

Removing Barriers to Learning – the contribution of new technologies*Anne Fowlie, Consultant in Complex Access Needs*

I became a teacher in my early forties when I took a PGCE course in primary education. The National Curriculum was emerging, together with entitlement for all children, and I was hooked. What is more, I was deeply interested in how children, particularly those with obvious barriers to accessing conventional curriculum delivery, managed to learn. My first appointment as an NQT was in a special school for children and young people with physical and medical difficulties – ever since then I have worked in the field of SEN and disabilities, both in special and mainstream schools.

From the beginning, I understood that the first requisite tool for any learner is the ability to communicate with another person – to be able to receive the information being given and to be able to respond to that information. Where this happens successfully, then learning is able to happen! The communication link is established between teacher and pupil. If this link cannot be established, then barriers to learning exist, and a teacher's first duty is to identify those barriers and seek ways around or over them. The challenge of teaching learners with complex learning needs is to identify those several barriers and help the learner to overcome each of them to the extent they are able, so that they can negotiate the curriculum pathway that is appropriate for them.

Without a doubt, technology's role in aiding teachers to address these barriers has grown (and continues to grow) at an alarmingly fast pace. For all of us, the recently purchased iPod/camcorder/laptop soon becomes superseded by a later and improved model. So it is with the technologies familiar to us all in the field of education. Each new catalogue of products identifies new versions of trusted and familiar software as well as innovative pieces of equipment, promising further areas of success for the learner.

Most babies learn to communicate with their parents and wider family, through the deep human desire and ability to communicate – initially through understanding cause and effect (crying leads to getting fed/picked up/changed etc); followed by imitating and responding to parental gestures and language; leading on to a pattern of communication which allows a young child to co-exist with their own family members. By the time they go to school, most children have the skills to understand what is being asked of them and to be able to respond with a recognisable vocal response.

Some barriers are identified early in a child's life – lack of sight or hearing, for example – and these may start to be overcome with such well-established tools of alternative communication systems as Braille, auditory input, cochlear implants or BSL. Here technology has played its part, in improved production of Braille materials, cochlear implants, more effective and smaller hearing aids, talking books etc.

The recent CAP (Communication Aid Project) administered by Becta, and generously funded by central government over three years, alerted teachers to the possibility of learners who were previously limited to the use of signing/ communication boards/ books or responding to a series of yes/no questions, being able to express their needs and thoughts in a vocalised form that was understood by the wider community. Professor Stephen Hawking has done much to make parents aware of the possibilities for their own speechless children. VOCAs (voice output communication aids) can range from a simple switch device that can have a single message put on it, to a highly complex machine able to produce several thousand words. Each machine can be accessed through a wide range of means, depending on the specific abilities of the learner. A whole volume could be written here about the contribution of VOCAs to removing barriers to learning! Children are able to contribute in class discussion, alongside their vocal peers using the same language; PMLD children can reproduce a message from school for their parents and share their parents' response, simply by pressing a switch. A former pupil of mine with cerebral palsy has completed a degree (and enjoyed a stimulating social life) at university, effectively using a communication aid to replace the lost facility for intelligible speech. In all these areas, the VOCA has made a significant contribution to removing a major barrier to effective learning. So why is it that so many of these machines can be found redundant and gathering dust, and put away in cupboards? We have to ask the questions:

How appropriate was the assessment for a VOCA initially?

What plans for maintenance of the machine were made during the initial assessment?

Was there inter-agency participation in the choice of a VOCA?

How well trained were the supporting adults in the use of the machine?

What part did the family play in the choice of the machine?

How far was the learning environment adapted to accommodate the machine?

Few learning environments today do not have access to a computer – most classrooms have interactive whiteboards. It is encouraging to see how this has enabled groups of children, previously unable to participate directly in the learning process, to take part with their peers in an everyday activity. A group of reception children (including a child with cerebral palsy and learning difficulties) each moving their named icon to identify their choice of hot or cold dinner; an older group of pupils with ASD, in a special school, working collaboratively to piece together a picture of a recent activity they had undertaken. In each case pupils were able to show their understanding of the task required without additional support.

