Bournemouth University

Developing software that allows severely disabled schoolchildren to create 3D sculptures earned a team from Bournemouth University the Outstanding Digital Innovation in Teaching or Research award.

The team from Bournemouth's National Centre for Computer Animation worked with Victoria Education Centre, a school for children with physical and learning disabilities, to develop a software system that enables students to bring art to life.

Children with little or no limb control can find it difficult to engage with art using conventional methods, and can therefore be excluded from an activity that supports self-expression, builds self-confidence and develops skills such as spatial awareness. The Sculpture for Healthcare: Interaction and Virtual Art in 3D project, or Shiva – which was supported by European Union funding and includes partners from France and Norway – developed software that allows children to create and 3D-print objects using only their eyes.

With no existing virtual-sculpting software available, the team developed solutions and had to accommodate the different needs and abilities of users. Speech therapists have since used the software to assist with speaking and listening, and with cognitive development exercises. It has also been employed to improve students' manual dexterity using the touchscreen to increase range of movement.

The judges said the "outstanding success of the Bournemouth team's work would leave a lasting impact" and, for some children, it would be the first time they were "able to interact with the world in 3D".