Children and technology: is it about time?

What is the right amount of screen time for children? This question and its many variations are ubiquitous, yet deeply problematic. The influence of technology is dependent upon multiple interwoven factors. What experiences, interests or understanding do children bring? What apps are they using? When, where, and, importantly, with whom are children interacting?

Instead, we could start with more tractable questions, such as how do digital interfaces influence how children interact? While the history of children's digital interaction echoes the evolution of technologies themselves, there was a clear step-change with the advent of touchscreens. Mobile phones followed by tablet devices made interaction so much more direct, intuitive and accessible, welcoming a new generation – children in their early years – to this new landscape.

Touchscreens created a wealth of new opportunities for play and learning but, simultaneously, new risks. Children could be connected to information and other people at any time or place, making them vulnerable to new forms of persuasion, bullying peers and malevolent adults. Children's attraction to these new devices raised vociferous concerns about the time they spent on them. Were children 'addicted'?

The line between enjoyment and addiction is often blurred, but negative impact is clearly key. Numerous harms have been attributed to children's digital use: reduced outdoor play, increased obesity, and declining creativity. Yet, dig deeper and such concerns lack evidence; causal claims are disingenuous. Unfortunately, fears for children and technology often reveal more about the way adults romanticise their past and worry about the influence of technology in their own lives. Such anxieties can fuel hypocrisy, and arguably our first step for children is to critically reflect upon our own digital interaction as role models.

Technologies, therefore, often tap perceptions of ourselves and childhood as much as the devices themselves, and it is interesting to consider the questions raised by emerging technologies – those that extend interaction beyond touchscreens, which are ultimately 'sliding pictures under glass'. Novel interfaces including gesture recognition, haptics, tangibles – or augmented reality – offer more direct, whole-body digital interaction; enhanced by increasing capacity to capture and respond to our most intimate data.

Such seamless interfaces prove a powerful market for children. Consider the growth of smart toys, which are digitally

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enhanced to the extent they are becoming intelligent play partners. Predictably, such toys raise tremendous ethical and safety questions. They also present harder questions about the evolving meaning of fundamental childhood concepts such as play, physical experience, social engagement or the value of adult support.

It is understandable that the size and velocity of new questions raised by new technologies for children can be frightening. Perhaps most significant are those concerning the amount of data being harvested without children's consent (which requires understanding) or transparency of how it will be used and by whom. Yet, there is also a danger in dystopian visions of technology in children's lives – the risk that discussing these possibilities increases their likelihood.

We can share interests and concerns with children and have confidence in our capacity to guide them through this evolving world. We can draw upon expertise to better protect children from our fears, while helping them become independent in protecting themselves for the future. And we can spend less time agonising over problematic questions about which design and how much time is good for children, and instead, spend more time envisaging – with children – future designs which may enrich their lives.

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If you have any thoughts or questions on this piece or interest in collaborating with the Children and Technology group at the University of Edinburgh, please contact a.manches@ed.ac.uk