Classroom computers have lowered many of the barriers experienced by learners with dyslexia and dyspraxia; barriers that make reading and writing difficult. Help is provided by spell checking programmes (anticipating the words that a writer may be about to produce and providing them with the correct spelling). For learners who are unable to spell out words, there are programmes that enable the teacher to make grids of words appropriate for a sentence/paragraph, helping the learner to record what he/she has learned. The ability to

produce legible work, indistinguishable in appearance from that of their peers, develops a strong feeling of self-esteem in these young people. Lack of self-esteem can itself present a barrier to effective learning.

Computers, particularly in the form of laptops, have become smaller, lighter and easier to carry. For many young people reliant on a laptop for producing their work, the introduction of the notebook style computer has literally lightened their burden. Transport of equipment between home and school as well as around school has long presented problems for the learner with additional needs.

Added to this is now the endless range of switch access available for all equipment that allows any appropriate learner to record their work alongside their able-bodied peers. The secret to successful switch access is the identification of a body movement that can be controlled by the learner, be it a movement of a finger, knee or of an eyeball. Voice activated software allows a further range of young adults to successfully record their work.

Once again, however, many laptops/word processors/ keyboards become abandoned in the corners of classrooms, not because they have become redundant, but because their use is too difficult to manage by the learner. Again, we have to ask the questions:

How involved was the learner in the initial assessment?

How well trained was the supporting adult?

How supportive was the learning environment to the learner using the equipment?

How well planned was the maintenance of the equipment?

Switch access to equipment has removed very many experiential barriers to learning for those learners with more severe and complex learning needs. Learners who had previously to rely on others to do everything for them, now have opportunities to control aspects of their lives. Children can learn to make and record their personal choices; take part in practical lessons through switch control of equipment; young adults can transfer these skills onto environmental controls and alerting carers to their more immediate needs. Identifying appropriate switch access can be a complex process, requiring hours of patience by the learner, teacher and other supportive adults. Hopes for learning outcomes can often be set too high, especially by the teacher, sometimes leaving the learner frustrated and disappointed. I believe that successful switch access for more complex cases must incorporate a very gentle progression of targets, allowing time for new skills to be built up slowly but surely.

An area that has experienced one of the greatest impacts on removing barriers to learning is that of assessment. For the teacher, it has often been a struggle to record achievement and progression successfully for learners with more profound and complex needs. A written record cannot always adequately describe what is observed; a still photograph only captures a moment, which is rarely adequate; setting up recording equipment often proves a distraction to the learner; storing and referring to discs of recorded evidence is often slow and time-

consuming. Digital cameras have proved an invaluable tool to good assessment and now, the introduction of mini camcorders, the size of a mobile phone, means that success can be captured immediately and stored sequentially to show progress over time. For me, this technology has reduced one of the most obstinate barriers to recording success and achievement – and now the results can also be shared easily with the learner, feeding in to building up their confidence and self-esteem.

Many computer programmes designed to develop basic skills have in-built facilities to record a learner's progress when using a particular programme. Other programmes are designed specifically to test a learner's knowledge or skill. There are also programmes used as diagnostic tools. These all contribute to the overall assessment process, but it is still important to remember that very valuable information is gleaned when observing the learner using a particular programme. By understanding the strategies used by a learner to identify a choice, the teacher can begin to understand the thought processes behind that choice.

Finally, access to the world-wide web, which is now just a switch away for anybody, has the additional benefit of access to sights and sounds which may never be experienced by some learners. Disabilities may close doors to opportunities for learning for some learners. New technology, developed as a learning tool for teaching in higher education can now reproduce 'virtual reality' experiences for the learner in the classroom. The whole world has come to the fingertips of every learner!

I am inclined to say that technology's contribution to learning is rather like that of the mobile phone's contribution to communication – both the best and the worst thing that has happened! While teachers now have an almost confusing range of technological tools to help them access learning for their pupils, these are often very expensive. In our urgent drive to enable achievement, we can often select the wrong tools or not appropriately develop their use. I would like to open up a debate on how in the future, we can more successfully identify solutions to access problems. Can we rescue discarded equipment and re-circulate it appropriately? Can we use the technology of Skyping and video conferencing to share our ideas? Have other people reached some of the same conclusions that I have? I do believe we need to talk more about our individual successes and failures, and share more of our experiences with each other. If our focus is learner-centred, then it is the learner's future support needs we should address.