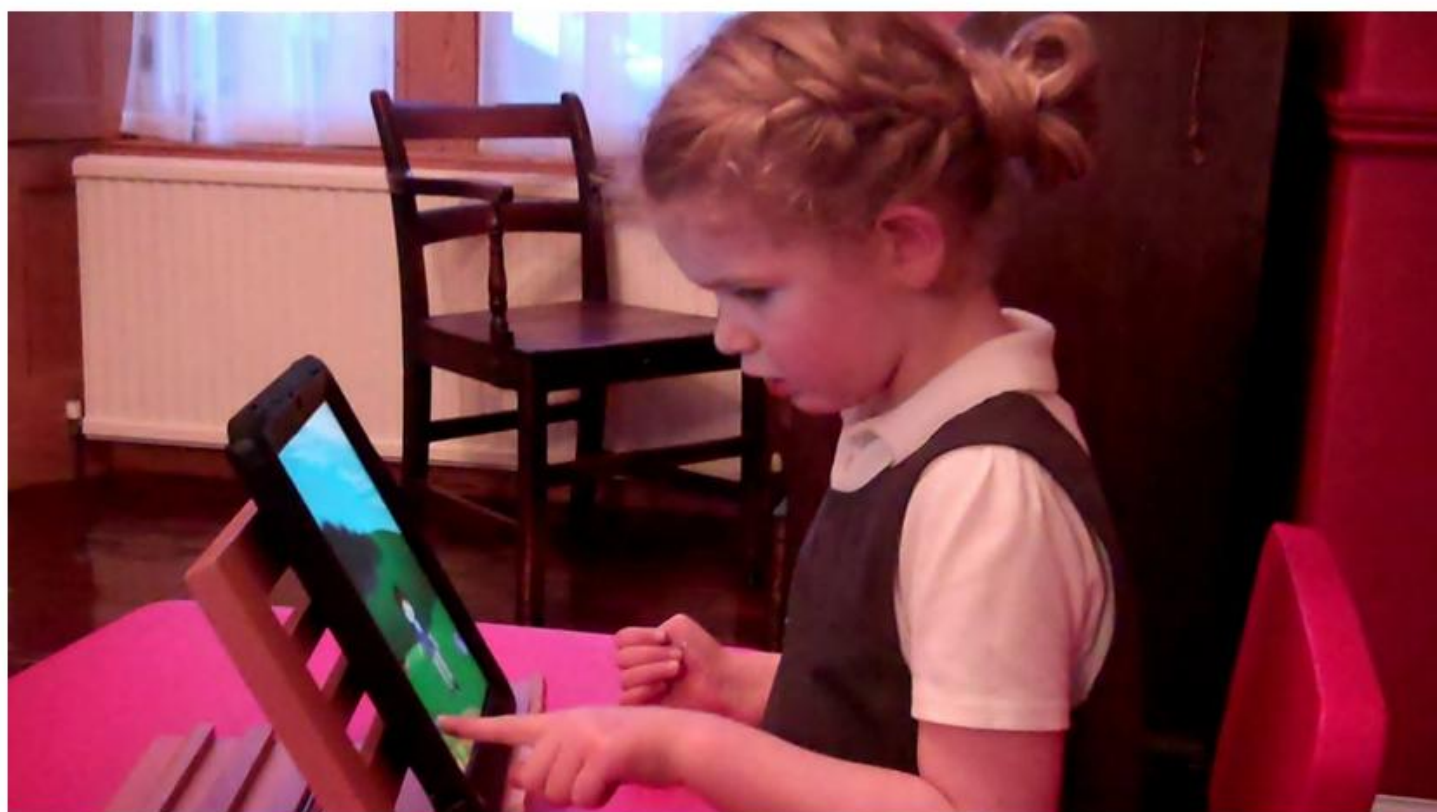


# Technology and autism: guidelines for parents

*Sue Fletcher-Watson*

Children (and adults) with autism are often keen users of technology, choosing to spend a large part of their leisure time on computers, gamers and other devices. Technology can be harnessed to give benefits, like learning new skills or giving children a chance to be independent. However with so much technology out there, it can be hard to work out which technologies provide these benefits. In addition, parents and professionals have valid worries about whether technology use can get out of hand, or prevent a child with autism from interacting with other people. This document, based on new research evidence, aims to provide practical advice to parents of children with autism to help them get the most benefit from technology and avoid any associated risks.

