Technology and Autism

Intervention, Education, Communication & Fun

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CALL Scotland
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Conflict of Interest

◆ iPad app available on the app store as *FindMe*

◆ Licensing includes royalty payment for paid downloads

◆ Three further apps in development

Interface3

Smart MultiTouch Solutions

My expertise

- Research methods
  - Participatory design, beta testing
  - RCT evaluation
  - School-based evaluation

- Bias towards
  - Young children and their parents
  - apps, iPads and iPhones

- A note on language

Outline

Always Unique Totally Interesting Sometimes Mysterious

◆ **Why use technology?**
  ◆ Community attitudes

◆ **App recommendations**
  ◆ Intervention
  ◆ Communication
  ◆ Education
  ◆ Fun

◆ **Managing technology use**

The Beginnings of Tech for Autism

Colby, 1968

parents of children taking part in this research *"are encouraged to expose them daily to TV"*

"few people in the world have access to million dollar computers needed for this work"

What's the evidence?

◆ Children and adults with ASD are heavy users of technology

◆ Experimental studies report improvements in
- ◆ Target skills
- ◆ Concentration and on-task behaviour
- ◆ Communication

◆ Systematic reviews indicate benefits to working with touchscreen technologies

But generalisation is limited – only one piece of the puzzle

Fletcher-Watson, 2013; Kagohara 2013; Shane & Albert 2008

Strengths of technology

◆ Use a strength to scaffold a weakness
  - ◆ Instinctive solution
  - ◆ Motivating
  - ◆ Engaging
  - ◆ Personalised learning environment

◆ Part of our [social] world

◆ New early years accessibility

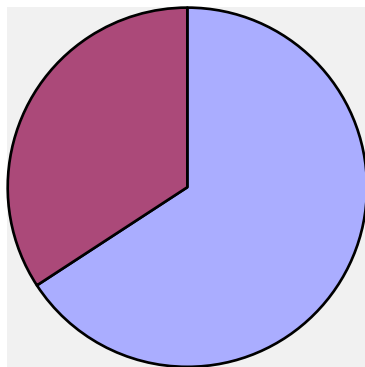◆ Not waiting for official endorsement!
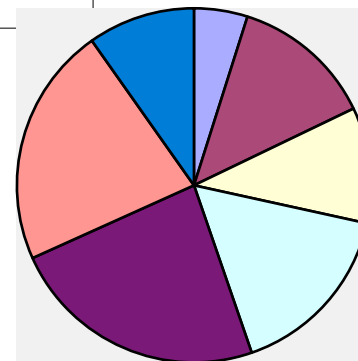
Tech in the Autism Community
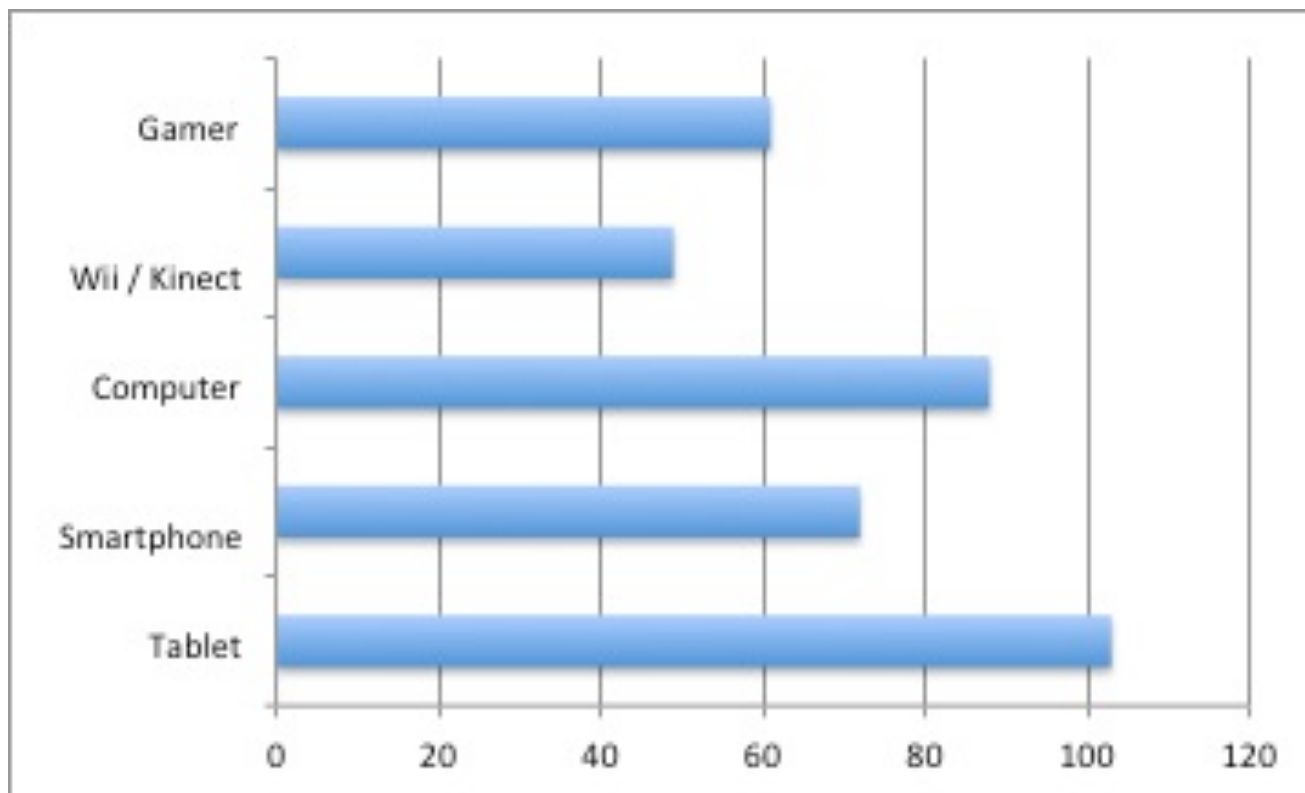
Tech in the Autism Community

