

# The Impact of Excessive Use of Portable Electronic Devices

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## Abstract

The excessive use of portable electronic devices decreases attention span, a fundamental cognitive resource. The constant use of technology, especially smartphones and social media, has impacted human attention span and increased the sense of social isolation. Smartphones have become a necessity, and are an integral part of people's lives, but they are also creating cognitive impediments and emotional negative effects.

Since 2000, the average person's attention span has dropped from 12 seconds to 8 seconds, and constantly subjecting our brains to processing information as dictated by electronic devices can have unintended consequences on our ability to follow and process complex ideas. Electronic devices are a factor of distraction for children, interfering with concentration and their ability to "get into the mindset of thinking about homework-related activities."

**Keywords:** Smartphones, Technology, Social Media, Attention Span, Cognitive Impediment, Emotional Negative Effects, Complex Ideas, Distraction, Children

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## The negative consequences of technology on attention span

According to a study conducted by Microsoft Canada, due to electronic devices, humans have a much shorter attention span than in the past. Smartphones have become a necessity; they have become an integral part of people's lives. We now use our smartphones more for other functions than for making calls: checking email, checking our bank account, buying a train ticket, reading the latest news, and posting updates about our lives on social media are just a few examples.

This progressively leads people towards isolation. Little by little we are moving away from reality, as people present themselves more through

manipulated social media. The sense of isolation is increased as people are more engaged in texting than in actually speaking with each other.

### **How is it reducing our attention span?**

A study from the American Journal of Preventative Medicine reveals that the people who use social media and technology the most feel socially isolated. Another study by Dr. Jean Twenge in 2020<sup>1</sup> suggests that there is an increase in cases of depression, self-harm, and suicide among young American adults due to the increase in technology use. The constant use of social media for short periods of time tends to make people completely dependent, with a sense that they are missing out on important information if they are not connected. Also, they skip from one site or profile to another, thus reducing attention span.

Social media is not the only aspect of technology. Technology allows people to do multiple things at once. This, however, as beneficial as it is, also decreases attention span. During the day, a person is exposed to an overload of information, be it news or work-related information. Constant notification beeps distract people from whatever they are doing, decreasing their concentration. This is such a common phenomenon that some people decide to do a “detox” from social media or technology to increase their concentration. This involves not using any apps or social media for a certain period of time.

The study conducted by Microsoft Canada on how technology has affected attention span found that since 2000, the average person’s attention span has dropped from 12 seconds to 8 seconds<sup>2</sup>. The study was conducted on 2000 young Canadian adults, whose brain activity was studied with the help of electroencephalograms. The year 2000 marks the widespread adoption of mobile phones, a device capable of instantly receiving, sending, and connecting people across oceans.

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1. <https://onlinelibrary.wiley.com/doi/10.1176/appi.prcp.20190015>

2. <https://sherpapg.com/wp-content/uploads/2017/12/MAS.pdf>

## The advantages of technology

We cannot, however, ignore the progress technology has made in every sector. Due to technology, people can now participate in events in very distant places via video conferencing and remote working. Additionally, technology also offers multitasking capabilities, which can be both advantageous and disadvantageous. On one hand, it allows people to multitask, but on the other hand, it can lead to information overload and decreased concentration due to constant distractions.

In a study that scientists from Pennsylvania State University recently published in *Scientific Reports*, it is noted that constantly subjecting our brains to processing information in the way dictated by electronic devices can have unintended consequences on our ability to follow and process complex ideas<sup>3</sup>. In their article, the scientists explain that expository texts, like scientific articles, have a particularly complex knowledge structure. This means that they use cross-referenced information that readers find in different parts of the text. To understand such a text, the reader must be able to identify the information they find in these various sections and then connect those ideas.

However, in the study, researchers found that those who constantly used electronic devices had a poorer understanding of scientific texts than those who used them less frequently. Furthermore, people who used electronic devices constantly throughout the day had lower activity in brain areas related to processing complex information and understanding language. Likewise, their attention span was shorter.

While current findings only indicate a correlation between the excessive use of electronic devices and lower activity in these key areas of the brain, researchers warn that relying too much on our smartphones and tablets can change the way our brains process information.

## How phones ruin concentration

According to a recent study, the mere presence of a smartphone re-

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3. <https://www.nature.com/articles/s41598-019-47176-7>

duces a person's ability to concentrate. In the study, college students who were asked to leave their phones in another room performed better on cognitive tests than those who were asked to silence their phones and leave them face down on the desk or in a room<sup>4</sup>.

In the experiment, even students who said they didn't consciously think about their phones still experienced a loss of ability, meaning some of this distraction occurs on an unconscious level. This is bad news for those who think they're good at not getting distracted by their phones while working.

"I hear about these technology issues all the time," says Matt Cruger, PhD, director of the Learning and Development Center at the Child Mind Institute<sup>5</sup>. In regard to the children Dr Cruger works with, he says his concern is not about their ability to complete homework, but their "ability to really get into the mindset of thinking about homework-related activities." In other words, they could do their job if they were able to concentrate on it. And while difficulty concentrating on tasks is certainly nothing new for children, captivating new technologies do not make it easier.

### **Distraction devices**

Why are technological devices so distracting? For starters, most apps and web content are designed to be as intuitive and engaging as possible. They send us notifications when we receive a new message or when someone has posted something that might interest us. They are reliable sources of validation that tell us when someone likes something we have posted.

But there are also less obvious reasons why children might be particularly addicted to it. Phones are where young people socialize today, especially as they reach preadolescence and adolescence, when their primary developmental goals are to begin creating an identity separate from

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4. <https://www.journals.uchicago.edu/doi/full/10.1086/691462>

5. <https://childmind.org/article/kids-shouldnt-use-phones-during-homework/>

that of their parents and to prioritize forming friendships with their partners and peers, who spend hours on social media.

Compared to adults, children have a less developed ability to control their impulses. If it is sometimes difficult for parents to unplug; imagine how difficult it is for a child who struggles with impulsivity or a teenager with a new best friend to resist constantly checking their phone. Prioritizing getting started on a book report or even studying for tomorrow's test won't be as compelling.

## **Conclusion**

The impact of technology on human attention span and well-being is a topic that deserves further exploration and attention. It is important to find a balance between using technology for its benefits and avoiding its negative consequences. Technology was born to help humanity and instead has become a necessity. Constant notifications, information overload, irrelevance of the data presented, and targeted advertisements all contribute to shortening our attention span.

## **About the author**

Dr. Eugenio Bacchini holds a degree in Pedagogy with a Major in Psychology. He also has different specializations: a Master's Degree in Clinical Pedagogy, HR Training, and a three-year degree in Psychosynthesis (Humanistic Psychology) from the school of Roberto Assagioli. He has teaching experience with various US Academic Programs abroad. He teaches Cross-Cultural Psychology as well as Introduction to Psychology, Personality Psychology, and Humanistic Psychology.

He is a Professional Counselor and has a private practice. Dr. Bacchini is a member of the professional associations Assocounseling and the International Association of Counseling.