The advice in this leaflet draws on a number of different sources of published research evidence from around the world. However we also conducted our own, recent survey of over 200 parents of children with autism in the UK. The goal of this survey was to gather wisdom from parents who were already users of technology, and use their experiences to inform parents who are just starting out with technology, or with a child with autism. In addition to the online survey, we also spoke directly with a handful of parents and some of their quotes are used here to illustrate the main points.

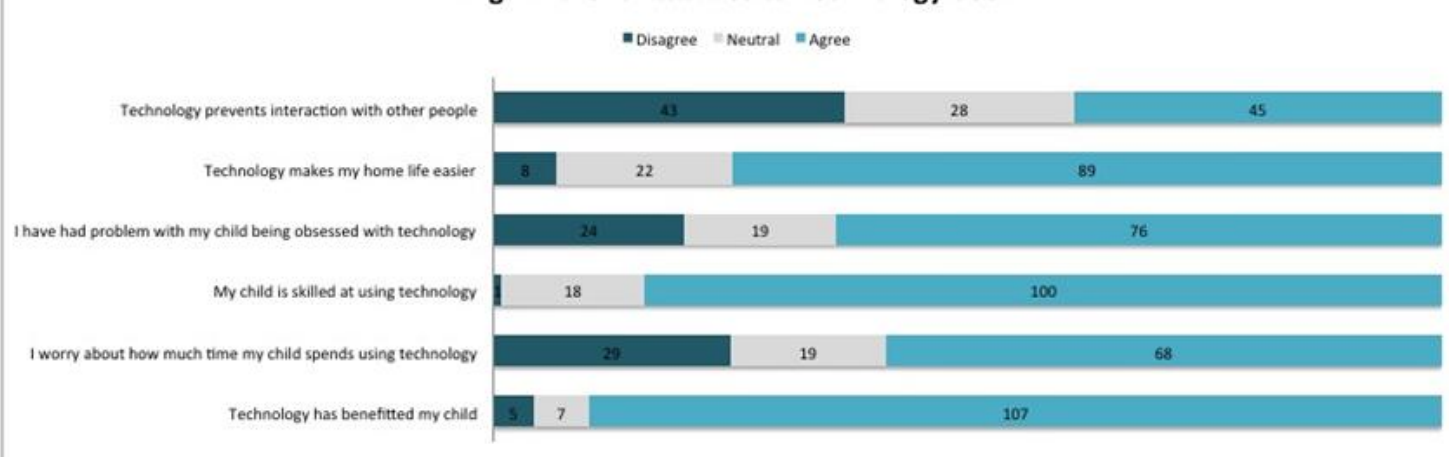


## Why use technology?

The autism community is also a community of “tech-heads”. Research shows that using technology is a popular leisure time activity for people with autism, and in our study parents report that their child is skilled in using technology (see Fig 1). In our survey children spent on average three hours per day using technology and 43% were using technology for more than four hours per day. So doesn't it make sense to make that time as productive as possible? Studies show that children with autism can learn new skills from technology. During computer-based lessons or other technology interactions, autistic children regularly show better concentration and initiate more contact with those around them – for example showing teachers and parents what they have done or talking to their peers.