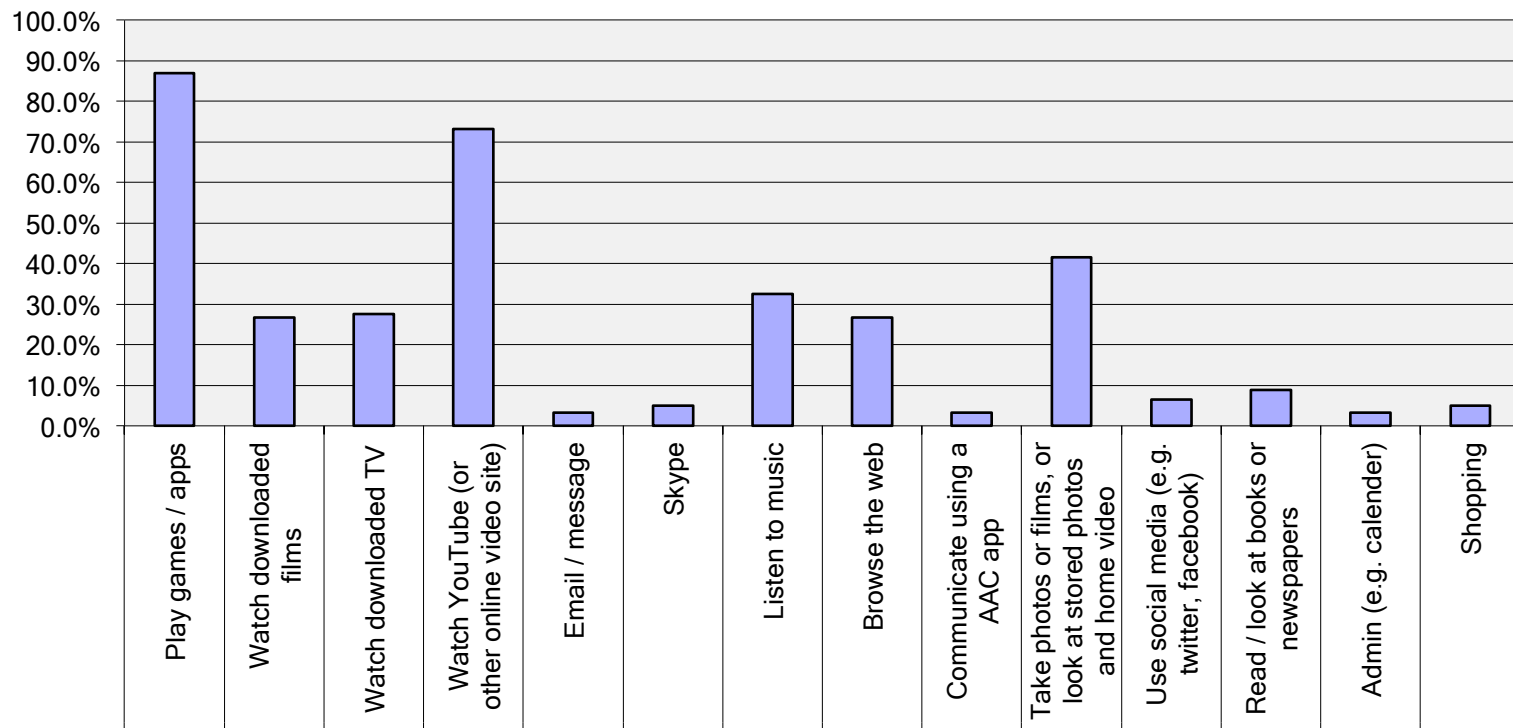Does your child have regular access to an iPad at home?

