kids are born creative entrepreneurs and inventors. And in some ways, the schools beat that out of them sadly because of the nature of school and the process that has to go through where you got 30 kids in a room that you want it to be quiet and listen. Just the actual process of being at school is not ideal for creativity and entrepreneurship teaching, I believe. That was my point.

We will talk sort of a little bit more about that, I think that's a really, really interesting point. Frances, over to you, tell us a little bit about what you're up to and what you talked about at the session.

The Mind Lab was developed a few months back to address the same need that Luke was talking about – that kids have actually need the ability to investigate and explore and discover. If you're looking at the modern world with technology often they've become consumers but they don't really understand how technology can be used and utilized to actually create new things and do cool stuff and not just sit there in front of a screen. The innovation levels we're seeing at the Media Design School when I was there were diminishing over the last decade, and what happened at the same time as technology revved up. Kids were really weren't tinkering the way they would have before and weren't sort of getting under the bonnet of technology because they were often fully-contained devices that were almost throw-away to some extent.

And so, we were losing that excitement factor around technology and they would just accept and this is cool in its own right. The Mind Lab really is just pushing the idea of getting kids to ponder and to wonder. Just looking at how can they use technology to create new things. If you give a kid a 3D printer, what would they create on that? What would they do if they got robotic kits and what problems could they solve? Likewise with science, technology or whether it be electronics, or even with film and making creative stories. It's really cross-curricular subjects we're looking at.

We're always looking at technology as an enabler and as a tool as opposed to an ICT approach that schools may take, which is go down the hallway to the ICT lab and that's where you learn about technology, which I think is fundamentally where the issues come from.

Great, the Mind Lab sounds like a fantastic new tool. And Andy, I think you're on that same vibe really, with something called Network for Learning. Tell us about that and what you talked about at the session.

Yeah, that's right. Network for Learning is doing two major things. The first is that, it is from a digital technology's point of view, it is getting into every school in the country and supporting them by providing a managed network that is basically unrestrained, unkempt, unlimited internet connection that allows schools and students to do anything that they like from a digital technology's point of view. The key thing, which is pertinent in this conversation, is that it's symmetrical. And that really has an asymmetrical internet system in the past, in the last ten years, which allows massive amount of download and very limited upload has linked itself towards absolute consumption of content and very little collaboration and creation because it is simply just difficult and hasn't enabled the right types of opportunities for that creation to occur. That's the major change that we're looking to make – an education system from an infrastructural point of view.

The second thing that follows on from that is a platform that is in working form called The Portal, and what that does is allow teachers, and at some point in the future, students, to really collaborate on a national scale. Pulling in the likes of content service providers, the Mind Lab and everyone into a single place where enormous amounts of collaboration can take place, and where students and teachers can stand on the shoulders of other teachers and students who have gone before them, and really see strong treks of innovation happening inside of the classroom.

Let's just stay back to Luke's original point. We're all in agreeance that the current curriculum and the past curriculum has been failing students in one way or another when it comes to technology and innovation. Do we all agree on that?

I really want to make a point here that it's an oxymoron to put technology and creativity innovation together as one thing and one subset. They're quite separate things. It's like the process of creation is a very internal thing and it doesn't need technology, and technology doesn't create it. It really bugs me that we bundle technology and creativity together, and I want to hear what the other guys think about this comment, that we should assume that innovation and entrepreneurship are one with technology. Technology is also a new kind of paint brush. It's like saying here's a new shape paintbrush that's curved instead of flat, and that's going to create some amazing paintings. It doesn't. Your brain creates the paintings, who you are creates the amazing work, and how you express that is the technology. And I just wanted to really draw that line.

Yes. So Luke, I think you're absolutely right. We tend to, as a society, use technology or replace real world experiences and real world creativity – the stuff the purely comes from the heart and the soul of the human being – we tend to replace that with technology. My fundamental belief is that technology at best, should be additive to the core and that creativity that sits inside of a person not try and replace it or switch out from it. It should only be additive.

