

A Voice for All – Celebrating Assistive Technology in Education

The most important thing you can give to people with disability is a voice.

A voice can get you heard.

A voice can inspire millions of people.

A voice can help you to be yourself.

Alexa, what is assistive technology?

Assistive technology is an umbrella term which includes assistive, adaptive and rehabilitative devices for people with disabilities.

Here's a question for you: How many people use assistive technology?

Assistive technology for some students, allows them to do things that they would never do otherwise.

Most of the children I work with have physical disabilities, and assistive technology gives them a way of expressing their ideas that they wouldn't be able to without the technology.

People who can't speak have communication aids, people who cannot write can use computers, people can do A levels, can do degrees.

In terms of children with more profound needs, they are able to show that they understand what is said to them when they have no other method of doing so.

It's not always about the people like Stephen Hawking who developed his disability later in life. It's about the child who was born with a disability learning to speak. That is such an important skill for them to have.

In the early days of CENMAC, we were able to offer things like electric typewriters, to literally help with the recording of text.

Going into the mainstream schools, when we first went in, we were carrying in huge electric typewriters, and wooden wrist supports.

And we had to encourage the teachers to have this equipment in the classroom.

We just wanted them to see that if we could take a physical problem away from a child, then they could expand what they had in their head.

Children using switches for access - switch toys, so they press a switch and the toy would move in front of them, so they would be able to get that very early stage of control - it was the thing that I really enjoyed.

I enjoyed finding where the child could control the switch to get access.

I remember the very first child we had with autism, and he didn't like to communicate at all.

And the minute he had his keyboard, he started producing the most wonderful work. Poetry and things like that.

Advisory teachers would be going out and assessing the children that we were responsible for and they would determine what current equipment best suits that child's needs, but as their requirements changed as they grew, we would then take that equipment back, that we initially gave them, and replace it with something more appropriate to their needs, as they changed.

We used to go back, and back, and back, and train all the people that were involved with the child and I think that level of confidence, was one of the biggest impacts that we could give.

So, people were comfortable about setting up a child who needed all these different access devices.

So, it was continued support.

As the equipment got lighter and more portable, the teachers themselves began to get interested.

In the 1980s computers were put into schools; children were expected to use computers, and of course when working with those with severe and profound learning difficulties, we had switches and touchscreens in the 1980s, which didn't come into mainstream schools until at least 10 years later.

It was a very exciting time, 1986 to 1990.

Patrick Poon had developed MAC Apple, which was a word processor with prediction and voice output.

We were also trying to expand into the mainstream schools.

Parents were becoming very adamant that they wanted their children included.

And for a lot of those children, they could never have been included without a keyboard, because part of the problem was that they just couldn't control a pencil.

So, I was supported by CENMAC for a lot of my school education, and they in fact gave me my first ever AlphaSmart and it was the first time that I could work independently, at my desk, because I can't handwrite.

So, I guess it was a very liberating experience, even at that very young age.

Well, the whole of the 1990s was a time when CENMAC worked with developers, the software and the hardware developers, and that was very fruitful.

And the products that were coming out were colourful.

They didn't look like something for disabled children - sort of dull and grey and fawn and khaki coloured - they were bright colours.

The symbols that were using were so much more simple and so much easier for everyone to use.

We used to try out quite a lot of the new things, which was very exciting.

I remember getting the first laptops!

I think as a result of all those developments, a lot more children were accepted into mainstream schools.

And that was a great achievement.

In 2001 it was around that time that we started to be able to introduce Eye-Gaze systems.

So it just meant that that child who could use their eyes could access and write using their eyes.

It gave access to children who had no other method of accessing technology.

Hi, I'm Harry, I click my tongue to say 'yes' and poke my tongue out to say 'no'.

I love using my communication device to have a chat and to access new things.

In the 1930s we had the beginnings of computing.

Colossus, one of the early computers, took a few rooms, huge energy to actually run.

And then of course as we began to develop the micro-processing, the computing power, the speed of change has become exponential.

That means our young people can now have technology which was an unbelievable dream 20 years ago.

Alexa, when was the first iPad?

The first iPad was released on April 3rd, 2010.

I think we bought 30 or 40 of those, when no one bought 30 or 40, we tried to saturate the service.

Working with the Rix Centre, we've used technology and software programs to enable and capture the life of young people, so that they get a voice.

And having young people who can't otherwise vocalise their communication, by being able to use the technology, write the sentences, write the stories, it's just been so enabling.

It's a real game-changer in terms of putting children's voices out there, listening to what they want, and actually listening carefully, so it changes and improves their own service.

Well good morning everyone, thank you so much for coming along, and especially to all the companies.

The students have got some very important information for you about the day.

In case of a fire alarm, please use the nearest fire exit.

We've been looking at this portable switch mount, and you can move it on different angles, and I think that might be better than just a flat one.

For switching it could be a better position for you, couldn't it?

I want to say, welcome to Abdi.

My name is Abdi Omar and I am 24 years old with a disability called cerebral palsy.

I am a motivational speaker and a YouTuber.

I think the biggest change is that assistive technology is no longer peripheral.

It's that it is in all the devices we all carry around with us: voice control, touch, speech feedback, changing the look and feel of the device, all the things that we used to have to do very specially to a device, is now simply built in, and just about all of us make use of it in our everyday lives.

So, the last 50 years has been an incredible time for assistive technology, when you look at 1968, the first text to speech system was provided, and now we've got some of our students with the complex physical disability leaving to go to college with devices that are mounted onto their chairs, that they're accessing through their eyes and communicating, and incredibly excited about their future.

I'm using Eye-Gaze. It means I can use my eyes.

