DIGITAL ASSISTIVE TECHNOLOGY: A CORE SKILL FOR OTs WORKING WITH CHILDREN?

Patricia Terrer-Perez looks at the role of occupational therapy in the provision of digital assistive technology for children and young people

Nowadays, children and young people are clearly 'digital natives'[1], as they grow, play and learn surrounded by technology and frequently report this as one of their preferred 'leisure' activities. Educational professionals have rapidly acknowledged the value that technology offers to students with special educational needs. However, Occupational Therapists (OTs) frequently decide that they lack expertise in this area or that it may be other profession's remit to deal with these issues. OTs working with children and young people are strategically placed to support and encourage the use of technology, as this may be a highly motivational and inclusive approach to support participation in a variety of activities and settings. They already have knowledge of important underlying skills, such as how to improve positioning, arm and hand function, visual-perception, etc., all of which play an essential role when deciding the type of technology to prescribe. Additionally, there is recent evidence to support the use of assistive technologies in schools (Watson et al. (2010))[2]. Why is it, however, that the prescription and use of digital assistive technologies is barely mentioned as a core skill for occupational therapists working in paediatrics?.

In both special and mainstream school settings, recent and fast technological advances have made it possible for children with physical, learning and communication needs to participate in classroom and school activities. These days, most classrooms and teachers have a range of resources already in place as standard classroom equipment, such as interactive whiteboards, multimedia computers, educational software, etc. Students are usually motivated and familiar with technology already as an aid to learning. However, not every child with special needs will be able to access these resources without some additional considerations, and others may need alternative provision altogether.

Assistive technology (AT) consists of any equipment or adaptive devices that enable a person with a disability to access a range of functional activities (communication, play, academic work, leisure) e.g. specialist seating, an adapted laptop, mounting devices, specialist mice and keyboards, switches, environmental controls, eye gaze systems, etc. Traditionally this term has also included other assistive devices to address problems with other activities of daily living, although this article will focus on 'digital' or ICT type of technology.

Additionally, people who experience communication difficulties due to a physical or cognitive impairment may need an **Augmentative Alternative Communication (AAC)** system to supplement or replace their speech. AAC is the use of any mode of communication other than speech. Facial expression, gesture, handwriting or using pictures are all forms of AAC. Children who are at risk of not developing functional speech will benefit from the introduction of a system as early as possible. AAC can also be used to help us understand spoken language and is used with language impaired children and children with learning disabilities.

Both AT and AAC now overlap in the way that technology has evolved to meet as many needs as possible, using a limited number of devices (or just one device) for different purposes. Both have also attracted a great deal of attention from a variety of professionals, although AAC has traditionally been claimed by speech and language therapists. Ideally, a multidisciplinary team of professionals (including Teachers, Speech and Language Therapists, Educational Psychologists, Special Educational Needs Coordinators, etc) should be able to deal with primary requests for assessments at a local level. The student, his/her family and a direct school support assistant should be at the core of multidisciplinary assessments for AT/AAC.

However, too frequently professionals shy away from the provision of 'specialist equipment' on the basis of little knowledge/time or prefer to refer to costly 'specialist services' or private practitioners. Other times, the 'one-size-fits-all' type of approach is also employed in schools, where, for example, every student with special needs will be awarded a laptop or iPad and expected to then get on with classroom work with increased independence without any further guidance or support. As a result, provision in every borough and school varies significantly depending on the interest and knowledge of their staff and local community services. Some schools can devote a great deal of resources to this area, while others can neglect it completely or focus only on mainstream equipment.