On average, how much time does your child spend on the iPad each day?

- Has access but doesn't use much
- 0-20 mins
- 20-40mins
- 40-60mins
- 1hr-2hrs
- 2hrs-4hrs
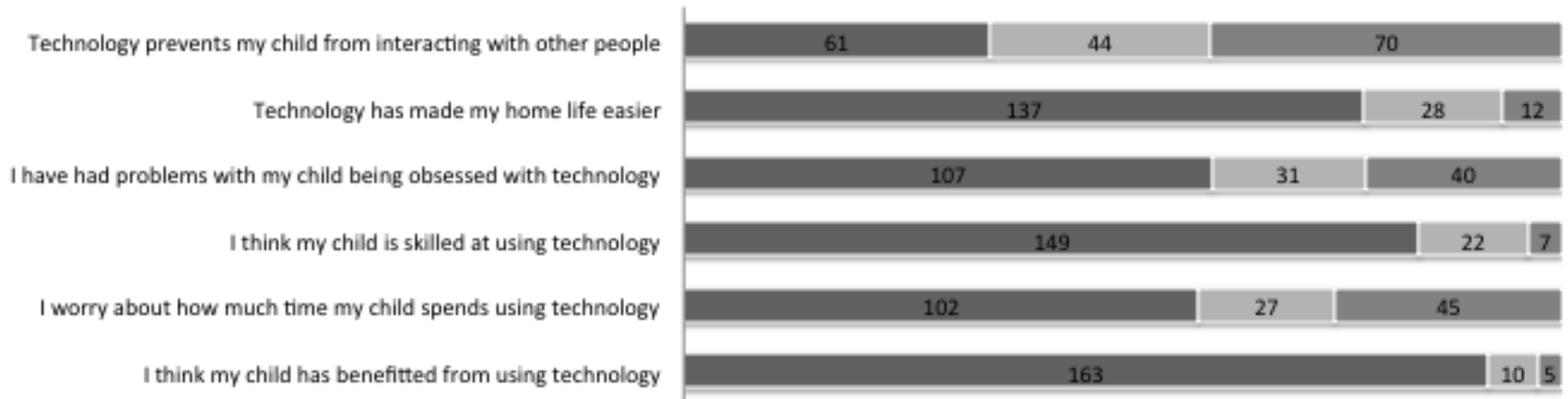- 4hrs+

Tech in the Autism Community

What are your child's favourite things to do on the iPad? Please tick all that apply