The question that I want to ask is, what is the mission of that question? Is it the purpose to, are we going to create more Peter Jacksons or even more Michael Jacksons? What is the purpose of that question? The question that we're all addressing about who's skills have enough technology and are we going to teach kids about innovation and entrepreneurship? What are we trying to create here? Do we want to create more creative beasts like Peter Jackson, and then technology comes from that, or do we want to create more code writers and cogs in the system if you like. [crosstalk]

Probably the assumption is coming from the perspective of Moxie Sessions and the technophiles out there, how do we create more Rod Drury's from an internet economy point of view. Am I right?

If I could, I think we could get sort of hang up on technology whereas really to me it's a contemporary tool. And in some ways, if kids can be engaged with learning because technology is something they're familiar with and they relate to, that's fine but I agree totally with Luke that obviously it's not where creativity starts but by putting a piano in the room and next meeting, I get to go over and produce great music just because–

Exactly, yeah.

–but I do think it is contemporary. We can't expect that all kids are going to sit down and write great stories on pen and paper because it's not the tool of today. That's what I certainly see every

day, when you are surrounded by hundreds of kids. Actually, what they want is, they do want to articulate the ideas that are in their heads. They do have fantastic ideas, and they've got lots of inventive concepts. But the tool that they relate to, is the one they may actually have a screen, or a mouse, or whatever it might be, and I think we do need to accept that.

The question about the curriculum that you posed Glenn, I don't think there's anything wrong necessarily wrong with the curriculum, it's the measurement of success that goes with the curriculum. A curriculum is flexible. It's been designed but interpretation is that everything comes back to an measurement, so we're obsessed with measuring kids. If you talk to a teacher who teaches five and six-year-olds, they'll tell you they're assessing everyday. Did they scratch their head, and what are they learning, and what cognitive development are they going through? We're obsessed all the way through the school system, whereas if you look at a lot of the very progressive school systems from around the world that don't really look at that assessment until their much later around the age of 10 to 12. When they're starting to have independent thought, and up until then there's a lot more focus on just flexible learning and understanding. The picking on children doing differently in different living styles. Some have got subject preferences, some have got talents, some have challenges. So I think that we had gone down this literacy and numeracy in what we think is the benefit of the child, but to the detriment of innovation, and technology, and creativity as separate but intertwined areas.

So are you saying that some kids have perhaps made to feel that they're on the wrong track, or even failing, at a young age before they've really worked out what their path actually is or what their style of learning actually is?

I think it even goes further. I think the parents are made to believe that their kids have to achieve certain things at certain times as a measure of success and I hear a lot of parents coming in here saying, "Oh my son, I'm really hoping he'll jump up a class this year." I said, "Well what's the hurry? Why is this race till the end?" There is no measure, what we want is our kids to be independent learners and thinkers, and so if you're obsessed for saying that my seven year old got 90% on his exam. What does that really mean? What does that mean for the future of that child's life? There's no real impact on how they're going to be as a mature adult. I think that to me we have become obsessed with this constant looking at children as wanting to be the same and this whole standardizing learning process, is to me, part of the challenge that we face is because it doesn't allow flexibility and delivery. You can teach math for example in a million different ways and some of them will be incredibly creative and really engaging but if the teacher at the front of the class has got a deadline to get an assessment done, they're going to go with the old textbook model that would suit some of those kids in that room.

Is there a problem where the students that excel, or appear to be doing better, or at the top of their class that are given the treats that is experimenting with new tools in the classroom and that sort of thing? So it almost becomes a self-fulfilling prophecy with a certain group of kids that will go through and might have picked up more skills within the current curriculum because they were already at the top and they are given more and more things?

It depends really on what's going on inside of the school from a leadership point of view. Generally if there's a real strategy around how teaching and learning occurs and therefore there would generally be a shift towards more of an individualized teaching approach then I would think that the answer to that is probably no. If technology is in the use of technology in terms of, in learning tools is an adhoc add on then probably yes. 'Oh! Johnny you've finished your work here. You go and play this app on the iPad,' for example. I think that technology's got a place to play in general teaching. Like Frances and Luke have said that it is literally a tool and it shouldn't be seen as a subject to be taught but a tool to further individualize the learning. I think the problem that we've got at the moment is not necessarily the focus on literacy and numeracy. I think it's that we've got our focus on literacy and numeracy — and that we're trying to apply such a strong and direct pressure focus on it, while still using old world methods of teaching which comes down to one teacher and imparting knowledge to 30 students and only taking a subset of those students learning style into consideration. What technology in the classroom allows a teacher to do is, turn the classroom on its head and go and allow the students to use the technology to discover and not in an output-creative way but discover in creative ways how they go in to learn something for themselves.