Fig 1: Parent Attitudes to Technology Use



## Starting out with Technology

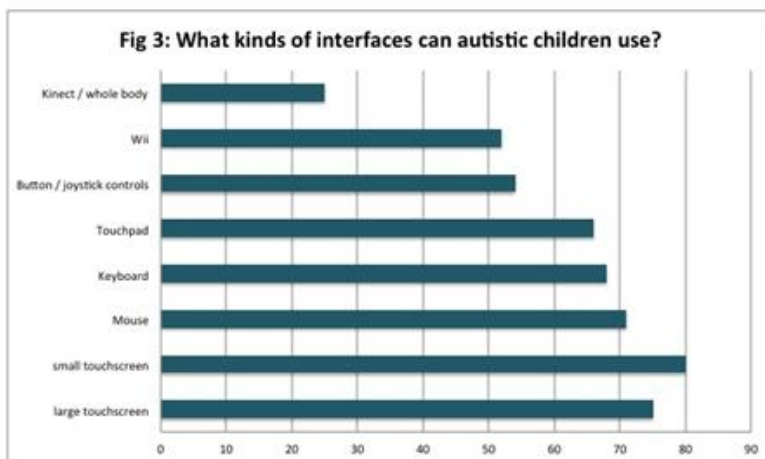
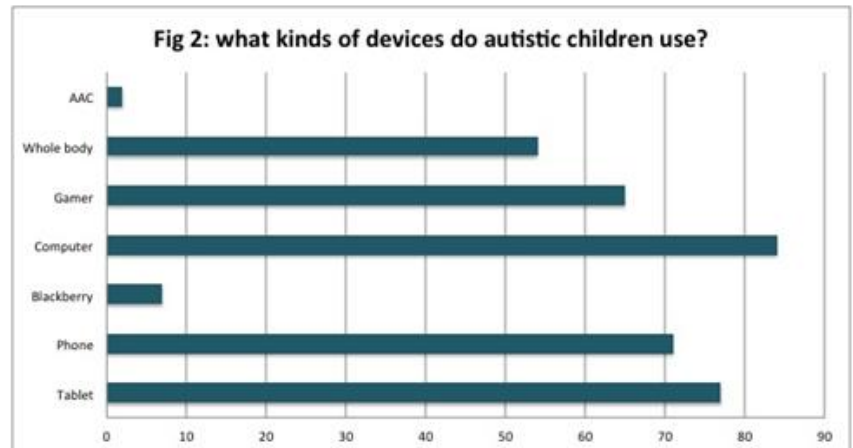
This isn't universal, but you will probably know already whether your child with autism seems to like technology. If you have very young children, or a child with a learning delay, you might not have wanted to let them have a go yet. If this is the case, why not ask a friend or your child's school if you can borrow a tablet or smartphone, to see how they respond? Some charities will loan technology to families for this purpose. If you're worried about your child getting obsessed with technology or damaging something expensive, then do this in a managed way. For example, if you try something new at a friend's house, your child won't then expect to have access to the same device when they are at home. Bear in mind that children will be very excited by anything new, and this level of interest might not last. That said, in our study we didn't find any reports of children with autism going off technology after months or even years of use.

## Choosing Hardware

There are loads of different options available and what you choose will depend on your budget, your child's abilities and what you want the technology to do. Parents in our survey selected hardware because it was affordable, recommended by a friend, family member or teacher, or in response to their child's interest or ability. You need to plan this carefully as once your child has got used to a particular kind of device they may struggle to change.