When deciding on the most appropriate technology for a student with special needs, OTs can fully utilise their core skills (i.e. performance analysis, assessment of underlying body functions, etc.) to contribute to a multidisciplinary assessment of factors that may limit participation in meaningful activities. Several considerations have to be taken into account during an AT assessment of needs:

- <u>Problems and functional needs of the student :</u> These will vary and may need to be assessed individually by the relevant qualified professionals (i.e. teacher, OT, SLT, psychologist, physiotherapist, etc.):

- Type of Communication the student currently uses or is familiar with: verbal, written, pictures, gestures/ Makaton, symbols, picture grids, etc.
- Physical ability: muscle tone and range of movement, joint laxity, bilateral coordination, finger dexterity, reliable movements, etc.
- Sensory skills: vision and visual perception, auditory feedback, arousal levels and additional sensory processing needs.
- Cognitive skills: attention, memory, problem-solving, academic skills acquired (i.e. literacy level), etc.
- Behaviour: emotional status, outbursts, frustration, motivation, compliance, etc.

- Positioning: In most cases the student is required to accurately use their hands or other body parts to access technology; therefore, good posture and careful positioning and placement of equipment are crucial to ensure success. This should be the *first thing to consider* before further assessment is carried out, as a bad posture could severely affect access to the technology being tried. Specialist seating and careful positioning and mounting of the equipment may be an area to be advised on by an OT.

- Purpose of the technology/ equipment: Objectives can be helpful to determine aims to be achieved by introducing a new piece of equipment (i.e. recording of work, communication, participation in a specific lesson or play activity, etc.). It is essential to check with other professionals what has been tried in the past, so that appropriate client-centred targets that can be set for the user to develop his/her skills. It is also in the interest of the student to limit the number of devices. Multi-purpose devices or compatibility between devices should always be encouraged first, where possible (i.e. tablet PC to record academic work, with adequate voice output for communication purposes).

- Type of equipment selected and training required: Most new equipment will require a period of adaptation for the user and assistants. Practical training set up at the right level will be essential for the student and other people supporting him/her on a regular basis. If only a few people know how to set up the technology, the chances of using it regularly will be minimised. Acceptability issues must be considered, as the student will be more compliant with a system they have previously agreed upon, rather than one that has been imposed on him/her by professionals. As technology changes fairly fast, regular reviews and upgrades should be planned for in the long term, to ensure that the user's needs are still met.

Overall, good coordination and communication among all professionals involved should be maintained throughout the assessment and trial process, to ensure a successful outcome.

There is no official agreement as to when is best to start assessing or trying AT or AAC, but most families and professionals agree that, if a person appears to have a delay or a difficulty in activity participation or communication, technology should be introduced *as early as possible* in that person's life. Most children and young adults already have access to technology as part of their daily routines. This does not just means access to passive technologies such as televisions or DVD players, but participation in interactive technology such as computers, mobile phone games, tablets and other gaming devices. In the past, there has been a tendency to exclude children with special needs or disabilities from using technology for a number of reasons, such as technology being too fragile, difficult for them to understand/operate, too absorbing, not educational enough, etc.

Yet the latest evidence (Chantry and Dunford, 2010)[3] has demonstrated that technology can have a great impact in participation in meaningful occupations for children with complex needs and even facilitate access to tasks that otherwise would be restricted for them. A careful multidisciplinary assessment of the person's needs should be first carried out, in order to decide what type of technology best matches the user's needs. It is an OT's responsibility (in conjunction with other relevant professionals) to carry out a client-centred assessment of AT needs, prescribe appropriate resources and initiate onward specialist referrals for all clients requiring AT to enhance their participation in relevant activities. An occupational therapist should be a 'core professional' that has an essential contribution to this type of assessments, but further skill development may be required in this area, to match existing professional skills with the advantages of new and emerging technologies.

References:

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[2] Watson, A. H., Ito, M., Smith, R. O., & Andersen, L. T. (2010). Effect of assistive technology in a public school setting. American Journal of Occupational Therapy, 64, 18–29.

[3] Chantry J, Dunford C (2010). How do computer assistive technologies enhance participation in childhood occupations for children with multiple and complex disabilities? A review of the current literature. British Journal of Occupational Therapy, 73(8), 351-365