I've read a vision of the future just recently about a future classroom might look like. All the kids on their own apps and iPads and the teachers merely a librarian if you like, of the technology that

the kids are cruising through and they're all kind of teaching themselves. Has anyone thought about the future of teachers and the role they might play in the future. It might be quite different.

There's a number of schools in New Zealand where that is the absolute norm. You walk into these classrooms and you can't spot the teacher straight away and from these school's perspective, if you can walk into a classroom and you can't find the teacher right away, then that's an indication that they're doing it in "the right way." In that the students are getting on and doing it and the teacher is cruising around the classroom on their knees, on their bum, having a look at what the individual student is doing and supporting them in what they're trying to do and then going to next one. Rather than being the queen at the front of the classroom or the king at the front of the classroom imparting knowledge. Point England is an interesting example of the way that that is happening. You very rarely see a teacher imparting wisdom and knowledge into students. The students are off learning their own thing in their own way, and they know how they learn pedagogically themselves. I had an eight-year-old student come up to me and tell me what the next thing she needs to learn is. The way that she knows, she learns herself and how she's going to go about teaching herself that subject matter. That, to me, is pretty incredible.

Yeah, my only fear about that, that is my son Pete and he's 13 and he's on his iPad the whole day and I don't know whether he's learning or on Minecraft the what. [chuckles]

[crosstalk]

That's a really good point, that's something I want to pick up on and just looking through the Mind Lab, you've got all these very sections that are robotics, science, games, animation, images and a whole lot more in that, of course. Luke, you put together some fantastic shows, one of them being the Let's Get Inventing Show where kids are actually creating real things. I want to pick up on that point though — that you just mentioned there Luke — is there a generation of kids growing up who just uses the technology rather than—

[crosstalk]

That's my fear when you see a kid building a go kart and zooming down the street on it. You know he's doing that and they're learning from that experience. When I see my son on his iPad, I don't know what he's doing unless I really look over his shoulder and he tells me to go away, you know. [chuckles] So there's a danger there I think of kids not using their hands and learning real things in the real world. That's my only fear.

Is that the danger or is that always been the case that you're by-an-large, most people won't go behind the scenes of the technology. They won't pull the computer apart and see how it works though, they will just use it. But the people and the kids who are really into that, the geeks and stuff, they will always find their way to that, they will always gravitate to that and they are always going to whether or not a teacher up in front of the class was going to show them how to do it or not. They will always going to gravitate towards that.

I'm sure they will but then the naughty kids will just go on and watch YouTube and muck around, probably. The same as they always have.

So in the 30's, and 40's, and 50's the majority of kids sat around the wireless and the kids that are probably going to kick them up in the bum and going, 'Get outside and go play.' Then in the 60's, and 70's, and 80's the kids were generally watching TV and then the parents were kicking them up in the bum going, 'Go outside and go and create something' and now we've just switched out a TV screen for a computer screen and an iPad.

I can talk. I mean, I'm the devil and I'm creating content here myself [laughter] and then contradicting my own profession.

Well I really didn't like to say but—

[laughter]

I'm not so sure that the analogy flies as much as that. I think the difference between us are the wireless, and the radio, and then going to television. They were limited by content and also by what was available. There was a huge limitations. The problem with technology today on the screen is there is amazing stuff that works two ways constantly. There's something for everyone. So it is so engaging and so disruptive to other activities and I think we have to look at education as a multidimensional experience. They do need to get out and go go-karts and build a tree-house. They do need some screen time but what I see is solely parents thinking that technology is the answer to everything, and it's not. An hour on a computer a day is not going to hurt. Ten hours in a computer a day will hurt because it's not going to give them the full brawl experience of life.

