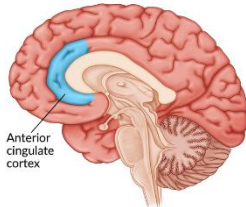


What is modern information technology doing to our minds?

In recent years, numerous research studies have reported on the potential impact of smartphone use on different aspects of cognitive functioning, particularly in terms of attention span.



For example, a 2014 brain imaging study showed that heavy multi-taskers have less grey matter in the anterior cingulate cortex than people who use digital media less frequently. It has been observed previously that early atrophy of the cingulate cortex is a feature of Alzheimer's disease and other degenerative brain disorders.

Further studies would be needed to confirm such a worrying finding but it has raised questions about how modern technology may be affecting us in ways that we had not previously imagined were possible.

In 2023, 87% of UK adults owned a smartphone and we Brits spent an average of 4 hours and 14 minutes a day on their smartphones. However, UK adults hugely underestimate how often they check their phones, thinking they check them 25 times a day on average, when studies suggest the reality is up to 80 times a day.

Most people would agree that switching our attention between social media, smartphones, tablets as well as TV, radio, or other media harms our ability to complete simple tasks.

Surprisingly, half of those questioned about multi-tasking at work, switching frequently between email, phone calls, or other tasks, felt that it created a more efficient and satisfactory work experience. The lack of long-term studies means that it is not possible to state whether attention spans have actually declined. But despite this, there is at least a public perception that our ability to concentrate has worsened.



A common generational stereotype is that today's youth are uniquely glued to their devices. Ironically, in the same study, 6 in 10 middle aged people admitted to difficulties with checking their phones, when their focus should be elsewhere. It has also been recognised that the blue light emitted from cell phones and other electronic devices delays melatonin production in the region of pineal gland within the brain, which can lead to insomnia and fatigue over time.

Technology shifts in the past, such as the invention of writing, then printing and now electronic digital creation and transmission have all caused anxieties. Manufacturers and media companies now talk about the "attention economy", in which they vie for a greater slice of our time.



As we move from reading written text on paper to absorbing more and more information through audio-visual means, our learning processes are altered in subtle ways. At the preschool and kindergarten levels, inattentive behaviour interferes with word recognition development due to less time engaged with books. Later, our ability to spend time digesting more complex subject matter is also reduced.

Our children today are “digital natives”, meaning they have never known life without internet access. They have been raised on clicks, jumping from content to content without a second thought.

Reading from books, trains the brain to deeply focus its attention on one task, whilst mobile devices encourage us to briefly hover over the surface of things without fully grasping their meaning. Some authors are concerned that we are moving towards a time where a technology designed to make our lives easier or happier only makes them narrower and more limited.

A significant number of researchers are forming a view that early exposure to digital media is more harmful to developing minds than for adults. In 2023 96% of 16–24-year-olds owned a smart phone and more than one-third of parents with a child under 12 say their child began interacting with a smartphone before the age of five.



Whilst researchers and the Government ponders the issue of an appropriate age at which digital technology, particularly smart phones, may be safely introduced to children, some parent groups are beginning to campaign for voluntary restrictions within primary and secondary schools. It may be some time before more definitive evidence is presented but this is now a worldwide problem.

Dr Peter Smith

July 2024

The Relation Between Smartphone Use and Everyday Inattention. Psychology of Consciousness: Theory, Research, and Practice. Advance online publication.

<http://dx.doi.org/10.1037/cns0000131>

The pathogenesis of cingulate atrophy.. Acta Neuropathol Commun. 2013; 1: 30.

[how-people-focus-and-live-in-the-modern-information-environment.pdf \(kcl.ac.uk\)](#)