

TRANSCRIPT

FAMILY AND COMMUNITY DEVELOPMENT COMMITTEE

Inquiry into services for people with autism spectrum disorder

Melbourne — 6 March 2017

Members

Ms Maree Edwards — Chair

Mr Paul Edbrooke

Ms Cindy McLeish — Deputy Chair

Mr Bernie Finn

Ms Chris Couzens

Witnesses

Mr Hugh Kingsley, educationalist,

Mr Sam Kingsley, NAO robot operator, and

NAO, robot, the Brainary.

The CHAIR — The committee is very, very pleased to have some entertainment today. I welcome to our public hearing Mr Hugh Kingsley, educationalist, and Mr Sam Kingsley, NAO robot operator, from the Brainary. Welcome and thank you for attending our public hearing today. All evidence at this hearing taken by the committee is protected by parliamentary privilege as provided by the Constitution Act 1975 and is subject to the provisions of the Parliamentary Committees Act 2003 and other relevant legislation. Any comments you make outside the hearing will not be afforded such privilege. It is a contempt of Parliament to provide false evidence. Recording of the proceedings will commence today, and you will be sent a proof copy of the transcript and be able to make factual or grammatical corrections if necessary.

The committee understands that you had a rather traumatic week last week, and we do appreciate that you have taken the time to attend today and prepare for today as well. I have heard a lot about the Brainary from my colleague the member for Geelong, who is very excited that you are here today. I will hand over to you now for a short presentation.

Mr H. KINGSLEY — Thank you. We are going to introduce two products. I would like, if I may, to start with the calming product first. Maybe I should preface a little bit about what we do. I started the Brainary some 10 or 15 years ago on the premise that game playing was probably a little bit forgotten in education. If you want children to learn something, package it as a game and you have got engagement, and if you have got engagement you have got learning. Along the way we got involved in special needs learning.

One of the products we got involved in is called calming clothing, which you have already passed around. Calming clothing was developed in Australia and is based on the work of Professor Temple Grandin. I am not sure if you have ever seen any of her documentaries. She is world renowned for being able to communicate with animals. Karen McMullen in New South Wales, based on the work of Temple Grandin, created this range of clothing initially for children with sensory processing disorder, but of course it applies to the area of autism and general anxiety.

The idea behind it is that it is just firm compression, but not tight. There is no weighting involved, all the seams are on the outside, it is breathable, it can be used in all climates and, simply, it works. That is the first one I wanted to show you. Our job is to internationalise it. We already have wonderful sales coming out of the UK, and I am proud to say it is Australian, but it is based on the work of Professor Temple Grandin.

The CHAIR — In terms of it being specifically for children with sensory issues or for autism, it could just as well be used for any babies that might be crying, like the expansion of it to the broader community.

Mr H. KINGSLEY — Absolutely. I agree with you.

The CHAIR — Has there been any research data delivered on the use of this yet?

Mr H. KINGSLEY — No. All we can give you is anecdotal responses. They will be something like, 'I put it on my son last night, and for the first time ever he slept through the night and does not want to take it off'. As I said, the only research it is based on is Professor Temple Grandin, and all the other answers would be simply anecdotal, but we do not have any returns, we do not have any complaints.

The CHAIR — How long has it been around for?

Mr H. KINGSLEY — I cannot give you the exact answer. I would estimate it started five years ago — between three and five anyway.

Ms COUZENS — Is that online purchase?

Mr H. KINGSLEY — At this stage it is online. That could change. As you would appreciate, being a therapeutic product, it takes a while to get the message across, and we are slowly making progress.

The CHAIR — Are the allied health professionals aware of this product?

Mr H. KINGSLEY — As many as we can make aware of it, we have, yes.

The CHAIR — And GPs too?

Mr H. KINGSLEY — GPs not yet, no. We have got to do that.

The CHAIR — Early days?

Mr H. KINGSLEY — Yes. I appreciate you reminding me about that. Just so you know, they come in white and black. There is a reason for that. In case children have any allergies, parents could always dye them if they wanted them their own colours. I think the important point is that you can wear them under existing clothing and no-one has to know, so you do not stand out as being different.

Just before we start, I might preface, if I can, about how we got involved in this, a bit of a prologue. Again, based on the idea of game-playing interaction, when I was on one of my overseas trips I saw it and, knowing that coding was becoming mandatory in the school curriculum, I looked at it and thought, ‘What a great way of inspiring people to learn coding’. Then we decided to go further afield.

