

# Your smartphone is making you stupid, antisocial and unhealthy. So why can't you put it down??!?

A decade ago, smart devices promised to change the way we think and interact, and they have – but not by making us smarter. Eric Andrew-Gee explores the growing body of scientific evidence that digital distraction is damaging our minds

In the winter of 1906, the year San Francisco was destroyed by an earthquake and SOS became the international distress signal, Britain's Punch magazine published a dark joke about the future of technology. Under the headline, "Forecasts for 1907," a black and white cartoon showed a well-dressed Edwardian couple sitting in a London park. The man and woman are turned away from each other, antennae protruding from their hats. In their laps are little black boxes, spitting out ticker tape. A caption reads: "These two figures are not communicating with one another. The lady is receiving an amatory message, and the gentleman some racing results."

The cartoonist was going for broad humour, but today the image looks prophetic. A century after it was published, Steve Jobs unveiled the first iPhone. Today, thanks to him, we can sit in parks and not only receive amatory messages and racing results, but summon all the world's knowledge with a few taps of our thumbs, listen to virtually every song ever recorded and communicate instantaneously with everyone we know.

More than two billion people around the world, including three-quarters of Canadians, now have this magic at their fingertips – and it's changing the way we do countless things, from taking photos to summoning taxis. But smartphones have also changed us – changed our natures in elemental ways, reshaping the way we think and interact. For all their many conveniences, it is here, in the way they have changed not just industries or habits but people themselves, that the joke of the cartoon has started to show its dark side.

The evidence for this goes beyond the carping of Luddites. It's there, cold and hard, in a growing body of research by psychiatrists, neuroscientists, marketers and public health experts. What these people say – and what their research shows – is that smartphones are causing real damage to our minds and relationships, measurable in seconds shaved off the average attention span, reduced brain power, declines in work-life balance and hours less of family time.

They have impaired our ability to remember. They make it more difficult to daydream and think creatively. They make us more vulnerable to anxiety. They make parents ignore their children. And they are addictive, if not in the contested clinical sense then for all intents and purposes.

Consider this: In the first five years of the smartphone era, the proportion of Americans who said internet use interfered with their family time nearly tripled, from 11 per cent to 28 per cent. And this: Smartphone use takes about the same cognitive toll as losing a full night's sleep. In other words, they are making us worse at being alone and worse at being together.

Ten years into the smartphone experiment, we may be reaching a tipping point. Buoyed by mounting evidence and a growing chorus of tech-world jeremiahs, smartphone users are beginning to recognize the downside of the convenient little mini-computer we keep pressed against our thigh or cradled in our palm, not to mention buzzing on our bedside table while we sleep.

Nowhere is the dawning awareness of the problem with smartphones more acute than in the California idylls that created them. Last year, ex-employees of Google, Apple and Facebook, including former top



Smartphones are “literally using the power of billion-dollar computers to figure out what to feed you,” Mr. Harris said. That’s why you can’t look away. Socrates was wrong about writing and Erasmus was wrong about books. But after all, the boy who cried wolf was eaten in the end. And in smartphones, our brains may have finally met their match.

“It’s Homo sapiens minds against the most powerful supercomputers and billions of dollars. It’s like bringing a knife to a space laser fight,” Mr. Harris said. “We’re going to look back and say, ‘Why on earth did we do this?’”

#### VIRTUOSOS OF PERSUASION

If we have lost control over our relationship with smartphones, it is by design. In fact, the business model of the devices demands it. Because most popular websites and apps don’t charge for access, the internet is financially sustained by eyeballs. That is, the longer and more often you spend staring at Facebook or Google, the more money they can charge advertisers.

To ensure that our eyes remain firmly glued to our screens, our smartphones – and the digital worlds they connect us to – internet giants have become little virtuosos of persuasion, cajoling us into checking them again and again – and for longer than we intend. Average users look at their phones about 150 times a day, according to some estimates, and about twice as often as they think they do, according to a 2015 study by British psychologists. .

Add it all up and North American users spend somewhere between three and five hours a day looking at their smartphones. As the New York University marketing professor Adam Alter points out, that means over the course of an average lifetime, most of us will spend about seven years immersed in our portable computers.

These companies have persuaded us to give over so much of our lives by exploiting a handful of human frailties. One of them is called novelty bias. It means our brains are suckers for the new. As the McGill neuroscientist Daniel Levitin explains, we’re wired this way to survive. In the infancy of our species, novelty bias kept us alert to dubious red berries and the growls of saber-toothed tigers. But now it makes us twig helplessly to Facebook notifications and the buzz of incoming e-mail. That’s why social media apps nag you to turn notifications on. They know that once the icons start flashing onto your lock screen, you won’t be able to ignore them. It’s also why Facebook switched the colour of its notifications from a mild blue to attention-grabbing red.

App designers know that nagging works. In *Persuasive Technology*, one of the most quietly influential books to come out of Silicon Valley in the past two decades, the Stanford psychologist B.J. Fogg predicted that computers could and would take massive advantage of our susceptibility to prodding. “People get tired of saying no; everyone has a moment of weakness when it’s easier to comply than to resist,” he wrote. Published in 2002, Prof. Fogg’s book now seems eerily prescient.

