

Guest Editorial

Over a Decade of Developing the Assistive Technology Field in the UK

This special issue mainly presents papers from the UK RAATE (Recent Advances in Assistive Technology and Engineering) conference 2013 held at Warwick University. The previous *Technology and Disability* issue contains one paper; another paper has been added herein through the usual route.

The RAATE conference is a long-standing annual UK conference focusing on assistive technology, with the inaugural event in 2001. Many of the proceedings from previous years of this conference can be found on the Health Design and Technology Institute (HDTI) hosted website (<http://www.raate.org.uk>). Looking at the development of this conference suggests trends in the development of the disciplines, technology and services related to assistive technology.

RAATE began life as RARE (Recent Advances in Rehabilitation Engineering) an annual event for (rehabilitation) engineers with a focus on wheelchairs and seating, the equipment area in which most rehabilitation engineers worked. Like many other single discipline meetings other types of assistive technology were reported at RARE but to a very limited extent. The conference was originally hosted by the Centre of Rehabilitation Engineering based at Kings College London. It has since been hosted by the Institute of Physics and Engineering in Medicine (IPEM) and most recently by HDTI which is part of Coventry University.

RAATE developed as the importance of assistive technology emerged in supporting people with disabilities and the increasing aging population and the range of assistive technology (AT) being used began to increase. Rehabilitation engineers, in common with other disciplines, needed to develop and expand their knowledge and expertise to better meet their service users' needs. The purpose of RAATE was to "bring AT professionals together" and so RARE became RAATE and the doors were opened to therapists, doctors, teach-

ers, carers and academics alike. At the same time new professional roles of clinical scientists, clinical technologists within the health sector and assistive technologists within the education sector were being developed which were transforming the professional development pathways and training. The common theme thus became the subject of AT instead of the professional discipline. The name was also chosen to reflect the European organisation AAATE (The Association for the Advancement of Assistive Technology in Europe) which promotes research and development of assistive technology – not least through this journal.

The need to develop this multi-professional forum reflected the fragmented nature of AT delivery in the UK. Here equipment services are fragmented tending to work in isolation. For example many wheelchair and seating services are separate from any other type of equipment provision. Yet many wheelchair users also use communication aids, telecare, environmental controls and need access to computers. The organising committee wanted different disciplines and services to be able to meet and learn about each other's areas of expertise. The early programmes reflected this with input from services around the country explaining their models of service and "Beginners Guide" sessions offered to all on different areas of assistive technology.

An early development of RAATE was the AT Forum, a group with representation from all the professional organisations, service providers, charities and user groups in the UK involved in or using AT. The AT Forum produced an influential position paper in 2014 (http://www.fastuk.org/fastdocuments/atf_3.pdf) on the provision of assistive technology in the UK. This paper identified issues, drivers for change and key areas of work that needed to be undertaken in order to take forward and realise the full potential of assistive technology.

Initially, RAATE was an entirely ‘practitioner’ led event – tending to present case studies, service developments and technology developments, but not formal research findings. This is another theme of the development of this conference, ultimately evidenced in the quality of the papers contained in this special issue. FAST (the Foundation for Assistive Technology) joined the organising committee 2008 and was one of the drivers for this change. FAST’s involvement allowed RAATE to tap into the wide range of research in AT across the UK (and Europe) as FAST was commissioned by the Department of Health to produce an annual parliamentary report on research into AT in the UK. Sadly, last year saw the end of the Department of Health commissioning however we are hopeful that FAST can continue to contribute and support the field of AT.

Dissemination of research knowledge has also been key to RAATE and the keynote speakers have been highly influential in this and encouraging an evidence based approach within the field. Keynote speakers have included many who have made significant contributions to the field of assistive technology, such as Marcia Scherer who developed the Matching People to Technology assessment method, Martin Fergusson Pell who founded and directed the Centre for Rehabilitation Technology in New York and Jeff Jutai who developed the Psycho-social Impact of Assistive Devices outcome measure (PIADS). We have also had the opportunity of hearing from those who use assistive technology – most recently from Kate Allatt, who survived a brain stem stroke (<http://www.kateallatt.com/>). These keynote speakers have given frank and critical opinions on what works and what does not and the impact that the equipment and the support they are offered makes to their life.