Touchscreens are great for young children



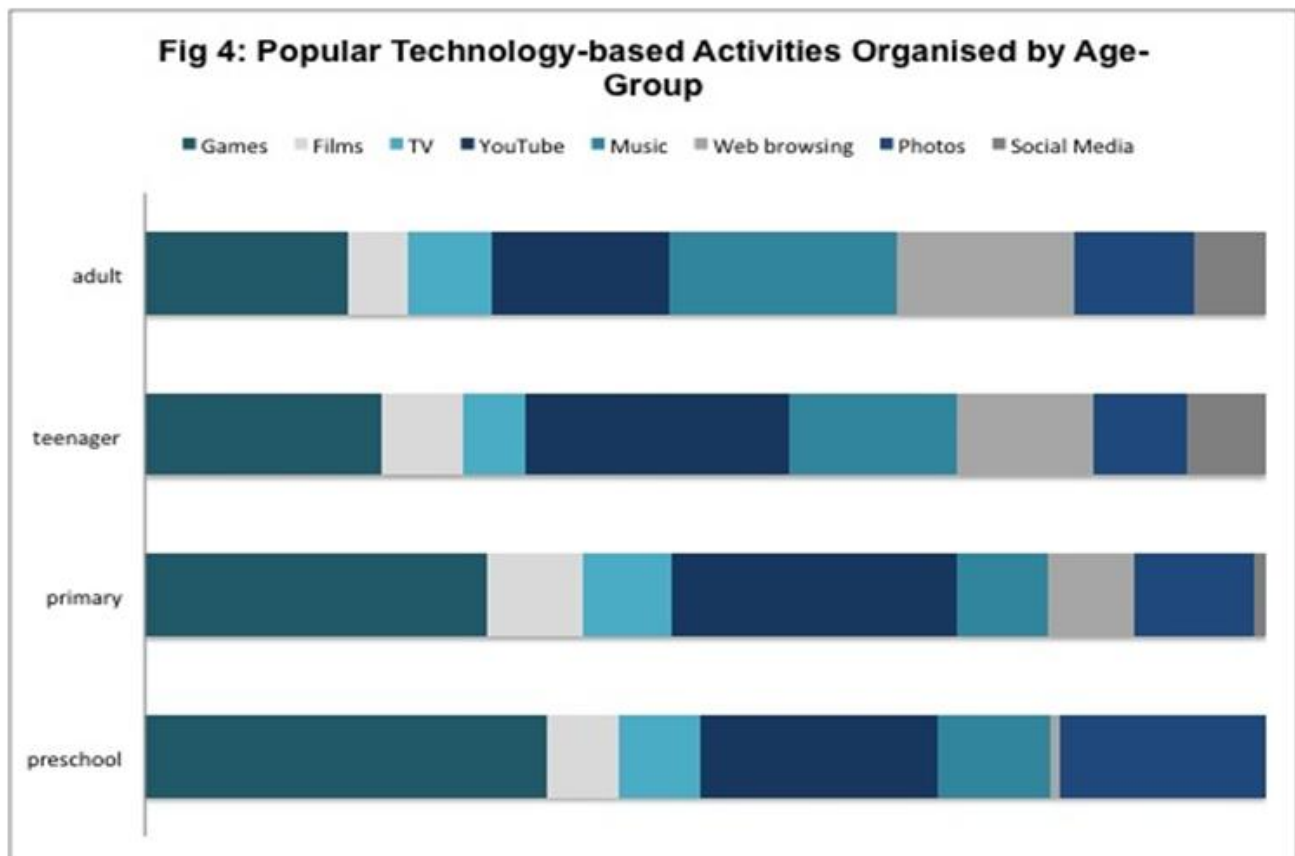
Whole body controls encourage activity

### TOP TIPS WHEN CHOOSING HARDWARE

- The interface is really important – if your child is young or has a learning delay then a touchscreen interface will be the easiest for them to access
- If there's a device you want to buy but can't afford, try looking into a second hand purchase. Apple has a number of licensed second hand retailers and you can also search on eBay. Check the original release date of the model you are buying – the more recent it is, the longer your device will work as operating systems are upgraded. For instance, the first iPad no longer runs the most recent operating system. And of course, make sure the retailer you buy from has positive endorsements from previous customers. Can they offer you a guarantee? Will they provide support if your device breaks or needs upgrading?
- Think about what you want the device for. Do you want to be able to engage your child while you're out and about? If so, a small tablet or smartphone - portable and light - will be good. Do you want to limit technology use to the home? If so, you could go for a desktop computer, laptop or touchscreen computer. If you want to encourage your child to be more active then a Wii or Kinect might be right.
- Look into the available accessories for the device you're considering. A hardcase might be important. One one hand, a tablet is easier to throw around than a laptop, but it is also easier to protect with a special case, and cheaper to replace.
- Is the software you want available on the hardware you're choosing? Android tablets are cheaper than the iPad, but there are more apps available for iPad, and in our survey Apple products were twice as popular as Android ones
- Does the hardware you're considering have accessibility features, or parental controls? Most tablets and smartphones don't currently allow multiple user accounts so they are hard to share between different family members.

