Technology supporting the transformation of learning for learners with CLDD.

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This Think Piece picks up on points made in previous articles, and offers some thoughts on the role of technology in the future teaching and learning of students with complex learning difficulties and disabilities (CLDD). It posits that not only will technology continue to provide invaluable tools for learning, but it will also drive the change in pedagogy. The recognition of the need to match teaching and learning styles, which is at the heart of personalising learning, enabled by technology should be central to this proposal.

Robert Winston[1] recently revisited familiar issues of the contradiction in the use of technology, and, to paraphrase a more sophisticated and complex critique, suggested that "it creates as many problems as it solves". What is clear is that, in recent years, a range of technologies have provided opportunities and challenges for teachers and their students. Indeed, it would be true to say that teachers of learners with special educational needs and learning difficulties have often led the way in exploring how technology can be used to match teaching styles to learning styles and overcome barriers to learning.

Barry Carpenter writes in a previous Think Piece: "The skilled, insightful teacher devises personalised learning pathways which engage the child meaningfully in the dynamic process of learning."[2] I would go further and say that such teachers must be constantly seeking different ways in which new and emerging technology can be integrated into this process. At the forefront of the innovative use of technology, since it was introduced by government funded initiatives, are special schools and special educators in mainstream schools, whose focus is on establishing ways of:

- using adaptive devices to provide access to mainstream technology;
- using technology to access the curriculum – for communication, for choice and independence;
- personalising relevant learning experiences.

The use of multimedia and communications technology has been a real strength of special educators, and this has been particularly important in the assessment and recording/demonstrating of learners' progress. It has also been central in providing meaningful and enjoyable learning experiences. There have been many examples of innovation in this area, exemplified through Becta ICT Practice Awards winners such as Ian Bean, who created resources at his time at Priory Woods School,[3] and Pete Wells at Portland School.[4]
The work of people like Ian and Pete testifies to the need there will always be for trail blazers to shine a light on what is possible in the use of technology. However, to ensure all learners with special needs can benefit, the work of innovators must be embedded effectively in all areas of a

school's activity. This is one of the reasons that Becta launched the ICT Excellence Awards, which recognise the best practice in schools that have used tools (such as the Self Review Framework) to examine whole school practice and applied for the ICT Mark. It may be no coincidence that many special schools are successful across all award categories, but particularly in the one for 'Learning Experience'. [5]

I agree with Barry Carpenter when he asserts, in a previous Think Piece, that "Special schools should now become 'pedagogical think-tanks' – nurturing, shaping and framing approaches that are dynamic and innovative, and which transform these children into active participants in the process of learning". And many are doing hugely imaginative things; for example, exploiting highly motivating technologies, such as motion controlled games, multi-touch surfaces and robots, to empower young people with CLDD. But more is needs doing to bring this to the attention of a wider audience – a point picked up later in this article.

Therefore to pick up on important points made in previous Think Pieces, the effective and efficient use of technology provides a means of support for all who care about the education of the young person.

Technology and parental engagement
It has already been commented on that the parent or carer of a child will be the person with the most intimate and holistic understanding of their child's needs.

> "Together, parent, teacher and other professionals can illuminate the learning pathway for the child, using a combination of acquired information, applied wisdom, previous experience and new approaches, devised directly in response to the child's needs." (Barry Carpenter, Think Piece 1).

Technology has the potential, though effective knowledge management systems to integrate and make this transparent for all of the players interested in the child's learning.

It is possible to learn from parents and gain a better understanding of their child's needs and strengths. Technology can provide an effective hook for dialogue between parents and teachers, and can build on and extend the essential face-to-face conversations that schools have with them. Lack of time, and the distance from school, can mean that using online systems (such as emails, texts, websites and learning platforms) can offer time saving and more effective and timely communication. Importantly, such systems must be genuinely two-way, interactive and responsive to parents' needs.

There are a growing number of examples from mainstream schools of effective practice in parental engagement through technology. In the summer, Becta will be publishing video and written case studies that focus on parents/carers of learners with special educational needs and disabilities in mainstream and special school settings as part of the support that Becta is offering through the Achievement for All programme.[6] This will build on and be integrated into the growing range of creative examples already available.

Reflection points:

Research evidence suggests that learners are more likely to achieve if parents show an interest in their education.

- *Does this apply equally to parents of children with CLDD or does it have an even greater impact?*

- *How are you currently using technology to engage with parents?*

- *What advice do you give to parents about using technology for learning at home?*

The increasing number of parents investing in computers and the internet at home, complemented by government initiatives such as Computers for Pupils and the recently launched Home Access Programme, is providing new opportunities for children and their families to benefit from the opportunities that technology offers. The Home Access Programme[7] aspires to be as inclusive as possible and has already provided a suite of assistive technology software that is available on all computers that families receive. In addition, all eligible families who have a child with complex learning and access needs are encouraged to apply to Computers for Pupils. Successful applicants will receive a system that is tailored to the identified needs of the learner.

