

DEBORAH CAMERON: There are 10,000 deaf children in Australia and 160,000 Australians are out of work because they can't hear. Now, deaf children are almost 2.5 times less likely to complete high school than their hearing counterparts. Now, what's going on in the classroom is absolutely crucial to the way that children learn. Access Innovation Media is a social enterprise. It aims to improve access to services and education to people with hearing and vision impairments. And two of the key people involved with Access Innovation Media, Ai-Media, join this morning. Tony Abrahams is Ai-Media's chief executive. Good morning, Tony.

TONY ABRAHAMS: Good morning, Deborah.

DEBORAH: And also with me is Alex Jones, who is the chairperson of the Deafness Forum of Australia and one of the founders of Ai-Media as well. Good morning, Alex.

ALEX JONES: Good morning, Deb.

DEBORAH: Thanks very much for coming in. Now, I will start with you, Alex. You are deaf and you have put forward a way to improve education standards for deaf students. Now, why is that needed?

ALEX: Well, from my experiences, when I was growing up in school, I would find myself lost in classroom, where I'm sitting in the front row, watching the teacher. And the teacher is writing on the board, talking to the board, and I'm missing out. Other kids are talking behind me. I look around and I miss out as well. So I think my experiences being deaf in the classroom growing up has made me realise, hmm, what can we do to make a difference, because of technology. There are technologies that can make a difference. So Tony and I worked together thinking about, "Oh, we can provide captioning in classrooms for deaf kids."

DEBORAH: Tony, could you please explain how this technology might work, or does work, in the classroom?

TONY: Yeah, it's a technology that we've been working on for about 3.5 years now. It involves a technique known as respeaking. So it's a speech recognition engine that we have that is trained to a particular person's voice. What we do is, we get the audio out of the classroom. So the teacher wears a lapel microphone. We then have a trained respeaker, or a respeaking captioner, who sits either at work, or it could be at home, who gets the audio from the classroom. They listen to what is being said and then they respeak it, with punctuation, into that trained speech recognition engine. And then our Ai-Live™ solution streams that back over the Internet, securely, to a student's laptop in under seven seconds.

DEBORAH: Now, the only parallel that I can think of, Alex, is that's it is like a United Nations interpreting service. So it's happening instantly. Is that what you anticipate?

ALEX: Well, I think, for the UN, it's spoken language, it's different. This is about access

to real-time text in classroom because simply you cannot hear. And it's an opportunity for people like myself, and kids like myself, to be empowered in the classroom. To be able to understand everything. But I think with the UN is about one language speaking into another language, and this is about text being received in classrooms.

DEBORAH: So, Tony, obviously, then, what this system really requires is classrooms to be connected with a reliable connection over the Internet, so that you have both the information being streamed to the interpreter and then that stream of knowledge coming back as print in front of the screen of the deaf student. Is that how it would work?

TONY: Yeah, look, absolutely. It really is a solution for its time. This wouldn't have worked a couple of years ago. And with the National Broadband Network, it's just going to make it a lot simpler than it even has been. The Education Revolution package, where you actually - where every student is now given a laptop, means that - and the fact that we actually have good broadband connections into most schools - means that we do have that ability to stream the audio out of the classroom and we do have the ability to stream that text back in under seven seconds. And the results in the pilot programs we've done have actually been mind-blowing. We've had kids that have gone from the bottom of the class to first in the yearly exam in under 10 weeks.

DEBORAH: Alex, that's an amazing result, to go from bottom to highly successful in a short amount of time. How frustrated have the students who are deaf been feeling with the education system?

ALEX: Extremely, I must say. Really frustrating, I think they have to struggle to try to understand everything, try to capture what's being said, and trying to borrow some notes from classmates and everything. And I think for them, what's frustrating is that they need to understand what they're getting and try to make up the gap. With this technology of Ai-Live™, these deaf kids can relax, sit in class, feeling like they're like everybody else. They can take the notes home and it's amazing! It's so empowering. And I think, you know, I want that. I wanna go back, I wanna be 15 again. I want Ai-Live™.

DEBORAH: How did you do at school?

ALEX: I got by really well, you know. And think what - how well I did was reading. I love reading books and that made a difference.

DEBORAH: Now, when you see, Tony, young kids learning in classrooms - and obviously someone with a powerful personality like Alex is probably going to stand a very good chance of succeeding in life, whatever. But when you've got kids who maybe have less confidence, is that those kids who will benefit most? And at what age do you anticipate - this is, you are talking about integrated classrooms here - at what age do you anticipate kids getting access to this kind of technology?

ALEX: I think we need to... if I can sort of unpick the question, look at it in a kind of

different way is to say, at what age do you want to a kid have access to the information that is being spoken in the classroom? And really, you want that as soon as that kid is going to the classroom. I mean, this is a technology that actually delivers the information in a format that someone who can't hear can actually understand. And so you really want that to be delivered as soon as they're in the classroom.

DEBORAH: Alex, how willing have teachers been to embrace this idea?

ALEX: Amazing. They have embraced the idea completely, because it is about the students being able to read and follow through easily without the need of having a support person in the classroom. There are a lot of deaf kids in classes now that have a support person there. They feel like they need someone there to help them, but it is very natural for a deaf kid to feel a bit embarrassed. It's about their self identity, like they have to have someone there to help them. But with having a laptop there, a deaf kid can go like, "Hmm, I'm by myself, I can be dependent on my own." It's about building their self-confidence. And that self-confidence is about, this technology actually provide an opportunity to every deaf kid to build confidence in classrooms.

