



# [ Caption it ]

NEW TECHNOLOGY COMBINING STREAMING AUDIO, VOICE RECOGNITION SOFTWARE AND CAPTIONING IS REVOLUTIONISING LEARNING FOR THE NEARLY 10,000 HEARING-IMPAIRED STUDENTS IN MAINSTREAM AUSTRALIAN CLASSROOMS, WRITES **LEONIE JACKSON**.

Imagine this....

You enter the classroom, sit down at your favourite desk, open your books, say hi to your classmates and prepare yourself for a whole hour of class, knowing that you will not understand a single word that will be said.

You look around the room, trying to make out what the teacher is saying.

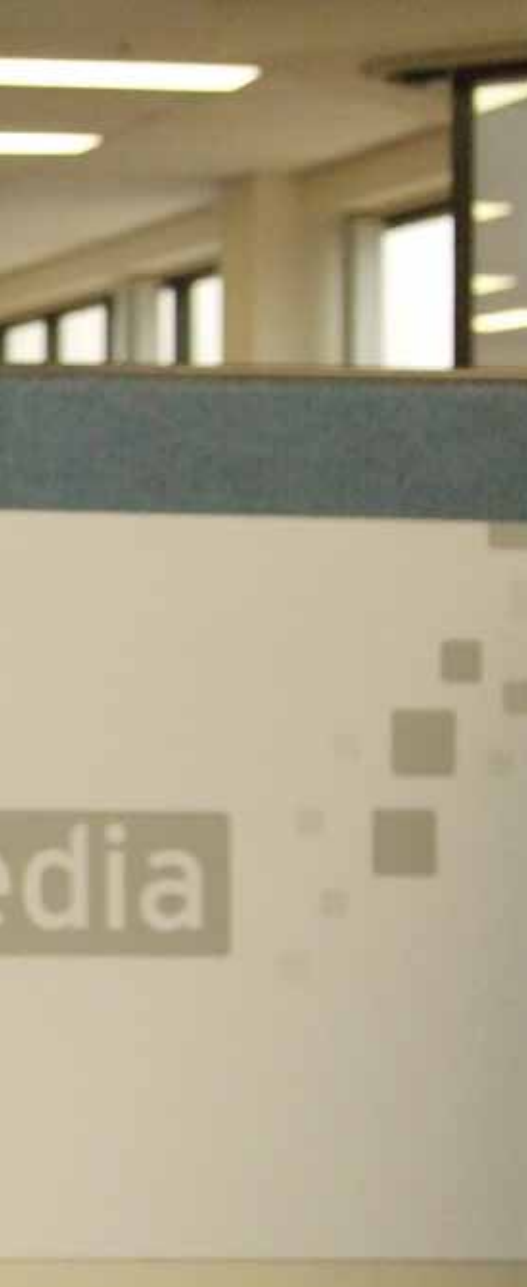
Unfortunately the teacher is not looking directly at you so any chance of lip-reading is completely out. There are no visual clues, so your only hope is to try and look at your neighbour's notebook, hoping to see what they have written down.

This is the reality for many deaf and hearing-impaired students in mainstream schools in Australia. At present, deaf and

hearing-impaired students are struggling to keep up with their peers in the classroom.

So we have a problem, don't we?

How do we deliver deaf students the same information that hearing students receive in mainstream classrooms? How do we end the experience of exclusion that people with hearing impairments face on a daily basis?



Over the last hundred years, many approaches to educating deaf and hearing-impaired students have been tried. Many of these approaches were expensive and none have been very effective at redressing the gap in educational outcomes between deaf kids and their hearing counterparts. Whether prohibitive by cost, unreliable at scale, or an impediment to peer-group inclusion, all existing solutions have significant limitations and issues. A poor education directly impacts on the life choices that deaf and hearing-impaired people have in our community.

### **The development of Ai-Live**

During 2006, I was supporting a deaf signing student studying Year 9 English at a mainstream school. The student had the support of an Australian sign language (Auslan) interpreter. I was there to explain any new

vocabulary, grammatical rules and concepts taught in the class by the teacher. The student worked very hard, doing extra homework and reading just to keep up with her peers.

One day, she turned around and signed to me, 'I just wish I could follow this class by using captioning, like I do with television shows. That way, I could see how the English language is structured straight away, rather than having to rely on second-hand information.'