The original manufacturer produced a range of autism software which they have called Ask NAO. Sadly, with the change of ownership in the company, temporarily they are no longer supporting the Ask NAO software, so I have decided to assemble a group of professionals around the world to develop a whole new suite of autism software. Already I have had one of the original co-developers for the Ask NAO software volunteer to come on board. As soon as we settle into new offices we will get back on that project, but it will be both for the robot and off the robot. We will basically take the adversity as an opportunity and say, ‘Ask NAO isn’t available anymore. What can we learn from Ask NAO?’, and take it even a step higher and create a new fleet. I think it is time to show you the robot. I will let Sam do that.

Mr S. KINGSLEY — Thank you. I am just going to wake NAO up.

The CHAIR — Sorry, what is it called?

Mr S. KINGSLEY — Its name is NAO, spelled N-A-O but pronounced ‘now’. Rather than have a human continue talking, I will get NAO to talk instead. Presentation. Might be a little bit shy.

NAO — Hello. My name is NAO. I am a humanoid robot imagined and designed by Aldebaran Robotics. I come with my own software, and I am fully programmable. I am autonomous, and I can connect to the internet through wi-fi. I can recognise your face, answer your questions, play music, grab objects and even play soccer like a pro. I have more than 7,000 brothers and sisters in use all around the world in universities and research laboratories. Do you want more technical details?

Mr S. KINGSLEY — No.

NAO — Okay. Maybe another time. Well, I guess that is enough for the moment. Thank you for listening to me.

Mr S. KINGSLEY — You might have noticed the interface where I am actually giving NAO commands and speaking with it, and you may have noticed the eye colour changing. This is how we interact with NAO. We can, with the programming software behind me, create an interaction. Once we load it onto the robot, then we speak with it and you can use that as a way to deliver content, depending on what you want to do.

The engagement factor behind NAO is wonderful. Speaking from my experience in schools and taking NAO into those schools, students really engage with it. The really interesting thing is they start to project human characteristics and human identities onto the robot. The magic thing about a robot, and a robot like this, is that you can make the robot as patient as you like. On the best of days we can be quite patient and on the worst we can be quite the opposite, but NAO can do the same exercise over and over and over again. You can use that to deliver whatever content you want to deliver.

I thought I would get NAO to do something a little bit more fun and show you a quick dance move. If anybody does want to take a photo, please feel welcome. *Thriller. Gangnam Style.*

NAO — I hope I will impress you. I have got it.

Robot moves to music.

The CHAIR — That is brilliant.

Mr FINN — I am particularly looking forward to the Hansard transcript of that one.

Mr S. KINGSLEY — What I would like to show you is how intuitive and easy the program is to work with. I am just putting this down for a moment.

Mr H. KINGSLEY — The software that Sam is working with is called Choreographe. It was manufactured by the robot company, but you are not limited to the software. You can use open source software for more advanced programming. He just wants to show you how simple it is to — —

The CHAIR — Can I ask while he is doing that: so a child with autism will engage directly with NAO, ask NAO questions and NAO will respond?

Mr H. KINGSLEY — And play games.

The CHAIR — And play games. So it is like having a Nintendo but it is actually talking to a robot. It is a similar kind of interaction.

Mr H. KINGSLEY — Yes. We also have the Ask NAO software and games, where you would show a child an emotion card. That is where you would have the child — facilitate it with them — and NAO would say from these cards, ‘show me excitement’ or ‘fear’ or ‘fright’ and so forth. The child will pick one and show the robot, and the robot would be able to recognise it and say, ‘That’s interesting, but it’s not what I’m looking for. Can you try again?’, until the child gets the right one. The robot will play this game continuously to the same standard, non-discriminatory and so on. That is one of the ways it works, but I will let Sam talk.

Ms S. KINGSLEY — So what I have just done is basically drag a pre-programmed box onto a workspace and connect it up. You saw me write in English what I will get NAO to say. I am just going to hit play and we will see that come to life.

NAO — Hi everyone. My name is NAO. I am really excited to be here.

Ms S. KINGSLEY — So it is quite easy to input in what you want NAO to say and then from there create any sort of situation or scenario that you would like to work with in regard to, say, social skills or something like that. So it is really intuitive and easy to work with and also just a lot of fun.

Mr H. KINGSLEY — And Sam could add in the body language to go with that as well, as another dimension.