Yeah, that's a very good point and so getting back to that point of whether or not there will always be kids who naturally gravitate towards their passion and maybe their passion is tinkering, creating, entrepreneurship or any of that stuff that they eventually gravitate towards to. Is there a problem with forcing — not forcing but broadening the curriculum so that it incorporates all this new stuff? Is there a problem that there is a whole section of society and kids who just won't be interested anyway, so why deliver it to them?

I think they want [crosstalk] isn't it? I mean tinkering, and play, and having fun, and mocking around, and having time to fail takes time and a lot of teachers don't have that kind of time.

I think the same could be said about a lot of subject choice, some kids hate P.E. for example. So you can argue this, I mean I'm a great believer in talent clouds, so you get some of the schooled and interested kids together, within the school community, whether it be after school or somewhere else where they can actually— like a personal mosaic of skills. So, if you're the guy who likes tinkering, put them with another bunch of kids of different ages who like tinkering and form a little invention club, but if you're the ones who like to do programming then, great. Go and make a little computer game club and go off and do that because the school can't cater for all of those aspects. But if you find someone who's passionate and who would champion the cause, maybe it's a parent that scores can lead to have an extension beyond just the set classroom time. Because, like I said, there is limitations of hours in the day and teachers can't be specialists on everything but these kids know so much more about things than the teachers know— then give them and help facilitate the ability to collaborate together regardless of what year level they are, or whether they're a beginner and a novice or whether they're an expert. I think if you're looking again at benchmarking, it's the very best in the world. Those schools are recognizing that and saying, 'Hey, I don't know much about 3D printing but if we get a 3D printer — and I bet you a whole bunch of kids would love to use it, and it transforms a learning environment.

So, it has 3D printer in it and it's an amazing example of, I think, the next step of — not the junior of technology but the completion of the circle. The 3D printer allows someone to experience in the physical world something that, until now, has only existed from a theoretical pixel's point of view. I met with a team of 3D printing experts just two days ago and we came to the conclusion that creativity — that does occur — that is allowed to occur, simply in a digital world. Taking that out and printing something out that has been created and holding it in your hand and using that for a functional purpose, is an awesome opportunity to mash up creativity. The tinkering, the nature of tinkering, a 3D printing a steering wheel for your go-kart is a great idea where you can start mashing together these two worlds.

Yes, so cool. We had an eight-year-old who had an idea for a healthcare product, believe it or not, for aspirin. And Fisher and Paykel healthcare printed this idea out and to see his face light up when his invention was handed to him literally from a screen to a hard thing he could hold and use was amazing, and he was one of the guys who got a patent on our show.

Wow. Would you agree that teaching 20 years ago isn't all that different to teaching today, and I'm talking about not only the curriculum but the style of teaching, and if that is the case, can I get you guys to do some crystal ball gazing? It may not be the case, you can disagree with that, but can I also get you to do some crystal ball gazing? The two-year-olds that we see now who are picking up their parents' iPhones and are fully engaged with that, or a little bit older and now 3D printing things, in 20 years, some of those will be teachers, what would the classroom kind of look like, and will it be any different to the classroom now?

I think the true teachers are going to be the writers of the apps that teach. The teachers in the classroom are going to be more like curators of a wonderful art museum of amazing thousands of options that kids are going to have in front of them but the actual teaching is done by the app writers is that, who agrees to that?

Yes, trying to move towards a librarian in an individual support for individual kids, because the majority of kids will be able to literally just get on and do this. They absolutely will always need direction but it means that students will be able to spend more hours in a day, actually tinkering and playing rather than waiting for the teacher to come to them. Which allows more of that play in their artful time to be involved in the learning process, and the teacher will absolutely be a bit more of curator of great opportunities for learning.

I think that there's a big shift. I mean right now, we have what I call a lost generation. The kids are in a system right now who mostly live in a world where the tools are different than their parents,

and is still different from the teachers. They're the most — just a franchise I guess of — if you're looking forward, as you said, the new teachers will have different skill set, but we've got a lot of teachers in the system right now who've been there for 20 to 40 years, who actually have very little reason to up-skill right now. I mean they're not incentivized, they don't get benefits that they suddenly have a warrant to fit this for the 21st century. So that we do have a transitional phase, and I think, right now we've got to address that as quickly as we can. Particularly in the school communities and there are exceptional teachers out there and I see some who I had to think, 'Gosh they give everything to the teaching efficiently to kids,' but then I also see a lot who don't.