The idea simply blew me away. I left the classroom that day, determined to see what might be possible. I brought the idea to the attention of Tony Abrahams, the Chief Executive Officer of Access Innovation Media (Ai-Media).

Ai-Media provides captioning solutions in the production, broadcast, education, health and business sectors. I thought if Ai-Media was already providing captions for these sectors, then maybe they could provide a solution for deaf and hearing-impaired students in a classroom.

At the time, speech recognition technology was improving, to the extent that a skilled respeaking captioner (respeaker) could listen to the teacher and respeak the content into speech-recognition software. Because the respeaker makes noise while doing this, this solution was only effective in the classrooms where all the students were deaf. As 85 percent of deaf students are in mainstream schools, it was necessary to have the respeakers work in a location remote from the classroom.

In 2007, Ai-Media and the New South Wales Department of Education worked together on a preliminary pilot to deliver real-time captioning directly to a deaf student's laptop in a classroom environment, using the advances in speech recognition technology paired with remote respeaking methodology.

The system, called Ai-Live, works by having the teacher wear a lapel microphone. The teacher's live speech is then relayed via broadband technology to a skilled respeaking captioner in a remote location who repeats the lesson into software that instantane-

ously translates it into text on a screen. The text is then transmitted securely over the internet using Ai-Media's proprietary system, Ai-Stream, to a deaf student's laptop or iPad. This all happens in less than seven seconds.

Deaf students can follow the lesson with ease, significantly improving their access to classroom content and learning, without interruption to regular classroom activity. Dynamic communications and learning between the teacher, the deaf student and the rest of the class is now possible.

Following three and a half years of research and development, Ai-Live was officially launched in April 2010 at the National Deafness Sector Summit in Sydney. Since then, Ai-Media has implemented Ai-Live in many schools, TAFEs, universities and workplaces across the country.

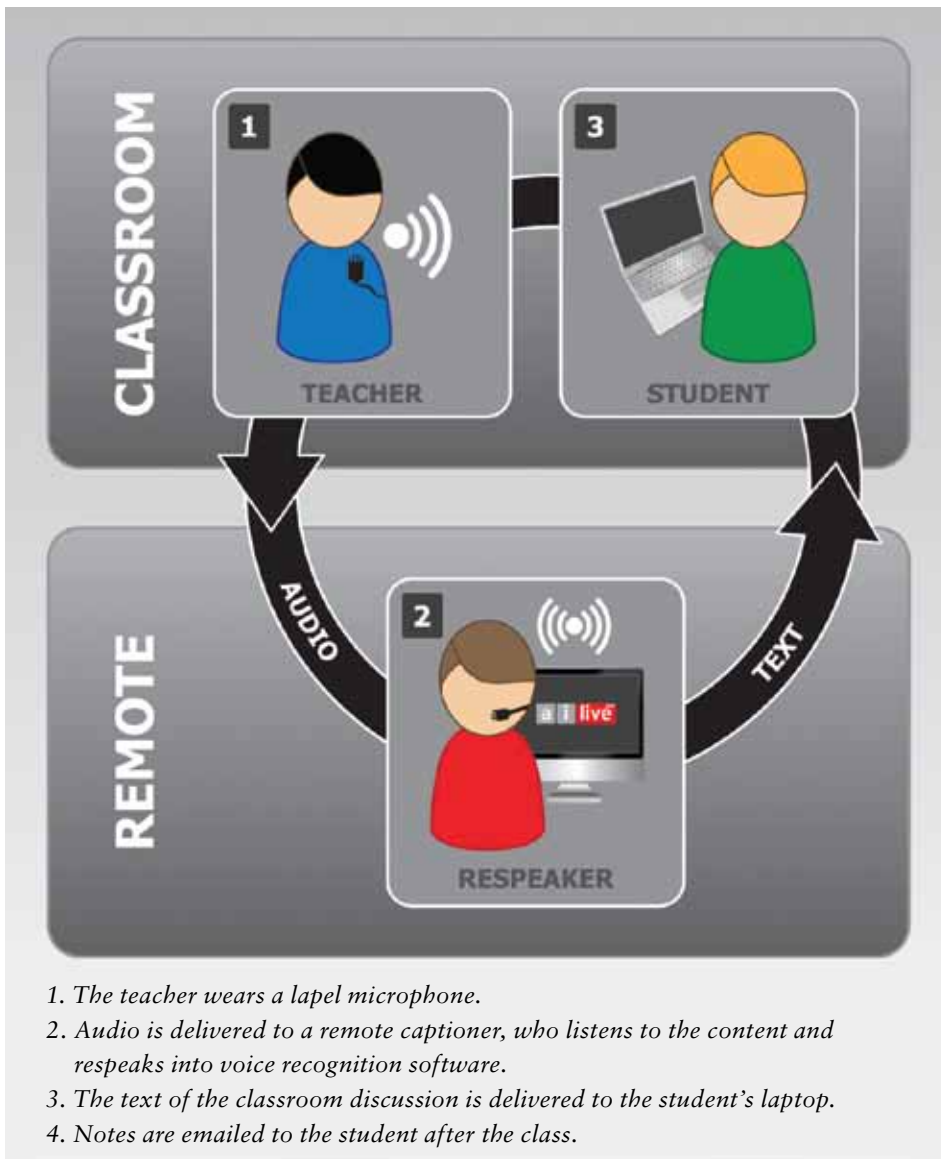
Ai-Live is a whole-of-life solution, providing direct, same-language access to mainstream classroom content, which enables the deaf student to build a large vocabulary while increasing their understanding of grammar and punctuation. It also allows the deaf and hearing-impaired students to communicate directly and immediately with their teachers and peers, something that has not been possible until now.