Tech in the Autism Community

Parental Attitudes to Technology Use by Children with Autism

■ Agree ■ Neutral ■ Disagree

| Statement	Agree	Neutral	Disagree
Technology prevents my child from interacting with other people	61	44	70
Technology has made my home life easier	137	28	12
I have had problems with my child being obsessed with technology	107	31	40
I think my child is skilled at using technology	149	22	7
I worry about how much time my child spends using technology	102	27	45
I think my child has benefitted from using technology	163	10	5

Parent attitudes

I was very skeptical whether she understands what she's supposed to do but after she figured it out she played the game for the whole hour. She even didn't want to give it back to me :) … I'm sure she will have a lot of good time with the iPad. I was very proud of her that she knows what to do.

He learnt to say "Lewis iPad" and played every day

He is saying "Can you help me?" now, instead of just screaming

App Recommendations (n=345)
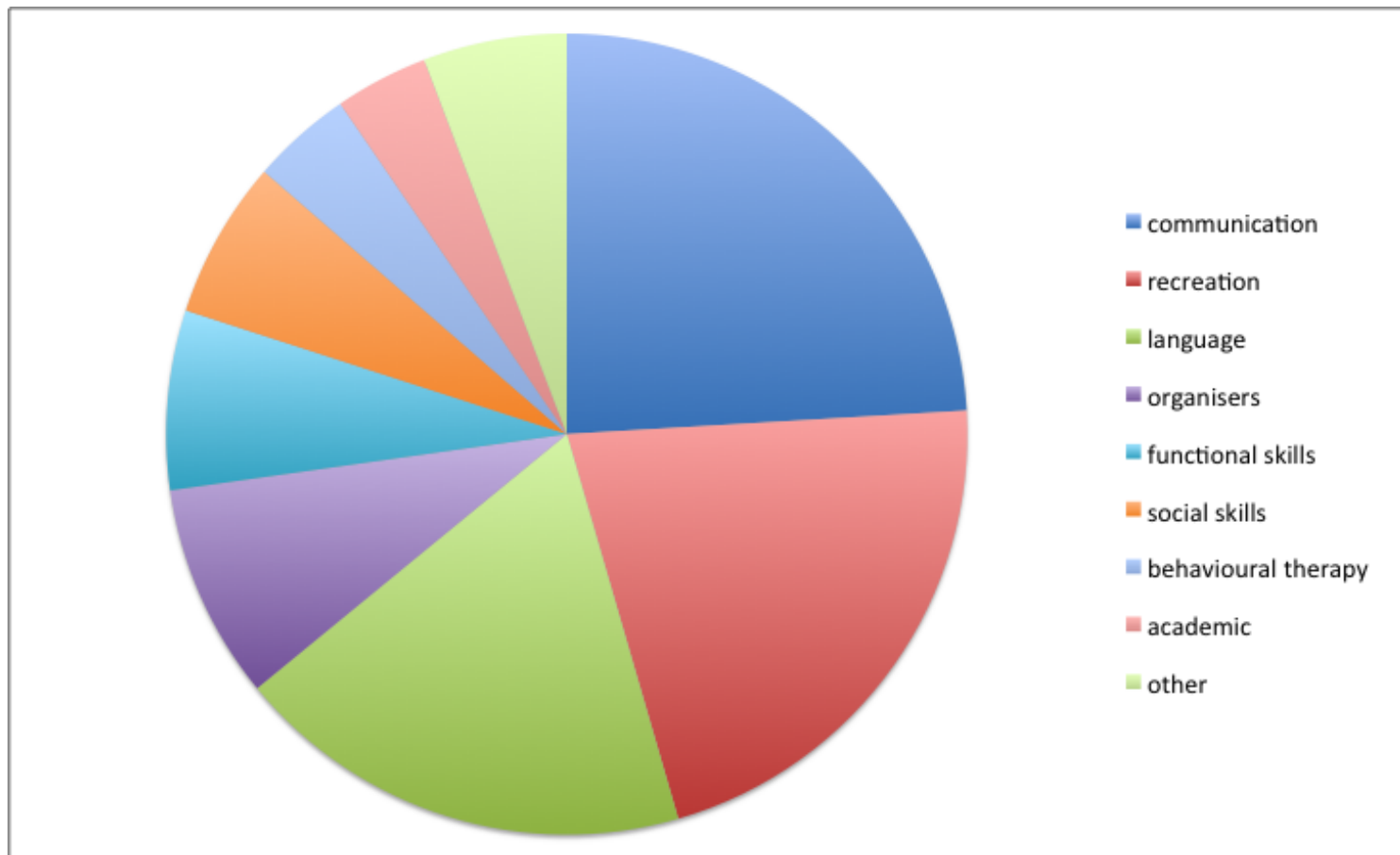
What can we use tech for?