The CHAIR — And the expression in the eyes. I notice the colour changes, but it is like the expression is changing. So is that a way that, for example, a child with autism would associate, given that NAO is looking sideways at us as if he or she did not want to engage? Is that something that you find that children with autism are responding to — the changing facial expression?

Mr S. KINGSLEY — With the eyes it works as a cue in the sense of when you speak and when to listen and how to engage with NAO. The eye colour changing to blue means that NAO has recognised you as a human face, a human object, and it is listening. Then you may have heard the beep, which kind of sounds like Siri. That means that NAO is not listening anymore, and the eyes will go green, meaning it is processing. So it gives some set cues for how to interact with NAO, which can lend quite well to those sorts of social skills and development in that sense. Because we can program in a variety of different colours into the eyes, as you were saying about emotion expression, we can use that to express emotion and that can be a way to change the interaction. But because you have only got a very level voice that stays the same no matter what — unless you are specifically looking and want to change that, which you can — and you have got eye colour changing, they are the only two things that are going on in regard to the human-to-robot interaction. Whereas you and I speaking right now, there is a lot going on: there are all the facial interactions, exactly how we are moving our heads subconsciously and everything like that. So it breaks it down to a very basic level and a very easy level to engage with.

Ms McLEISH — Sam, I was going to ask: who would you envisage would actually be writing the content? Because you have just popped that sentence up there and it has been regurgitated. Can you imagine families or clinicians would write their own content or is it pre-packaged, pre-programmed?

Mr S. KINGSLEY — I think it could be a bit of both. I have seen students as young as five years old being able to program NAO to walk and talk with this software. So because it is so accessible to do, you can develop those skills. A lot of schools, both mainstream and special schools, will be having their students program applications in. Going away from autism-specific applications and examples, a school used the German language on NAO — you are able to turn different languages on NAO — to program in a German app for their language class. NAO would point to his head and say, ‘Was ist das?’, and they had to reply with the correct gendered pronoun and the correct word. That was very much facilitated by their teacher but driven by the students. So I think you can have a bit of both in that sense.

Ms McLEISH — NAO is a pretty cool little dude, and I imagine a lot of the younger people interacting with it would be very inquisitive themselves. Is there a response to when they start pawing at the fingers or trying to remove the foot?

Mr S. KINGSLEY — Really good question. I think a problem that does happen is people think of NAO as just a small person, so they expect NAO to have all the senses and everything that we should have. For example, they will grab NAO’s arm and expect a response. But we have got specific areas where there are sensors, so we have to work around those. If someone starts pulling at NAO’s arm, we are not necessarily going to have a program response in there. In that sense you do, I would say, need to have facilitators to work with NAO to make sure that it is going to be used in the right way.

Mr H. KINGSLEY — If I may just add, it is not available to the general public. It is only available to the likes of schools and hospitals. It is not ready for the general public is the point.

The CHAIR — How many have you got out there?

Mr H. KINGSLEY — In Australia, between 200 and 300.

The CHAIR — Public schools or private schools?

Mr H. KINGSLEY — A mixture. We have them in public libraries and in public schools. Two projects I think are worth mentioning. One is with the Royal Children’s Hospital in Melbourne, and the only reason I mention it is because of its engagement. We created a collaboration between Swinburne University, the Royal Children’s Hospital and ourselves to try out if the robot would engage patients with Acquired Brain Injury do their rehab. It has been so successful that Swinburne managed to get a PhD scholarship funded by CSIRO, and I am proud to say that our team won a disability award from the Prime Minister last year in Canberra. It is so successful that we are in negotiations to create the first robot rehab ward at the Royal Children’s. We are in negotiation with donors at the moment to fund it.

The CHAIR — Sorry to butt in. Are they using it for children with ASD who might be patients?

Mr H. KINGSLEY — No. That is the interesting thing, and they plan to as well. But initially this is simply about the children needing to do their rehab but for various reasons they do not want to do it. Would this robot inspire them to do it? Yes, it does. Anecdotally we hear stories. The robot might say, ‘We’re going to do 10 arm-ups’, or whatever they are, and some of the children are saying, ‘Well, I can do more than that’. No-one expected that — well, it is logical.

The CHAIR — Competition.

Mr H. KINGSLEY — Yes, exactly. Another very interesting project is with Hewlett Packard in Adelaide. We supplied them with a robot — I cannot remember the name of their project. They are working with workplace-aged teens to get them employment, and they are using NAO to help teach both those employees and also the staff they work with about some of the key issues to do with autism. So it might be worth you investigating the HP project. I think they are going to take another one from us shortly because they are expanding it.

