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# Research in Autism Spectrum Disorders

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## Look up! Digital technologies for autistic people to support interaction and embodiment in the real world



Intervention-based research for autism can confuse integration with inclusion. Integration has a focus of supporting the autistic individual to adapt to their environment (e.g. social skills training) whilst inclusion attempts to adjust the environment to be more autism-friendly (e.g. reasonable adjustments within the workplace). Within an educational context, whilst most autistic children are integrated within mainstream schools, inclusion can remain an illusion (Pellicano et al., 2018): Even if there is an overall commitment to inclusion in theory, there remain significant barriers in practice (Roberts & Simpson, 2016). The result is that one can be physically integrated without being socially included. This Special Issue investigates the ways in which we can shift the focus of technology-mediated interventions for autism from integration to inclusion. ‘Look up!’ was a term that emerged from an ESRC-funded seminar series called Digital Bubbles, which brought together a wide range of researchers, professionals and members of the autistic community to discuss the future of inclusive technology-mediated autism research (Brosnan et al., 2016; 2017; Good et al., 2016; Parsons et al., 2015; 2017a,b; Yuill et al., 2015; see [digitalbubbles.org.uk](http://digitalbubbles.org.uk)). It is widely recognised that participatory research involving the autistic community can yield benefits (Fletcher-Watson et al., 2018).

Within the context of technology-mediated intervention, participatory design enables members of the autistic community to contribute throughout the design process. Participatory Design has the potential to enable digital empowerment and social inclusion of those involved, and can be an effective forum for developing interdisciplinary research and engaging with wider communities, such as the autistic community (Brosnan et al., 2016). Without the principle of inclusion, there is a danger that technology-mediated interventions could represent a distancing from real world interactions, and can be viewed as ‘dehumanising’ and ‘colluding’ with the social difficulties associated with autism (Milton, 2018; Parsons & Mitchell, 2002; Parsons et al., 2015). Supporting interaction and a sense of embodiment in the real world, and understanding the role that digital technologies might usefully play within this context, is therefore crucial for inclusive technology-mediated intervention for autism.

Embodiment has been viewed as particularly relevant for understanding autism, and advances in mobile and embedded technologies offer opportunities for exploiting a wider range of perceptual and sensory-based experiences in real world environments that can foster new forms of interaction and thinking by encouraging more embodied forms of experience. In this Special Issue, Perez-Fuster et al. explore how daily living skills can be enhanced through technology-mediated intervention. Importantly, they focus upon autistic adults, which is an under-researched population generally, and indeed the remaining papers in the Special Issue all focus on autistic children. Gibson et al. explore how tangible user interfaces can be embedded within free play to promote an environment that encourages social behaviour in autistic children. Gadke et al. focus upon the effects of animated video modelling on joint attention and social engagement in autistic children, and finally, Crowell et al. explore how multi-user full-body interaction environments can be developed to structure collaboration in autistic children. An important thread running through this Special Issue is the extent to which a medical model of autism as something that should be adapted has been superseded by a social model of autism as something that should be adapted for. Research is rarely so purely dichotomous, but developing digital technologies that enable the environment to adapt to being more autism friendly can only enhance inclusion. Our hope for the future is that the participation of the autistic community within the research process will foster inclusive technology-mediated interventions for autism.

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*Guest Editors*

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