◆ Peer respect

◆ Normality

◆ Self expression

◆ Peace and quiet

◆ Play skills

◆ Concentration

◆ Family flexibility

Intervention

- Positives
  - Deliver a lot of different approaches in one device (e.g. multiple social stories)
  - Opportunity to learn through repetition
  - Recording and monitoring capacity

- Negatives
  - Recording and monitoring capacity!
  - Won't necessarily generalise – needs to complement other approaches

Communication: AAC

- Positives
  - Remove social interactive element
  - Learn by echoing
  - Improved communication -> reduced challenging behaviour

- Negatives
  - In conflict with PECS / Hanen?
  - Designed for children with physical barrier to speech
  - Don't model grammar or correct intonation
  - Once you've started, you can't stop?
  - Some terrible apps available

Communication: PECS

◆ Positives

   ◆ Easier to carry around

   ◆ Easier to create new symbols

◆ Negatives

   ◆ Transition from physical PECS might be challenging

   ◆ Reliance on sensitive / breakable kit

   ◆ Expensive

Education

- Positives
  - Highly motivating learning environment
  - Control learning pace
  - Non-social delivery
  - Independence and freedom – for parents too!

- Negatives
  - Only part of the picture
  - May not follow intended learning routes

Fun

◆ Positives
  ◆ Really really fun!
  ◆ Huge variety
  ◆ Built-in flexibility – change apps around

◆ Negatives
  ◆ Risk of obsession
  ◆ Attempts to impose variety might not be successful
  ◆ Interactivity is possible, but mostly solitary

Managing Technology use

◆ Paediatric advice on watching TV

- ◆ What's the evidence?
- ◆ Is it relevant to interactive technologies?
- ◆ Are there other ways to avoid a sedentary lifestyle?
- ◆ Lack of evidence does not equal evidence of lack

"media have potentially negative effects and no known positive effects for children younger than two years"

What's the evidence?

◆Kagohara et al, 2012 – 15 studies, systematic review

"iPods, iPodTouch, iPads, and related devices are viable technological aids for individuals with developmental disabilities."

◆Fletcher-Watson, 2013 – 83 studies in autism specifically

overwhelmingly positive outcomes. The only negative outcomes are participant drop-out

◆ Parkes et al, 2013

No relationship between screentime at 5 years old and attention, hyperactivity, school attainment or pro-social behaviour at 7 years old in a sample of 11,000 children

Managing Technology Use

◆ Risk of obsessive behaviour

  ◆ Get off on the right foot

  ◆ Delete and reinstall apps to promote flexibility

  ◆ Use the battery effectively

  ◆ Create folders

  ◆ Colour-coded cases

  ◆ Keep it context-bound: use routine to your advantage
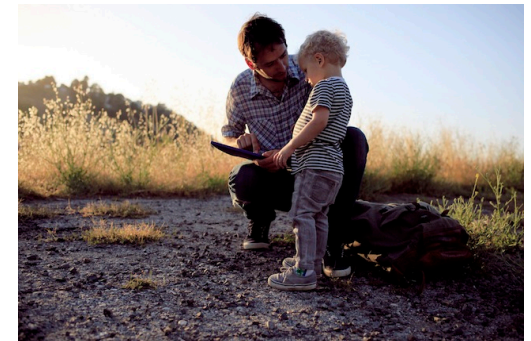
Thank you!

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Any questions?