

Royal National College for the Blind: Talking Tactile Technologies (T3)

www.rncb.ac.uk/t3/index.html

The Royal National College for the Blind (RNC) is a residential specialist college for learners with visual impairments. At the heart of its mission is to prepare these young people for work, Higher Education and independent living. T3 is a multi-sensory (audio, visual, tactile) learning system with which the learner uses tactile images to activate instant feedback to explore, comprehend, reinforce and revise almost any chosen curriculum area.

Tags:

FE, All sectors, SEN/LDD inclusion, Cross-curricular, Visual impairment

Harnessing technology system outcomes:

Improved personalised learning experiences

Engaged and empowered learners

Sectors:

FE/Post 16, schools, universities, SEN/LDD

Innovation

T3 offers a new degree of personalisation for learners with visual impairments, allowing them to learn at their own speed with or without the support of sighted assistants. Tutors can storyboard and, with training, create their own tactile sheets on any given subject. T3 can be used by sighted learners and has been seen to stimulate younger learners and those with special educational needs – particularly those with poor levels of literacy.

Background

Visually impaired learners are usually excluded from graphical and visual data that enrich the learning experience for sighted learners. Many subject areas at most levels make heavy use of visual representations - the sciences, for example, often rely on diagrams and charts, maps are clearly vital to geography and it is much easier to harness ICT if the user can visualise the screen and file/folder layouts. In addition to learners with a visual impairment, any learner who has difficulty with the written word is limited in the use of text to support their learning.

Technology

The T3 system comprises a touch screen pad on which an overlay, imprinted with a tactile image (for example, a diagram of the human body to illustrate the location and functions of the glands) is placed. This pad is connected to a standard PC or laptop via a USB connection. Through pressing a unique pattern of three buttons at the top of the sheet and buttons at two diagonally opposing corners, the learner locates the sheet in the correct position, calibrates the sheet and activates the information files in the connected PC or laptop. The user launches the system by pressing anywhere on the 'screen' and then explores the overlay sheet through touch. As the user explores the raised contours of the overlay they are able to identify symbols, icons or tactile regions which when pressed trigger pre-programmed audio information (for example, "the pituitary gland is located at the base of the brain") from the laptop/PC. Each symbol may contain up to ten levels of information, namely each press reveals a new, related level of information.

The overlay sheets can be custom made on commission by the RNC Multi-Sensory Communications team (the team work from a storyboard supplied by the commissioning tutor/institution) or by the tutors themselves. The RNC also holds an expanding catalogue of sheets which can be procured at relatively low cost.

Teaching and learning

T3 is enriching teaching and learning across a wide range of curriculum areas from Alternative Therapies to Numeracy and Literacy, Geography to Science, Religious Education to Physiology and most recently Healthy Eating, and all ages from Early Years to Level 3. The system is straightforward to set-up and user friendly once loaded. This allows the learner to work independently or alongside a sighted assistant. T3 can be used by the individual learner or in small groups. In some mainstream schools where there is only a single visually impaired learner in a class, T3 has been used by many learners and has been influential in bringing the visually impaired students into class discussions.

Evaluation feedback from teaching staff internally and from external organisations has identified that T3 has particular applications for:

- » resourcing supported learning
- » revision and assessment
- » enhancing listening skills and supporting the following of verbal instructions
- » improving concentration
- » topic-based learning
- » independent or paired learning
- » supporting the fine tuning of motor skills.

Impact

The RNC has now worked with over one hundred different organisations (schools, colleges, universities, employers) in the UK and Europe over the five year duration of this initiative. Over 200 units have been supplied although it is impossible to know precisely how many users are now taking advantage of these. The College has worked with mainstream schools which originally intended the tablets to be used with an individual learner who is visually impaired but now use them for group and even class teaching. Many of the partner organizations are LDD/SEN specialist institutions and procure the T3 for use by many learners. It is therefore certain that there are now several hundred users in total.

Challenges

In most circumstances the T3 unit is only used by a single user at any one time. As the initial investment, excluding the computer, is in the region of £900 this may appear prohibitive. However, that figure includes all necessary software and ongoing support from RNC. No additional costs should accrue other than optional training in creating the overlay sheets or procuring overlay sheets. The RNC offers a one day training course for £400 which covers any reasonable number of trainees (the college encourages participating institutions to support a group of authors rather than a lone individual). Custom-made overlay sheets cost in the region of £140 depending on complexity. However, provided sheets are treated with care they can be reused without limitation. It is likely that perceptions of cost are more of a barrier than the reality.

The touch pad is somewhat bulky by comparison with many emerging technologies and this may act as a disincentive to some tutors (if they are required by timetables to move classrooms).

Wider adoption

The T3 has a core constituency of learners with a visual impairment and there are relatively few barriers to any such learners benefiting (contingent upon other possible disability issues). Cost may, however, be a barrier to personal ownership for most visually impaired learners. As noted above, T3 has the potential to be used more widely than this core constituency and is by no means limited to being deployed in specialist institutions.