

# What does the evidence have to say about screentime and atypical development?

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*Screen Time: Research, policy and communication in a digital era*  
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# Outline

- ◆ Challenging assumptions about “screentime” & development
- ◆ What research is out there?
  - ◆ Attention deficit hyperactivity disorder
  - ◆ Autism spectrum disorder
  - ◆ Developmental language disorder (previously SLI)
- ◆ Emergent differences and themes
- ◆ Novel approaches for the future

# Common fallacies...

- ◆ In the past, we all chatted with each other at bus-stops and on the train
- ◆ Off-screen activities are *sociable* and *active*. On screen activities are *solitary* and *passive*.
- ◆ If brain scans reveal increased activation to video games, that shows they are addictive
- ◆ The amount of *time* we spend using technology matters
- ◆ We don't always have good evidence to answer our questions

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# Screen time and ADHD

- ◆ Children with ADHD
  - ◆ Play games, but no more or less than typically-developing children
  - ◆ Show enhanced executive functions during gaming
  - ◆ Can learn well from games
  - ◆ May derive a neural-level reward from gaming
- ◆ Interest in gaming could be exploited more effectively in a learning context

Bioulac, Arfi & Bouvard, 2008; Bioulac et al., 2012; Fabio and Antonietti 2012; Ferguson and Olson, 2014; Han et al., 2009; Houghton et al., 2004; Lawrence et al., 2002; Shaw et al., 2005;

# Screen time and autism

- ◆ Autistic users
  - ◆ Use technology a lot (but we're not sure why)
  - ◆ Can learn a range of skills effectively from technology
  - ◆ Need integrated support to generalise these skills to other contexts
  - ◆ May derive 'spin-off' benefits from working with technology
  - ◆ Can use technology as a communication aid
- ◆ Interest in gaming could be exploited more effectively in a social and learning context

Alcorn et al, 2011, 2015; Fletcher-Watson, 2014; Grynszpan, Weiss, Perez-Diaz & Gal, 2013; Mineo, Ziegler, Gill & Salkin, 2009; Moore & Calvert, 2000; Orsmond & Kuo, 2011; Pennington, 2010; Ramdoss et al., 2011a; Ramdoss et al., 2011b; Ramdoss et al, 2012; Shane & Albert, 2008; Williams, Wright, Callaghan & Coughlan, 2002

# Screen time and DLD

- ◆ Children with DLD
  - ◆ Experience language difficulties during technology use, as in other domains
  - ◆ Show increased entertainment use and decreased homework use
  - ◆ Find technology enables crucial access to a social network
- ◆ Difficulties with language need to be accommodated more effectively in digital contexts

(Durkin, Conti-Ramsden and Walker, 2010; Durkin et al., 2009;  
Durkin and Conti-Ramsden, 2012)

# Emerging differences

- ◆ ADHD research...
  - ◆ whether deficits associated with ADHD are also apparent in a gaming environment (or the opposite)
  - ◆ Neurological underpinnings of technology use
- ◆ ASD research...
  - ◆ quantity of use
  - ◆ evaluations of learning support and therapeutic technologies
- ◆ DLD research...
  - ◆ linking features to technology use and access



# Emerging themes


## Positives

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- ◆ Cognitive and perceptual stimulation
- ◆ Supplementary modes of communication
- ◆ Connections with peer communities
- ◆ Participation, normality
- ◆ Self-confidence, independence
- ◆ Well-being

## Negatives

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- ◆ demands on technical ability
  - ◆ demands on conceptual and vocabulary knowledge
  - ◆ demands on motor skills
  - ◆ possibility of over-use
  - ◆ diversion from other activities
  - ◆ exposure to unproductive or inappropriate contents.
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- ◆ **Novel approaches for the future**

# New approaches

- ◆ Using technology as a motivator, or facilitator, for social interaction

# New research challenges

- ◆ Comparison of technologies against each other
- ◆ Understanding interactivity versus passive viewing
- ◆ Optimal levels of challenge
- ◆ Studies embedded in real world settings & capitalising on commercial resources / consumer choices
- ◆ Designing for specific populations... or not?

# What to measure?

- ◆ (not just) measuring whether it has 'effects' on 'skills'
- ◆ Measuring whether people want to use it
- ◆ Measuring other, unanticipated benefits: tech skills, well-being
- ◆ Considering value for money against size of benefit
- ◆ Capturing process as well as outcome
- ◆ Evaluations which outlive a specific piece of technology

# Ideals for the future...

- ◆ Working more closely with neurodivergent communities
- ◆ Valuing technology interaction skills in themselves
- ◆ Recognising and measuring quality of life impact of technology
- ◆ Positively integrating technology into a varied range of opportunities for learning, play, and daily living
- ◆ Technology to educate others about disability
- ◆ Online communities of support (for families)

# What can we do right now?

- ◆ Teach children to manage their own diet
  - ◆ quality (design, complexity, structure)
  - ◆ variety
  - ◆ timing
- ◆ Digital etiquette and skills
- ◆ Security and safety online
- ◆ Ask *how*, not *how much*

Thank you!

*Any questions?*

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