DEBORAH: Tony, why is it necessary to have the third party involved? Why not just use voice recognition technology to go straight from teacher to laptop? Why do you need to transmit it to from teacher to distant interpreter and then back again?

TONY: That's a great question, Deborah, and perhaps anybody who's tried to order a taxi could probably give you the answer to that. So when you're ordering a taxi and you go through the... what's called speaker-independent voice recognition system, whereby it might ask you what suburb you are coming from and if you say Macquarie Park, sometimes it gets it and sometimes it doesn't. That speech recognition software has only recently become good enough where you actually train the speech recognition engine to your voice. So everybody speaks differently, everybody has a different wave pattern. We use Dragon NaturallySpeaking, version 10, and it means that once someone's actually got that trained to their voice, we can come out with 99% accuracy. However, to actually get the captions to a point where they're legible, you actually also have to speak in the punctuation. So in addition to speaking in the punctuation, in addition to it having to be trained to your voice, you also have to talk a little like a robot to get it to that level of 99% accuracy. The other key important point is that we're actually about providing access. We're not about providing everything that's going on in the classroom. So the students don't need to hear every single word that's going on, so we précis a lot of the information. And coming back your earlier question about what age do we want this in the classroom - if we're doing this in but primary school, obviously we have to be aware of the literacy level of the kids that we're actually providing this for. So you can't be doing it at 180 words a minute, you actually have to slow those captions right down.

DEBORAH: Alex, miscommunication or misheard words must be one of the great risks of your life, I imagine. And think about the classroom environment - sometimes it's noisy, kids are doing group work. There's great demands on kids in a really busy

classroom. I guess I'd just love to hear you just elaborate a little bit on the thoughts that Tony has put about the clarity and the punctuation, but can you really apply that in a busy classroom where there is lots of noise, lots of kids, everyone's talking at the same time? How do you think it will work?

ALEX: Ai-Live™ is about providing text, so if you say, for example, in PE - you wouldn't want to have Ai-Live™ in PE class. Ai-Live™ is more about kids listening to a teacher giving a lecture or a lesson about something. But if you do some break-out sessions, it is easy to move the lapel microphone to someone else in the team. They can work together. So that can still be captioned. So you're keeping it applicable in many different ways. For example, maybe in university, in a tutorial, we can move the lapel microphone to a student and they can wear it and it can be respeaking and captioned to a student's laptop. So it can be used in many different ways. So I think it is about being able to think creatively. And the teacher can take control of the class and decide where the microphone can go to. And that can be done.

DEBORAH: Now, I wanted to just conclude by asking Tony about the cost and viability of these sorts of systems, in ordinary classroom environments. So how do you anticipate it would be funded? Obviously people have to be paid for sitting there and doing the processing. And how many students can you simultaneously manage? I think we had 10,000 deaf children in Australia. I presume most of them are in schools, so arguably, you can have the need for a lot of interpreters simultaneously.

TONY: Absolutely, Deborah, and that's what we've been working over the last 3.5 years, is finding on a solution that is scalable and a solution that we can not only roll out to the 10,000 deaf children in Australia but it's the same technology that we can actually then apply to those 160,000 Australians who are out of work. And you don't necessarily need captioning 100% of the time. So as Alex said, you're not going to need it for PE. And in a work situation, you've got people who can e-mail, you've got people who could have one-on-one communications quite easily. But as you alluded to, when you have lots of people talking over each other in different situations and in meetings. So at work, you might need it maybe four, five hours a week. At school maybe you need it 12 hours a week. There are - the important thing is that there is already funding in the system for this, because we already have sign language interpreters, we already have notetakers, we already have itinerant teachers. It's about using the technology that's just become available to provide better solutions. And yes, there'll be retraining involved. And a lot of the people have provided the services in the past will have that aptitude to be respeakers. One of the things that we've actually found that's been quite exciting is that we didn't know how many people can actually be respeakers, what percentage of people have the aptitude to listen and respeak simultaneously with punctuation. We didn't know whether it was 2%, whether it was 3%. It turns out it's about 30%. About 30% of people can just put on the microphone, put on the headset, grab the microphone - they can listen and respeak at the same time. Mitch Fifield, who's the opposition spokesperson for disabilities, is actually fantastic at it. Bill Shorten's not so good... But it is similar to being a UN interpreter in that sense, but it's kind of like being left-handed or right-handed. You can either do it or you can't. On the website, on ai-live.com, we have

a component that is called Ai-Skills™. And Ai-Skills™ is about the training, accreditation and quality assurance that goes with providing this service. So it is a real career path and it's a new career path, and people can do it from home, people with physical disabilities can do it, 'cause obviously you just need to be able to listen and respeak. And what we need to do is, we need to ensure, a, that you've got the aptitude to do it, b, that you pass the Working with Children Check and, c, that you've got the subject matter expertise, because if we've got someone captioning physics, we need to make sure they actually understand physics. And yes, we could have 5000 people doing this. But it provides jobs, it provides access to local communities and it starts to build a culture of inclusion that just has never been possible for people who haven't been able to hear in the past. And as you can see, you know, someone who's deaf can do anything except hear, and this starts to make that possible.

DEBORAH: Look, thank you so much to both of you for coming in. It's been really great to meet you both. My guests this morning have been Tony Abrahams, who's the chief executive of Ai-Media, and Alex Jones, who's chairman of the Deafness Forum of Australia and also one of the founders of Ai-Media. Thanks very much.

TONY: Thanks, Debroah.

ALEX: Thank you.