The makers of smartphone apps rightly believe that part of the reason we’re so curious about those notifications is that people are desperately insecure and crave positive feedback with a kneejerk desperation. Matt Mayberry, who works at a California startup called Dopamine Labs, says it’s common knowledge in the industry that Instagram exploits this craving by strategically withholding “likes” from certain users. If the photo-sharing app decides you need to use the service more often, it’ll show only a fraction of the likes you’ve received on a given post at first, hoping you’ll be disappointed with your haul and check back again in a minute or two. “They’re tying in to your greatest insecurities,” Mr. Mayberry said.

Some of the mental quirks smartphones exploit are obvious, others counterintuitive. The principle of “variable rewards” falls into the second camp. Discovered by the psychologist B.F. Skinner and his acolytes in a series of experiments on rats and pigeons, it predicts that creatures are likelier to seek out a reward if they aren’t sure how often it will be doled out. Pigeons, for example, were found to peck a button for food more frequently if the food was dispensed inconsistently rather than reliably each time, the Columbia University law professor Tim Wu recounts in his recent book *The Attention Merchants*. So it is with social media apps: Though four out of five Facebook posts may be inane, the “bottomless,” automatically refreshing feed always promises a good quip or bit of telling gossip just





Maybe it's best for children to learn young that their parents frequently find their phone more absorbing than them, because they will learn sooner or later. Catherine Steiner-Adair, a clinical psychologist and research associate in psychiatry at Harvard Medical School, interviewed 1,000 kids between the ages of 4 and 18 for her 2013 book *The Big Disconnect*. Many of them said they no longer run to the door to greet their parents because the adults are so often on their phones when they get home.

And it gets worse once they're through the door. One of the smartphone's terrible, mysterious powers, from a child's perspective, is its ability "to pull you away instantly, anywhere, anytime," Dr. Steiner-Adair writes. Because what's happening on the smartphone screen is inscrutable to others, parents often seem to have simply gotten sucked into another dimension, leaving their kid behind. "To children, the feeling is often one of endless frustration, fatigue and loss."

The digital drift affecting families shows up in national statistics. The Center for the Digital Future, an American think tank, found that between 2006 and 2011, the average number of hours American families spent together per month dropped by nearly a third, from 26 to about 18. Distracted parents may even be putting their children at risk of physical harm, Dr. Steiner-Adair says. The U.S. Centers for Disease Control found a 12-per-cent spike in injuries to children under 5 between 2007 and 2010, after a long decline. The years coincide with the crash of the American economy, but also with the infancy of the iPhone .

If there's a silver lining to all of this grim evidence, it's that the wages of smartphone addiction are beginning to take hold in people's minds. When Dr. Steiner-Adair gives public talks, as she did in Maryland recently, parents often commiserate with her afterward.

"They all say roughly, 'That was terrific and terrifying. We're changing our family's MO as of today,'" she said. "Just about everyone knows there's something terribly wrong." She's not the only person to notice the beginning of a turning point in the way people relate to their mobile computers. Just recently, Prof. Wu was thinking of taking out a smartphone in his daughter's preschool class to play a song when he realized it would be taboo, given growing concerns about kids' screen time – like "taking out a toy gun."

"So it spreads," he said. "It's like a norm."

Prof. Wu's right: The belief that smartphones can be socially and mentally harmful – and that their overuse should be stigmatized – is spreading into the culture in little ways. A recent Dilbert cartoon showed a doctor looking wide-eyed at a medical chart and telling his patient, "The MRI shows that your brain has been hijacked by dopamine pirates." (When the patient asks, "Are you writing me a prescription," the doctor replies, "No, I'm buying stock in those companies.")

Even comedian Will Ferrell has joined the struggle. In a series of videos produced by Common Sense Media for the U.S. nonprofit's #DeviceFreeDinner campaign this fall, the actor plays a smartphone-addled father whose family tries to lure him away from his screen. In one clip, Mr. Ferrell's wife and kids persuade him to place his phone in a basket on the dinner table, but the father finds a loophole: "As long as it's in the basket, though, I can technically still touch it, right?" he says, his finger creeping toward the screen of his imprisoned device.

A culture shift is happening in Silicon Valley too. An ex-Google product manager, Ben Tauber, recently became executive director of the rejuvenated Esalen Institute, a former hippie hotel in California where techies have taken to visiting for unplugged weekends of soul searching about the plugged-in world they've created.

Still, for all the hints of change in the air, Mr. Harris remains on high alert. Billions of people continue to be distracted and turned away from loved ones thanks to their smartphones. And untold billions of dollars, wielded by some of the world's biggest companies, are devoted to keeping it that way. In fact, every financial incentive spurring the flanks of these firms is telling them to make smartphones more compulsively usable and therefore more damaging, not less.

Mr. Harris and other smartphone skeptics are starting to hatch ideas, some more plausible than others, about how the devices might be made less toxic. Imagine, Mr. Harris said, if Facebook's app delivered all your notifications at once, at a given time of day, like the mail. Prof. Wu, meanwhile, has suggested that tech companies should develop a phone designed to protect users' attention and time. He would pay double, he said.

The trouble with reforming these products, of course, is that the versions we have now are kind of amazing – fun to use and wildly convenient. That's why they're so addictive. The lesson we're slowly beginning to learn, though, is that they're not a harmless vice. Used the way we currently use them, smartphones keep us from being our best selves. The world is starting to make up its mind about whether it's worth it and whether the sugary hits of digital pleasure justify being worse, both alone and together.

We need to make up our minds soon, Mr. Harris said. "I worry that we're not going to get this fast enough."