So teachers are in more challenging environment say than they were 20 years ago, and that things are changing faster year on year than even before.

I think so, absolutely and I think they do have to be coaches now. They have to coach kids to make good decisions. One of problems I think that we all agreed on when we all met, is that, this inability to fail, it's become a stigma attached to failure, and we need to get them to actually learn to fail and fix things. And teachers, they don't really have that installed in them, but it's a skill set that we all need going forward, resilience and the ability to create ideas, and test them, and see if they go somewhere. Because if we go forward, unique ideas in the economies are going to be based upon people coming up with great new concepts and new products, but they do need to start instilling in children, at a very young age, it's okay to fail. That you can create something and it can be a complete basket case of an idea, but at least through that process, you find a way doing some better. And—

I totally agree Edison had a great quote, "I've not failed, I've just found 10,000 ways of the light bulb not working." [chuckles] I mean you've got to fail. You've got to fail and enjoy the process of failing. I think you did right.

That's a cultural thing in New Zealand, right? That there is no culture of failing like say there isn't like Silicon Valley in the States.

Failure, while in the Silicon Valley, failure costs a huge amount of money. In New Zealand, failure cost a massive amount of time. When you got an education system, that remember not only is dealing with a plethora of new ways of teaching and learning. There is a huge pull towards more pastoral care coming out of these teachers as well. Teaching them wisdom around some of the ways that society is failing them. The family unit is failing them. So a lot of this comes down to the fact that we have very time-poor teachers and them taking charge in up-skilling themselves. Even the school system taking the opportunity to give them more time to up-skill to start shifting there. Thinking in the way that they can engage the classroom in a more innovative way that is supported by technology or allows more creatability. All of that takes far more time and there's a respective of the pull that they have towards many other things that they need to be doing and we need to be teaching our kids around about healthy eating now, far more than we ever did before, and that's a whole other world that requires a huge amount more time. So when you look and you step back and you look at a teacher's time in general, you're pretty lucky to be getting any time spent on core curriculum type of subjects at all, let alone trying to figure out a new way of doing it.

All over as well.

Let alone allowing the process of failure, which does take time. Which is kind of the whole point.

Indeed. Well, on that note, I think we'll wrap this up. It's been very inspiring for everyone to hear from you guys about this topic, Education and Entrepreneurship and Technology in New Zealand. It's also been fantastic to be interrupted there occasionally by some kids having fun or being engaged in something there Frances, what would—

It sounds great. I want to be there. Can I be there?

[laughter]

What have they been doing? [chuckles]

They're doing science and robotics and what else are we doing today? Some electronics and an invention class, so it's going to be lots of fun.

Good stuff. Frances, you're there at the Mind Lab — it's your brainchild. Tell us where people can find it online, and how they can get involved?

Very easy, it's just themindlab — all one word — .com, so themindlab.com.

Perfect, and that's based in Auckland. Any plans to roll that out around the country at all?

There's demand actually, coming from all over the world, but right now we just to focus on schools

and teachers locally first, and then we'll see where we go.
Okay. Andy, tell us about Network for Learning, and where people can find that online, and keep up with your activities?
Yes, so everything can be found at N 4 L, the number 4, l.co.nz. Everything's published there, well described.
Great, and Luke, I know kids can find you [laughter] and your shows on TV. [laughter]
We just released our new app on iTunes which is really exciting, where kids can create inventions on the iPad and it's just iTunes/Let'sGetInventing and its worldwide and it's doing really well, and it's a fun way of seeing what kids can create in a digital space.
Well let's cool, any plans for an Android. Come on make an Android app. [laughter] We'd get around to that. LukeNola.com as well where you find Luke Nola and Friends film and television production company. Thank you so much guys for your time, and all the best for the rest of 2014 and hope to see you at another Moxie Session. Thank you very much.
Thank you so much.
Thanks Glenn.
Thank you.
And check out The Moxie Sessions.co.nz for all the other podcasts, as well as the transcripts, and for updates on the next session. I'm Glenn Williams here in London, till next time, see you.