The CHAIR — So the schools purchase the robot and the software from you?

Mr H. KINGSLEY — Yes.

The CHAIR — And can I ask what the cost of that is?

Mr H. KINGSLEY — Yes. The robot is \$13 000 plus GST, and then you start adding peripherals to it. So somewhere between \$15 000 and \$28 000, depending on what you decide you need.

The CHAIR — May I ask how many schools in Victoria might be utilising NAO?

Mr S. KINGSLEY — Off the top of my head I could not give you an exact answer, but I would say you are probably looking at about 40, potentially more.

The CHAIR — Are they mostly metropolitan or are some in regional areas?

Mr S. KINGSLEY — In regional areas and also metropolitan. Yes, a bit of both definitely.

The CHAIR — Are there any in Bendigo?

Mr S. KINGSLEY — I am actually going to Bendigo tomorrow. I am not sure if there are.

Ms COUZENS — And the TAFEs are using them too, are they?

Mr H. KINGSLEY — Yes. I am proud to say that Gordon TAFE in Geelong is the first TAFE in Australia to embrace them. They have got a fleet of them. Also I am proud to say that the Telstra Foundation purchased four from us, which they have donated: one to the Geelong library and then others — I have not got the locations on me. That has been very good. A quick comment if I may: about 18 months ago we went to New Zealand to the New Zealand autism association or some similar name, and what they asked us to do is set up with a TV crew in a neighbourhood house, and they brought children from low-functioning autism special needs schools along with their principals. We set the robot up, and two key things came out of that — and we can send you the link if you would like to see it. Should I send that to you, Christine?

The CHAIR — To Greg.

Mr H. KINGSLEY — Two things I think I could say: one was that they said to us they could not have kept the children engaged for as long as NAO kept them engaged. Some were just literally observers, and the more adventurous were coming up to the laptop and saying, ‘How do you make that do that?’, and wanting to get involved. I think that is very interesting in itself, so it offers high engagement.

The other project that might be of interest is that Bond University is working with one in Queensland. They are researching its use in autism, and the Noosa public library in Queensland was the first public library in Australia to embrace the robot.

What happened is that I had spent a lot of time working in America and I introduced the robot to the Westport library in Westport, Connecticut, and they became the first public library in America to embrace it. So building on that work, Noosa said, ‘I think we’ll have a go at this’, but they went the extra step and ordered the autism software. So they are able to offer their community access to the robot with the autism software at no cost to families.

Mr FINN — I am just absolutely fascinated, and I can see the huge potential in the robot and what you are doing. If this goes on to be a mass-produced product, if that is possible, do you see the cost coming down as a result of that?

Mr H. KINGSLEY — Absolutely. I am sure the new owner of NAO is working towards making it a consumer product, but at this stage it is sophisticated technology. You do need to be trained in how to use it, and you do need someone like that. When we did some support work for Telstra at the Good Friday Appeal last year, we had a few on the stage. The children would pay a few dollars to get a photo with the robot, and the first thing they wanted to do was pull the fingers.

Ms McLEISH — That is what I wanted to do.

Mr H. KINGSLEY — So for that reason it is not yet readily available.

Mr FINN — What sort of exposure has it had to Victorian schools? Have you spoken to the department, or have you just gone school by school?

Mr H. KINGSLEY — A mixture. I do not have a lot of the information on this. Sam may have some more on that one.

Mr S. KINGSLEY — We have been engaging with the tech schools in regards to using NAO as a robotics platform for that specific area. We have also been in touch with the department in general about NAO in schools, and we are also going out to individual schools and showcasing the technology with their students so they get to see its impact on those students.

Mr FINN — What sort of a reaction did you get from the department?

Mr S. KINGSLEY — My colleague Jonathan is in contact with I think it is the director of the tech schools board, and I understand that the principals are being selected or have just been selected and they will be meeting together as a group to discuss what sort of technology they want and how they are going to implement it. We are going to be party to that process and will bring NAO along to give them an example of some technology.

Mr FINN — Have you had any contact with special schools or autism-specific schools in Victoria?

Mr H. KINGSLEY — If I may answer that one, we have — yes. A lot of them have seen it. But I think also, if you can appreciate it, it is not cheap, so that is one of the reasons the uptake has been slow. There is an interesting example in Canberra at a public school. Half of the money they got for it from their autism budget, and the other half of the money came from the children doing their annual street fundraising walk. That is how they managed to get the funds.

