Digital technologies offer a number of potential ‘wins’ for aphasia therapy. They can help to raise the treatment dose through computer-based practice and, when that practice is self-directed, increase autonomy on the part of our clients. Remote technologies can reach individuals who cannot travel to clinic. Perhaps most excitingly, technology brings new and creative possibilities into aphasia therapy.

There are many accounts in the literature of computer aphasia therapies that target a range of language skills (see Van De Sandt-Koenderman, 2011 for review). However, evaluations are largely confined to single case or small group studies. An exception is the study by Palmer and colleagues (2012) – a pilot randomised controlled trial of computer therapy using ‘StepbyStep’. Results showed an average of 25 hours of self-directed practice with the programme improved word finding in 17 people with aphasia. ‘SentenceShaper’ supports the production of connected speech. It enables the individual to store their own fragmentary utterances and combine these first into sentences and then into longer passages. Several single case and small group studies have shown that users can improve the quality of their output with SentenceShaper, with carry over to unaided speech (eg, McCall et al, 2009).

Mainstream technologies

So far, this article has focused on bespoke aphasia software. However, clinicians and clients are increasingly aware of the therapeutic potential of mainstream technologies (Dietz et al, 2011). A number of case studies have evaluated uses of mainstream technologies, such as e-readers, word prediction and text-to-speech software (eg, Estes and Bloom, 2011). An example is the study of ‘Stephen’, who had severe dysgraphia following a stroke (Caut and Woolf, in press). Treatment targeted the writing of emails by using voice recognition software. After therapy, Stephen made dramatic changes in his ability to write emails and generalised his skills to contexts beyond therapy, eg by emailing work colleagues. Gains in social participation also followed, most notably in the assumption of a new volunteering role. The current CommunicATE project, based at City University London and funded by the Barts Charity, is continuing to explore the benefits of therapies enhanced by mainstream technology.

Service delivery

Internet video conferencing could make remote interactions with clients part of routine practice. We know that remote assessment is reliable and acceptable to people with aphasia (eg, Hill et al, 2009). Woolf et al (in press) show treatment can also take place online. Their study, funded by the Tavistock Trust for Aphasia, the Charles Wolfson Charitable Trust and the Bupa Foundation, involved 20 people with aphasia. Fifteen participants received word finding therapy, with 10 treated for their difficulties. A pilot study showed that six weeks’ practice with GeST improved production of the target gestures in nine people with severe aphasia (Marshall et al, 2013).

“Ask the experts”

What is the evidence base for the use of digital technology in aphasia therapy?

Professor Jane Marshall and colleagues

City University London

We should also consider technology use as one of our treatment goals”
through technology. Much of this technology is language dependent, which threatens to exclude people with aphasia. We should do more, therefore, than simply employ technology as a medium of therapy. We should also consider technology use as one of our treatment goals.

Interactive technologies
Finally, it is worth considering the potential of interactive technologies, such as online social media and virtual worlds. These could offer new opportunities for language practice and help address the social consequences of aphasia. ‘EVA Park’, created at City University London and funded by the Stroke Association, is an online virtual communication environment for people with aphasia. It includes virtual locations including houses, bars, restaurants, a hair salon and a disco. Users’ personalised avatars communicate via speech, optionally supplemented with writing. We are evaluating EVA with 20 people who have aphasia. Each has five weeks access to EVA, with the help of a support worker with whom they set goals and carry out communication activities. All have completed their intervention, with overwhelmingly positive reactions.

Positive outcomes
Technological advances are so rapid that evaluations of therapy technologies run the risk of being out of date soon after publication. Therefore, it is important to reflect on general principles. It is clear many people with aphasia find technological treatments acceptable and can master a range of tools. Such tools can help to remediate or compensate for language impairments and provide a platform for social interaction.

Positive outcomes depend on technologies that are accessible to people with aphasia. Most City University London projects include a preparatory phase, in which consultants with aphasia help to design or select the technology (Galliers et al, 2012) and we often adapt the hard- and software to facilitate access. Our projects also use technologies alongside, rather than instead of, human input. For example, the pilot users of GeST only made gains when the therapist supported computer practice and the experience of EVA depends on the live contribution of support workers.

We conduct our lives increasingly remotely using FaceTime over iPads. The remaining five participants received an attention control condition, consisting of remote supported conversation. Results showed that therapy significantly improved picture naming, regardless of delivery mode, while conversation did not. Participants’ views about therapy were almost universally positive, again regardless of delivery. Individuals who received remote supported conversation were similarly positive, suggesting this could be a medium for delivering volunteer or even peer support.

References & Resources
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