

**(REF3b): Impact case studies**

**Impact case study: 2**

**UoA 35 – Music, Dance and Performing Arts**

**Title of case study: Sound and Music Therapies: Professor Phil Ellis**

**1. Summary of the impact** (indicative maximum 100 words)

Professor Phil Ellis' research is focused on developing therapies for children with special needs (including autism), and the elderly in residential homes, sheltered accommodation and day care. He has been involved in establishing iMUSE rooms in a range of institutions, such as special schools, specialist institutions for autism, day care centres, and an NHS intensive care centre. His work has also involved knowledge transfer to enable partner organizations to use the techniques he has developed, along with appropriate supporting technology.

**2. Underpinning research** (indicative maximum 500 words)

Professor Phil Ellis' has been engaged in field-based research in Sound and Music Therapies since 1992. This research has seen him develop sound-based interventions for children with cerebral palsy (CP), profound and multiple learning difficulties (PMLD) and for elderly participants in long-term care.

Since 1998, his work has been concerned with the effects of employing vibro-acoustic devices which allow sound to be experienced as auditory and tactile sensation via vibrations, and, since 2004, using a variety of graphical representations of sound and movement to provide a higher degree of immersion for participants.

Professor Ellis' work also addresses a need identified in 2005 by several institutions of the Centre for Excellence in Teaching and Learning (CETL) Music and Inclusivity (2005 – 2010) by providing new professional development opportunities in the specialist area of vibro-acoustic sound therapy and thus adding to provision of opportunities for creative and enabling work (with, for example, children with special needs, and the elderly and mentally infirm) which can be accessed by both undergraduate and postgraduate students.

In 2006, Ellis established, The iMUSE research centre (interactive multi-sensory environments) at the University of Sunderland. This initiative had three aims: to aid the development of new therapeutic techniques; increase the accessibility to creative experience through an interactive music/arts installation for the elderly and those with special needs; and to provide professional development opportunities in the specialist area of vibro-acoustic sound therapy.

In 2008, the Linbury Trust provided funding for further research and development into new participant interfaces for elderly, frail and mentally infirm people to control elements of iMUSE.

**Research Assistants**

Dr Lieselotte van Leeuwen (2005-2011) joined the iMUSE project in 2005 as senior researcher. She is a senior lecturer in psychology at the University of Sunderland. Her work focuses on the development of perception and action. She continues to apply this expertise within interdisciplinary teams developing explorative and expressive environments for children with sensory problems and ASD. Emphasis in her research lies on enabling user-centered design. She was involved in several European IST projects between 1998 and 2003.

Kenneth Brown (2006-2011) joined the iMUSE team as a Research Assistant in 2006. He specializes in Music Technology, having gained an MA with Distinction in the subject at the Sonic Arts Research Centre in Belfast in 2004, after having worked as a software and hardware developer in the electronics industry for a number of years. Previous projects include

a Max/MSP/Jitter sound spatialisation system with a user interface comprising of hand-held light-emitting 'pens'.

iMUSE is part of the Centre of Excellence in Teaching and Learning (CETL) for Music and Inclusivity. The CETL is a regional consortium of music and performing arts departments from six universities in the North East of the UK, which provide courses focusing on music and inclusivity for the shared audience of students at the partner universities.

### **3. References to the research** (indicative maximum of six references)

#### **Key Outputs**

Ellis, P., & van Leeuwen, L. (2009). Confronting the Transition: Improving Quality of Life for the Elderly with an Interactive Multisensory Environment - a Case Study. HCI09 Conference Proceedings.

Ellis, P., van Leeuwen, L., & Brown, K. (2008). Visual-Music Vibrations - Improving quality of life for the elderly and children with special needs. Digital Creativity, Routledge, ISSN 1462-6268.

Van Leeuwen, L., & Ellis, P. (2007). Facilitating the experience of agency through an intersensory interactive environment. Digital Creativity, 18 (2), Routledge, ISSN 1462-6268.

Ellis, P. (2006). Improving Well-Being and Quality of Life for the Elderly through Vibroacoustic Sound Therapy. In Prause-Weber (Ed) Musica - re serva verum gaudium, ISME Publications, pp155-171, 0-9752063-5-4.

Ellis, P. (2004). Moving Sound. In Gallagher & Maclachlan (Eds), Enabling Technologies: Body, Image and Function, Churchill Livingstone. ISBN 0-44307-247-7.

Ellis, P. (2004). Caress. In Siraj-Blatchford (Ed.), Developing new technologies for children, Trentham Books, pp113 - 137, ISBN 1-85856-307-0.

#### **Grants**

Phil Ellis, The Linbury iMUSE Development Project, 2008-2010: £20,000,

Phil Ellis, Sound and Music Therapies, Centre of Excellence in Teaching and Learning (CETL) for Music and Inclusivity, 2005-2010: £229,500

### **4. Details of the impact** (indicative maximum 750 words)

Professor Ellis' work involves a significant range of both on-campus and off-campus activity. He has been involved in establishing iMUSE rooms in a range of institutions, such as special schools, specialist institutions for autism, day care centres, and an NHS intensive care centre. His work has also involved knowledge transfer to enable partner organizations to use the techniques he has developed, along with appropriate supporting technology.

His research projects have looked at:

- Developing new digital interfaces for children with special needs
- Tactile Interactive Multimedia for children with hearing impairment and visual impairment, including the blind and deaf
- Developing interactive multi-sensory environments (iMUSE) for the elderly in long-term care, to develop new interfaces to give control to elderly, frail and mentally infirm people.

iMUSE research is carried out in association with schools and care homes in the community, and also at the Sound Therapy Lab installed at the University of Sunderland in 2006, which was

supported by funding from the regional Centre for Excellence in Teaching and Learning 'Music and Inclusivity'.