The CHAIR — I just wanted to ask about the software program, specifically the autism software, and who you liaise with to put that together given that it would be a very specialist type of software. Who do you actually engage with to put that together?

Mr H. KINGSLEY — May I answer that question? The first part was the Ask NAO autism software developed by the robot company. That was the first step. What we are now doing is about to create something fresh. We will be working with professors and specialists in the field around the world. Originally Ask NAO was developed by two people who worked extensively with special needs schools in and around New York and Boston. I am pleased to say that one of those original developers has agreed to come on board with me to develop the new suite. We are literally at the stage of assembling the team. I probably have eight or 10 at the moment. I think we will have to limit it there, otherwise we will never get any consensus! But the idea is to build on Ask NAO. Another part of the question that I think might be helpful is that a practitioner could individualise with a client.

The CHAIR — That is kind of where I was heading in terms of allied health professionals, like the OTs who were here today, and how that might be adapted to suit and support them in the work that they are doing.

Mr H. KINGSLEY — Absolutely, so it could be individualised. With the OTs I would see it a couple of ways. One is that they would say what they would like the child to do, and we could help assess it and say, ‘That’s something easily you can do yourself on the software’, or ‘No, that’s not; that’s going to need some coding’, and we can either do collaborations through universities and/or do it fee for service ourselves.

The CHAIR — Similarly with speech therapy, I would imagine, in terms of language development.

Mr H. KINGSLEY — Yes, absolutely. NAO can be used right throughout the school curriculum. One interesting example is teaching Shakespeare.

The CHAIR — Now you have got my attention!

Mr H. KINGSLEY — The children can draw a picture of, say, a dagger. Then they show that to NAO, so NAO gets to recognise what a dagger looks like. Then the children go to the text box and type in whatever they want NAO to say.

The CHAIR — ‘Alas, poor Yorick! I knew him well’, or something like that.

Mr H. KINGSLEY — You've got it — absolutely. Then when they have completed it, they literally wi-fi it to NAO. Then when they say, 'Hey, NAO, we want to do some Shakespeare', and they will say, 'NAO, what's that?'. Then NAO will say, 'That's Shakespeare's dagger', and he will say it. So children get to learn by doing and learn by teaching. They are teaching a robot, so if you think of it that way, depending on the diagnosis of the child and their practitioner, they could do all sorts of things with the robot.

For example, the robot can walk on the floor and follow a ball. So, if they wanted to try some skills out that way, the robot could fall over and stand up, and so on. So it is really up to what the practitioner and what they would like to do with the client.

The CHAIR — So it really is very adaptable to individual needs but also to a broader curriculum if required.

Mr H. KINGSLEY — Yes.

Ms McLEISH — Are there a number of different voice options? It is very Elmo sounding.

Mr S. KINGSLEY — Yes, it is. We can change the speed and the shaping of the voice, making it higher or lower. You can play any sound you like through the speakers, as long it is an MP3 or MP4 file. If you, say, wanted to use a specific voice — maybe it is a parent or a teacher or a practitioner who will always be dealing with that child or that student — you could prerecord something and then incorporate that into the application that you are creating so that you can use that voice. At the moment we use that specific voice for interactions when we have a conversation with NAO. There is the potential to change it, but you would need to do a little bit of work programming-wise.

Ms McLEISH — The sound is probably more appealing to children than to the older child, I would have thought.

Mr S. KINGSLEY — Once you start working with older children, from my experience, they are usually starting to look at what you are doing behind the scenes rather than just the simple interaction. They will be thinking, 'What can I change and what can I do further?'. So then I think their engagement moves from only the robot onto the robot and the software and how you go about programming.

Ms McLEISH — So a different style of learning, a different type of learning.

Mr S. KINGSLEY — Yes, definitely.

Mr H. KINGSLEY — Another thing might interest you. We are about to do a pilot study in a hospital in Burnie. The idea is that NAO will go into acute care and, for example, NAO will teach the patient how to breathe again and how to cough again. Whilst the robot was developed in some ways to teach coding and be a research robot, we have found new, innovative ways of using it to help people, and when you see it as being able to help just to teach, say, breathing again, you start to think of what it could do to teach children who are on the autism spectrum.