### **How Ai-Live works in the classroom**

Students can choose the classes they want captioned. The students who participated in the Ai-Live pilot selected subjects that were theoretical, as they found it particularly beneficial to have these subjects captioned.

Ai-Live has a number of features and benefits, including:

- communication – deaf students can use Ai-Live to communicate directly with their teachers and peers by using the chat panel on the screen and to access the classroom content
- interactivity – Ai-Live also has a chat panel that students and captioners can use to communicate with each other
- feedback – students can give real-time feedback on the quality of the service provided as often as they like during the session



1. The teacher wears a lapel microphone.
2. Audio is delivered to a remote captioner, who listens to the content and respeaks into voice recognition software.
3. The text of the classroom discussion is delivered to the student's laptop.
4. Notes are emailed to the student after the class.

- options – students can choose the classes they want captioned
- notes – transcripts of lessons are available to students to use as study aids
- personalisation – a customisable screen means the students can adjust font size, colour and style to suit their personal preferences and adjust the background to reduce glare, and
- portability – the solution can be entirely wireless and works on mobile devices such as laptops or iPads.

The Ai-Live solution empowers deaf students by giving them control of their own communication needs.

### Feedback about Ai-Live

We have received a range of positive feedback from schools using the Ai-Live solution.

One Year 9 English teacher, for example, reported greater student engagement, adding that, 'My teaching became more personalised and students seemed to be more involved in group work, contributing to class discussions and maintaining eye contact with me.'

According to a teacher of the deaf, 'One student went from not looking at me until her interpreter arrived in the room and was near the bottom of the class... to being one of the most engaged students in the class, actually coming top of the class in the yearly exam.'

Students have also responded well to Ai-Live. One Year 10 student explained that, 'It enables me to access all the information on everything.'

A Year 11 student said, 'I would like captioning to be a part of my future. It will be helpful when I am at university as well as at school.'

Schools leaders have also embraced the system. According to one principal, 'The Ai-Live project has been an example of how current technology can be used to enhance the learning of deaf and hearing-impaired students. This project has provided learning opportunities beyond those that can be supplied by an in-class interpreter. Almost instantaneous translation of spoken material, combined with live one-to-one media streaming with the interpreter, provides students with access to information and to teacher-delivered material that before was filtered and interpreted by a non-teaching assistant. This is supported by emailed written translations of lessons to further aid understanding of the lessons content.'

### The solution

Now, imagine this...

You walk into the classroom.

You give the teacher a microphone to wear, turn on your iPad, smile to your classmates and you are fully prepared and excited for the class to begin. You can follow everything that is going on in the classroom, even when your friends are saying something cheeky to the teacher and you are able to answer the teacher's questions.

You become the envy of your classmates, as you have a full transcript of the lesson for revision notes. Is this a dream?

No. This will be the reality for many deaf and hearing-impaired students across the country. **T**

*Leonie Jackson is the Head of Education Access at Ai-Media.*

### LINKS

[www.Ai-Live.com](http://www.Ai-Live.com)