Our delegate lists have also changed. Where once they were predominantly service personnel there is a now wider spread including research institutions and also companies who take part in assistive technology development. We are grateful to our colleagues in the manufacturing and supply industries who regularly attend and support this event – highlighting the crucial role they play in the picture of AT provision. While there has been a loose connection between the AAATE and RAATE this has grown with a regular presence of the AAATE at RAATE in the last few years. Perhaps co-incidentally there has been a small but increasing involvement of non-UK speakers and delegates. It would be good to think such ties between national AT meetings and the AAATE could be developed in a stronger way across the whole of Europe.

Looking at the past content of RAATE shows how different themes emerge over time – these can be driven by the research ongoing in academic institutes, charities, companies and services alike; through external influences such as the growing need to support older people to remain safe and independent in their own homes; or by programmes of work directed by Government such as the early introduction of telecare services through to the latest changes in NHS Specialist Commissioning which has seen the establishment of Communication Aid services and the further development of Environmental Control Services. We therefore have the opportunity annually to report on the health of AT services around our country and beyond and report more widely on factors that will impact on them.

We continue to invite research, service issues/developments, case studies, technology developments and new products from manufacturers to be presented at RAATE. The selection presented in this special issue is typical in highlighting the diversity and quality of the UK assistive technology research field.

Bentley and colleagues [1] revisited the reasons why telecare is still not being adopted as much as would seem desirable. They highlighted that on many fronts the reasons are unchanged from previous work on the topic, suggesting that innovation responding to the barriers has not occurred.

Ward and colleagues discuss the use of a co-creation methodology in the context of consumer telecare service design. They highlight the fact that the increasing ubiquity of smart phones, computer tablets and older people who employ such technologies has created the opportunity to offer a consumer solution to augment/enable family and friends support. Such solutions have the potential to really change if not improve support available to those who need and want it.

Ahanathapillai and her co-authors discuss the design and functioning of a wrist worn technology and digital service to monitor wellbeing and daily activities particularly for older people with long term conditions. Such technologies can straddle the consumer and medical market and raise questions about are they assistive or rehabilitative technologies at all. However a prima facia case can be made that anything that allows an older person – who has lessened functional capabilities through any cause – to choose to remain at home living independently can be considered assistive. Rehabilitation/behaviour change capacity will depend on the long term conditions involved and how the service utilises the technology.

Attempting to provide consumer based solutions requires that those who select them have good informa-

tion to inform those choices. Holliday and co-authors have targeted one specific instance typically considered as within telecare, namely fall detectors. They found that no users, professionals nor end users, could access the required information to help them appropriately choose when to employ fall detectors or not.

The final paper is quite different. From Redhead and Mandy we have a study to examine if improved designs of one arm operated manual wheelchairs is necessary. They observed EMG activity in six muscles surrounding the shoulder joint during propulsion by 17 non-disabled users. The study employed more than one chair designed for one arm propulsion. They conclude that user fatigue could occur during use of these wheelchairs, and that the next step is to repeat the study with real end users.

The included papers are somewhat typical in their profile in that there is a dominance of digital technology – in part this is because of its flexibility but available funding also has a lot to do with it.

The paper not from RAATE, by Jeanvoine et al., is much more mathematical in its content than any of

the above. It explores various techniques aiming to improve phoneme recognition in binaural cochlear implants. Preliminary results have some potential but require appropriate implant users – and it concluded that noise reduction in an adverse environment is still to be resolved.

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Reference

- [1] Bentley CL, Powell LA, Orrell A, Mountain GA, Addressing design and suitability barriers to Telecare use: Has anything changed? *Technology and Disability* 2014; 26(4): 221-35.