## Choosing software

Once you've chosen a device (or even before you choose) you will want to think about what software you are going to load on to it. Parents in our survey nearly always allowed their child to choose their own software. You know your child and will want to choose based on their current needs, interests and abilities. With younger children, you may have to try things out and respond to their behaviour and engagement. Look out for free download periods - lots of apps have special offers for example when launching a big update. Other apps come in a 'lite' version which you can try out for free. Finally, it is always worth contacting the developer to see if they can arrange a free trial period.



## TOP TIPS WHEN CHOOSING SOFTWARE

- Consider carefully before getting a new piece of software. If it is a free app, download it but try it out yourself before giving it to your child. If it doesn't seem well-designed or do what you want it to do, you will regret it if your child becomes fixated and wants to play that app all day long, especially if the sound effects are annoying!
- If the software you are considering costs a bit more, check out the online reviews or ask around to see if anyone else has tried it first. Has it won any awards?
- Look at who designed the software – did they consult with parents or teachers? Did they trial the app with autistic users? Or with children of the right age?
- Is there any evidence to support the software – this is very rare but if the developers are making big claims about what the app can do then they ought to be able to support these with proper, independent, research evidence.
- Don't focus on autism-specific technologies. Sometimes these will have features which make them particularly suitable for your child – for example they might target the social skills which autistic people find uniquely hard to learn. But if you want your child to learn to recognise colours, match shapes, read or write, or if you want games which will give them some downtime, and a chance to have fun independently, then do these need to be autism specific? Probably not.



*I wouldn't be having this conversation with you right now, without the Wii*

*He's the happiest wee boy so why should I take that away from him?*

*The friendships he's made, they're primarily driven through technology*

*I wanted him to have something he would enjoy, not another challenge*



### **What can you use technology for?**

Technology has some real advantages. First there is research evidence to suggest that kids with autism can learn from technology, and that they are more focused and talkative during computer-based lessons in school. However the benefits for the family go beyond this. Autistic users often find technology highly motivating and a lot of fun. If you struggle to get your child to sit with you and read a story, they might do so when that story is presented on a tablet, and has interactive features. Technology gives you a way to carry a lot of fun, educational and useful content on one portable device. For example, if your child uses a visual timetable, picture communication system, or social stories you can now have all the stories and symbols you use on one device. Apps can help you easily create new symbols, schedules and stories at very low cost and effort. Using a tablet to communicate is more socially acceptable than carrying a large folder of Velcroed, laminated symbols. Technology gives your child a space in which they can be an expert, making choices and directing their own learning and play. And of course it gives you, the parent, some peace and quiet, or a chance to get the dinner on.

There are limits as well. Technology is not great for developing generalised skills. An autistic child might be great at spelling in an app but not with pen and paper. Children using technology can direct their own learning, but they might not always direct it where you would like. Sitting watching the same YouTube clip over and over will give you some peace and quiet and your child some downtime but it probably isn't contributing to his learning. For this reason, technology should always be used as just one in a range of approaches to contribute to your child's well-being, learning and development.

On the other hand, technology is not just the antisocial activity that some claim. Parents we spoke to told us how their child was connected to online communities through their love of video games, and how their skills and knowledge gave them something to talk about in the playground. There are increasing numbers of social technologies – tablet-based group games for young children and social networks like Facebook for teenagers and adults. Parents can help their children overcome social isolation by teaching them the skills they need to access these online communities safely. Building this confidence may help your teenager as they transition to adulthood and give them the capacity for an independent online life, to support their growing independence in other domains too. Technology doesn't mean sitting alone

## Managing Screentime

Some professionals make recommendations to limit 'screentime' especially for younger children, and parents told us they experience social pressure to limit their child's use of technology. However it is our opinion that these restrictions are not evidence-based. A high-quality recent research study with over 11,000 children showed no link between amount of screentime at 5 years old and educational attainment, attention & hyperactivity, or pro-social behaviour at 7 years old. Likewise a combined analysis of multiple papers concluded that children learn from educational content on TV. There are currently no autism-specific data on the impact of screentime.

Our parents report that they think their child benefits from using technology (92% agree or strongly agree) and that their child is skilled at using technology (84% agree or strongly agree). However more than half of them are also concerned about the amount of time their child spends playing with technology (58% agree or strongly agree). Regardless of the evidence, it is common sense that children should be encouraged to experience variety in their lives. Obsessive behaviours can begin to restrict family life unhelpfully, and cause additional tension. For this reason, technology use should be carefully managed, ideally from the outset.