The Sound Therapy Lab provides a customized environment for one-to-one interactive sessions. Participants can:

- engage with the multi-sensory environment according to their needs and preferences, either sitting in a chair, wheelchair, on a beanbag or the floor
- control mutually related sound, visuals and vibrations by using their voice or body movements.

A typical one-to-one iMUSE session takes about 30 minutes. Participants are seated in a vibro-acoustic chair, which transforms sound into vibration. Additionally, sound can be transferred into complex changing visual patterns through visualization software, such as G-Force, Arkaos, etc. The graphical feedback is projected on to a screen in front of the participant. iMUSE interactions have been shown to support: expression, communication, aesthetic resonance, awareness of control, exploration and ludic engagement.

During iMUSE sessions for children with special needs the following progression has been observed:

From	Involuntary	Accidental	Indifference	Confined	Gross	Exploratory	Solitary
To	Voluntary	Intended	Interest	Expressive	Fine	Preconceived	Individual

During iMUSE sessions for elderly in long-term care, the following progression has been observed:

From dependent	Isolated	Indifferent	Frowning	Crying	Silent	Withdrawn	Inward
To responsive	Aware	Reactive	Smiling	Laughing	Content	Thoughtful	Poised
To independent	Contributing	Expressive	Laughing	Expressing	Receptive	Communicative	Interactive

At Hollybank school in Mirfield, West Yorkshire, they have built a dedicated iMUSE room for their residential and part time young people and adults with disabilities. The importance of the iMUSE initiative is confirmed by Hollybank's Creative Project Development Manager:

'iMUSE has revolutionized what we do for young people and adults within the trust. It has opened up a whole new world in which the children and adults can compose, own, communicate and just explore themselves. Its just been amazing the difference and the change that's happened with our folks here. It's been wonderful, really wonderful...' (May, 2008). <http://centres.sunderland.ac.uk/imuse/sessions/children/hollybank-imuse-sessions/#d.en.17616>

The Percy Hedley Foundation, a charitable organization based in Tyne and Wear, who provide a wide range of services to children, young people and adults with disabilities, have also recently installed an iMuse studio at the Linskill Centre, in North Shields. The Adult Service Manager says it helps to empower people: 'It allows the individual to take control of the environment. It's all about control and empowerment. This studio represents a major move forward in the options available to people with profound and complex needs, not only to participate in an enjoyable music and relaxation session, but to develop and produce beautiful art work, which not only provides creative expression for the individual, but also has the potential to provide real employment opportunities for individuals to promote and sell their work through the development of our new social enterprise and employability projects' (8 September, 2011).

<http://www.percyhedley.org.uk/news.asp?id=609>

The Schools Network's *Complex Learning Difficulties and Disabilities Research Project* cites iMUSE as an example of good practice in 'Supporting emotional wellbeing' and 'Creativity for students with CLDD'. <http://complexld.ssatrust.org.uk/promising-cldd-approaches.html>

## **5. Sources to corroborate the impact** (indicative maximum of 10 references)

Corroborating Sources (also see section 4 for quotations from testimonials)

Professor Ellis's work is widely cited as a pioneer in his field by health care and music therapy professionals, for example:

1. Ground Breaking New Technology Provides Therapy, Education and Employment Opportunities for People with Disabilities in Tyne and Wear.

<http://www.percyhedley.org.uk/news.asp?id=609>

2. Interactive Therapeutic Multi-Sensory Environment for Cerebral Palsy Users

<http://www.joanbages.com/arxius-web/articles/ETSIProject.pdf>

3. Positive Health Online: <http://www.positivehealth.com/article/sound-and-music/sound-as-an-alternative-to-traditional-medical-therapy>

4. Valley View is a care home situated near Sunderland specialising in dementia care. Since 2006 approximately 15 residents have been involved in iMUSE research.

<http://centres.sunderland.ac.uk/imuse/sessions/elderly/valley-view-sessions/>

5. Hollybank is a trust managing residential care homes for disabled adults and children in the Yorkshire area. <http://centres.sunderland.ac.uk/imuse/sessions/children/hollybank-imuse-sessions/#d.en.17616>. Stewart Geddes, Hollybank Trust, May 2008.

<http://seacoast.sunderland.ac.uk/~imuse/hollybank-sg-quote1.mpg>

6. Auckland Homes in Sunderland provides sheltered accommodation for the elderly.

<http://centres.sunderland.ac.uk/imuse/sessions/elderly/video-examples/>

7. BBC Newcastle, Phil Ellis Interview, 23 November, 2009

[http://news.bbc.co.uk/local/tyne/hi/people\\_and\\_places/newsid\\_8375000/8375191.stm](http://news.bbc.co.uk/local/tyne/hi/people_and_places/newsid_8375000/8375191.stm)

8. BBC Newcastle, New iMuse studio in memory of Rob Luke, 23 November, 2009.

[http://news.bbc.co.uk/local/tyne/hi/people\\_and\\_places/newsid\\_8374000/8374532.stm](http://news.bbc.co.uk/local/tyne/hi/people_and_places/newsid_8374000/8374532.stm)

9. The Centre for Excellence in Teaching and Learning (CETL) Music and Inclusivity 2005 – 2010 <http://www.teachingexpertise.com/articles/multi-sensory-environments-in-special-schools-3277>

10. Filmed Sessions/Testimonials

[http://seacoast.sunderland.ac.uk/~imuse/output\\_11.mpg](http://seacoast.sunderland.ac.uk/~imuse/output_11.mpg)

[http://seacoast.sunderland.ac.uk/~imuse/output\\_12wr.mpg](http://seacoast.sunderland.ac.uk/~imuse/output_12wr.mpg)

<http://centres.sunderland.ac.uk/imuse/sessions/elderly/video-examples/>