Ms COUZENS — Have you already or will you in the future when you are working with the experts to develop the new software consider the different learning approaches for girls and boys?

Mr H. KINGSLEY — Yes.

Ms COUZENS — Can you elaborate on that a little bit?

Mr H. KINGSLEY — Probably the point is that we are still scoping, and scoping for me means deciding who is going to be part of the team. Then we are going to be looking at their research experience, what the current literature is saying, and we will be considering a myriad of issues. So we are at that stage. There will be no exclusion as far as I am concerned.

Ms COUZENS — Great.

The CHAIR — Thank you so much. It has been a revelation. Did you have some more to present?

Mr S. KINGSLEY — Yes. I was just wondering if you would like to have an interaction with Nao to see how it works.

The CHAIR — And then we will get a selfie as well.

Mr S. KINGSLEY — Yes, please do. So whoever would like to come up, if you could stand to the side of the table here. We will get Nao to recognise your face.

The CHAIR — Do you want me to sit on the chair?

Mr S. KINGSLEY — You should be okay standing, but if Nao is not going to pick you up, we can try that as well.

The CHAIR — What do I say? I am nervous. I have never spoken to a robot before.

Mr S. KINGSLEY — When the eyes are spinning blue, you are right to speak. We will wait for a moment, because it will cycle through. When it goes green, it has stopped listening.

The CHAIR — So when it is blue, I talk.

Mr S. KINGSLEY — Yes.

The CHAIR — Hello, Nao.

Mr S. KINGSLEY — What I will get you to do is, when it goes blue again, say, ‘Good morning’.

The CHAIR — Good morning.

NAO — Good morning.

Mr S. KINGSLEY — And ask, ‘How are you?’.

The CHAIR — How are you?

NAO — I am always feeling good, thank you. And you? How goes it?

The CHAIR — I am feeling pretty good too. Thank you for coming to present to us today.

NAO — So both of us are doing really good.

The CHAIR — Yes, we are. Lovely to meet you, Nao.

Mr S. KINGSLEY — So what it has done there is it has got some pre-programmed responses. When it says, ‘How are you?’, it will expect you to say ‘Good’ or ‘Bad’ or something like that.

The CHAIR — So it understands the question but not necessarily the rhetorical information.

Mr S. KINGSLEY — Yes, because we programmed in what the potential responses to the question could be. One of the really interesting things is that I created an app with students where we imagined that Nao was in a cafe taking an order. Because we do not program in manners, we always have the student come up with, ‘May I please have ...’, which is excellent — —

The CHAIR — Yes, that is very nice.

Mr S. KINGSLEY — But we have only programmed in for Nao to respond to ‘muffin’ or something like that. So there is a little bit of specificity in how you interact, but once you work around that, you can do some really cool stuff.

The CHAIR — Does anyone else want to have a go? Do you want a turn?

Ms McLEISH — Oh, yes.

Mr S. KINGSLEY — What I will get you to do is ask Nao to sit down. So what I will get you to say is — —

Ms McLEISH — I was going to ask him to dance.

Mr S. KINGSLEY — I will get you to get it to sit down and stand up, and then I will get you to say ‘tai chi’ afterwards. Once Nao goes blue, say, ‘Sit down’.

Ms McLEISH — Good morning, Nao.

NAO — Good morning.

Ms McLEISH — Sit down.

NAO — Do you want me to sit?

Ms McLEISH — Yes, please.

NAO — Okay, give me a second.

Ms McLEISH — Sure. That is how I sit!

Mr S. KINGSLEY — And if you say, ‘Stand up’.

Ms McLEISH — Thank you. Please stand up.

NAO — Do you want me to stand up?

Ms McLEISH — Yes, please. Stand.

NAO — All right. Here I come.

Mr S. KINGSLEY — And then if you say, ‘Tai chi’.

Ms McLEISH — Tai chi.

NAO — I am really proud of this dance. Cool. I found it.

Robot moves to music.

Ms McLEISH — Wow. That is very good.

The CHAIR — Can I thank you both very much for your presentation today.

Mr S. KINGSLEY — Thank you.

The CHAIR — Thank you, Nao. It has been really interesting to see how far we have come with robotics and what the potential is, particularly for young people with autism but, I also think, perhaps adults further down the track. We really do appreciate your time. Your innovation is remarkable. Good luck with everything.

Mr H. KINGSLEY — Thank you.

Mr S. KINGSLEY — Thank you for having us.

Witnesses withdrew.