For me it's good, and in the future when I go to college I'll be using it I've seen a number of children who've been really demotivated unable to express their ideas when we've given them technology it's given them a new attitude towards learning and taking part in class activities it's opened up a whole world to a lot of young people.

Hi I'm Caris. I use my eyes, iPad and Eye Gaze to communicate.

The best technology I've used is what I'm using now the Grid Pad using Grid 3.

The Eye Gaze camera is really good.

I started using Eye Gaze at primary school. I had a Tobii device which was really big, so I couldn't have it mounted on my wheelchair.

But now I am excited to have Eye Gaze mounted to my wheelchair, just for my communication.

I can't think of a worse piece of technology, everything I have tried has worked for the time I was using it.

So BrightSign is designed to help translate hand gestures to speech to help individuals who are nonverbal, and have consistent signing skills to communicate with anyone who doesn't understand their gestures.

'Fish' 'Fish'

Is it good? Or bad?

'Good'

It's good, yeah. It's really good, good idea.

So, the technology that we've developed enhances an end user, allowing them to become inclusive with an activity that perhaps maybe an able-bodied person can enjoy.

An example earlier on was the football activity, so using Eye Gaze an individual in a wheelchair can use their eyes to control the ball, while someone's running around on the magic carpet itself.

I use my laptop, mainly, which has a number of things on it.

For instance, I have my Clicker, my Dragon which I'll be using, and to operate it I have my little touch pad.

Dragon it's this program you don't need to type anything, you just speak what you want to put down, and it puts it down for you.

Basically, it's just given her independence to be able to do her own work.

She's able to research using the Internet. I just find it brilliant, and I've seen the changes, as well as the new technology has come in.

One of the biggest things we have with younger users is simply access to social media, so a lot of people who haven't had easy access to their smartphone, for whatever reason, suddenly being given access to social media Facebook and so on it's a big thing for a lot of people to be up at a level with their peers and so on.

I have a robot that when I'm ill, it goes into school for me, and it listens to the class, and you can talk through it, you can do everything with it and it listens to the class, and you can talk through it, you can do everything with it.

My name is Jake, and I use WordQ.

If you're actually doing your lessons, if you want to do a scary story, and you need to write it on paper first, and then it's easier to copy it out on paper and then do it.

I use Alexa at home, and in school.

I use Alexa to find out about information and she gets to tell me about the different countries.

I think this type of technology is very helpful, because if you're not very good at spelling, you can jump on the WordQ, and then you'll be able to improve on your spelling, and then you'll be confident to go on the paper and improve your writing.

It's really important to be able to aid people to communicate, to express their feelings, to verbally communicate.

So, I think it's unbelievably important to provide a voice.

I want to inspire people, especially people with disabilities, because I want to show that just because you have disability doesn't mean you can't achieve your goals.

What music do you like?

Hip hop.

Alexa, who won 'Britain's Got Talent 2018'?

Lost Voice Guy won the last season of 'Britain's Got Talent', season 12.

The interface between our minds, and the actual technology that we use to enable our lives, is getting so that our delta waves, our theta waves, will link directly with the software and hardware, and that means that for young people, that becomes the interface to life.

For the future of CENMAC, it would be really nice if there was equal funding for all children who have any kind of disability, so that they can all access the service that we can offer, and the vast range of assistive technology that's actually out on the market now.

If I could have any piece of technology that could do anything, I would choose something that I could compose my own music, and listen to music with.

The keyboard and mouse is so firmly rooted in the way that we use computers, and that's not suitable for everybody, and we're seeing some really exciting things now going on with different ways of communicating with a computer, so I think I'd like to see it where you get to the point where you don't have to learn how to use an interface, it's just a natural process.

At the moment, there's a whole procedure. Think of the word, choose the word on a screen, blink, press a key, a button, whatever.

So one day I would like that part of the brain to be isolated, and wired directly into the communication aid, so the communication aid becomes the mouth.

It'd be great to see the costs come down, and for more people to be able to use it, because that is ultimately what it is all about.

I think but we need to see is a wider understanding with teachers of what's available, how assistive technology can be used, and trying to get the message out to teachers that there are resources available that could help all children.

We now have enough methods that most people with disabilities should be able to access some level of technology. What we don't have is enough experts to tell people what sort of technology they could access, and a realisation that access to technology is as important as being able to eat, being clean, having shelter, having access to the community, for some people with severe disabilities.

But I think whatever technology appears, or is developed, there's always going to have to be the human element of a teacher who has the empathy, almost like a sixth sense, to work with a young person who has complex difficulties.

There's always going to have to be that type of person working with them, and that person is going to have to work very carefully with the physios, and the occupational therapists, to make sure that the seating the positioning for that child or young person is correct because without it, you can't do anything. You really can't. You lose it.

I think I'd like to see funding for all, it's really important that the children have funding, and support for the staff. That's so important. So important.

We're now looking at some of the big companies like Microsoft and Google, who are looking at universal design, and making sure that their platforms cater for everybody, whether it's visual or a hearing difficulty.

Within Tobii Dynavox, we've signed a contract with Microsoft, in which now all our trackers work with Windows 10, or the latest Windows 10 update, so you just need one of our trackers, so you can go anywhere in the world just connect it and you'll be able to use it as well.

If you think about it, it's amazing that CENMAC has been part of this journey over the last 50 years, and will continue to work and innovate and change as new developments come in the future.

We look forward to the next 50 years, and I'm going to be amazed, I'm sure, at where we go, but it's only constrained by our own imagination.

My dream is to become an author. So, yeah, to write books.

Just remember, everything is possible.

Alexa thank you. You're welcome.