### TOP TIPS FOR MANAGING SCREENTIME

- Get off on the right foot when introducing a new piece of technology. If your child has unrestricted access from the beginning it will be hard to limit this later. Use your child's routine to make technology available in specific contexts or at specific times of day. Try not to let your child keep technology in their room as it may disrupt sleep.
- Use the battery life as a way to manage technology use. Lots of parents reported to us that their children understood the idea of a battery running out and needing to be re-charged. Children can handle this better than someone taking away their device after a fixed period of time.
- There are many online timers, and apps to help you keep a track of how long your child spends on a device – including some which will automatically shut it down after a period of time. Bear in mind that if your child is doing lots of different things with their device, it might be OK to allow a longer period of time than if they spend the whole time on one repetitive activity.
- If using a tablet or smartphone, why not get a couple of coloured cases and use them to signal to your child when they are allowed to just play, and when they are 'working' or doing activities with you.
- Play with your child – enter their world by having a go at the games they're interested in. Be available to them while they play so they can show you what they can do. Don't belittle your child's video game achievements because you think they're "just games" – these require concentration, dedication and skill to achieve.

*It gives her something to talk about at school - she talks about Minecraft*

***Technology gives him the only independence he will ever have***

*Sometimes he watches something on YouTube, like toothbrushing, and then he understands what to do in real life*

## Conclusions

Technology, given its ever-present nature in modern life, is a great way to create a sense of normality and take some of the pressure off parents and other family members. This guidance document intended to empower parents to make good choices in the best interests of their children. Much of the advice given here applies equally to parents of children with and without autism. A reasonable and balanced diet of technology with other activities including getting outside and running around, activities with friends and family, conversation and new experiences is good for anyone. Parents of children with autism should not feel they have to meet a higher standard than other parents. Remember that while we might think that watching the same YouTube clip over and over doesn't have any value, this might be helping your child to regulate their well being, manage anxiety or just relax. Children with autism, again, like any children, don't constantly have to be learning something new. Use common sense, embrace the many opportunities afforded by this golden age of technology, and have fun!

### Glossary:

**Android** - tablets and smartphones which are not Apple products normally run Android operating systems. This means that 'Android apps' are compatible with most non-Apple smartphones or tablets

**Apple** - a brand which created the iPad, iPhone, and Mac computers. Software and apps for Apple products will not necessarily run on Android or Windows devices, or vice versa

**Hardware** - a physical piece of technology, such as a computer, and iPad or a gaming device (such as an Xbox, or Nintendo DS).

**Operating systems** - the underlying software which runs the basic functions of a piece of hardware. All apps, games etc 'layer' on top of this. Examples include Windows, Android and iOS.

**Smartphone** - a multi-function portable device which supports gaming, internet browsing etc. as well as the usual telephone functions. These are normally touchscreen.

**Software** - a program which you use with a piece of hardware for a specific function. Examples include iPad or smartphone apps, video games and desktop applications like Microsoft Word.

**Tablet** - a portable touchscreen device such as the iPad or Samsung Galaxy

**Technology** - computerised gadgets for entertainment and learning, including hardware and software. Examples include desktop computers, the internet, iPads and apps

### About the author...

*Sue Fletcher-Watson is a developmental psychologist at University of Edinburgh. She has conducted a range of research studies into technology use by people with autism and is author of the National Autistic Society online information on the topic of technology*



### A note on language

Among the autism community there are differences of opinion over the use of person first language (e.g. child with autism) and other terms such as 'autistic children'. In respect for this variable opinion I use both kinds of language interchangeably and hope that a person-first attitude is apparent in this writing.

### Useful resources

#### NAS technology guidelines:

<http://www.autism.org.uk/technology>

#### DART website and blog:

<http://www.dart.ed.ac.uk/>

#### Online safety resources

<http://www.childnet.com/resources/star-toolkit>

#### Using parental controls

<http://www.childnet.com/parents-and-carers/hot-topics/parental-controls>