Reflection point:

- *Have you encouraged all the parents who qualify for support in your school to apply for a Home Access package?*

- *In the near future, it is likely that all parents/carers will have access to the internet and a computer at home. How are you going to exploit that for the benefit of your learners and their families?*

Technology and peers within settings
Pedagogy is constantly developing and being refined by teachers in the classroom, informed by research, experience and peer interaction. One of the most highly valued forms of advice, from our experience, is that provided by others who are operating in the same context. Over the last 10–15 years, a growing number of technology based forums have developed for peer exchange of advice, information and knowledge, including those hosted by Becta. This provides highly valued, informal, continuing professional development and a real support and challenge to practitioners (for example Becta hosted inclusion communities[8]).

One of the key strengths and challenges to this field is the need to harness fully the multidisciplinary support required in educating and developing the long term life chances of young people with CLDD. The knowledge and skills of teachers, therapists and social care practitioners, along with the accumulated knowledge and research base, is fundamental to this.

However, most people are probably acutely aware of the barriers that prevent this combined expertise having the impact on outcomes which everyone strives to achieve. A major contribution to help address this issue is the work taking place as part of the Better Communications Action Plan.[9] The AAC strand of this work, in particular, is supporting "joined up working". It is facilitating an understanding of the work of different professionals by developing – through consultation and collaboration – guidelines to make it clearer what workforce competencies and service standards are needed to assess the need for appropriate technology. In addition, the DCSF is providing funding to ensure the sustainability of highly specialist AAC services and also to support innovative projects.

Now moving into the second year of funding, last year's outcomes of this work are being analysed, and will be published in Summer 2010. Already emerging are: new insights into the use of AAC devices with young people with ASD; the impact that switch-controlled toys can have as part of early intervention; 'colloquial' symbol vocabulary sets for teenagers; a comprehensive guide to VOCAs; and advice on effective communication systems.

But there are significant challenges, such as:

- Transfer of developments in heath care research (such as sophisticated access methods utilising direct nerve/neurological means of control) into easy to use/affordable products for schools and other settings
- A better understanding of the total cost of owning communication aids/systems and the benefits – a cost saving to Society over the lifetime of the user (i.e. a real understanding of the financial impact across the lifespan of not meeting the access and communication needs of children and young adults with CLDD).

Reflection point:
- *How will new, low cost devices – mainstream touch screen technologies, communication software that can run off highly portable devices, and new reliable access methods (e.g. via eye gaze, direct-from-nerve impulses) – offer the potential for change?*

- *What challenge would you like technology developers to address as a matter of urgency for the young people you are supporting?*

- *Who are the learners that are providing new and significant challenges?*

- *Will the integration of symbol usage into mainstream learning platforms offer equality of opportunity for all learners or will a more flexible approach that matches need, purpose and context be required in the future?*

This has just scratched the surface of the challenges to professionals and the system.

Peer interaction between learners is of equal importance and could provide the focus of a whole Think Piece, but space does not allow it here. Suffice to say that is hugely important in all settings and arguably more challenging and essential for learners with CLDD.

Conclusion

To conclude then with some observations and yet more questions! Technology has the power to support and drive transformation of the education system in many ways. Inclusion and diversity of provision can coexist; there are great examples from the Building Schools of the Future providing a vision of what might be possible.

As well as research, such as that which Barry Carpenter is leading at SSAT, what more is needed as a patch up or system transformation level? Below are some suggestions, but your views on these and what more is needed along with comments on the points raised throughout this article would be very welcome.

Final reflection points

Would it help to have:

- *A clear and agreed assistive technology competencies framework showing a progression of knowledge, skills and understanding, and application of AT/AAC (plus a maturity model) in use within education;*

- *Development of nationally recognised standards for the exploitation of assistive technologies with associated models (e.g. 'maturity'/effective use for individuals and institutions);*

- *Increased opportunities for industry and developers to interact with practitioners and end users to better understand how their products and services can best meet the needs of this changing and increasingly complex and challenging population of young people;*

- *A national procurement mechanism to ensure easier ways of purchasing items needed, when needed, and at a reasonable price;*

- *Better informed specialist commissioners of high end (assistive/ communication) technology;*

- *Better mainstream understanding of the value of assistive technologies – 'mainstreaming' of assistive technology and moving it from the niche area of specialists (demystification of language and use) – across the school/children's workforce;*

- *An online resource, which is easy to access and use, for sharing examples of how technology can be or currently is being used to support emerging new pedagogy (and arguably is driving/shaping new pedagogies)?*

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