

Smartphone Smarts: Guide to Healthier Scrolling Habits

In this lesson, we will learn about why smartphones are so habit-forming, why excessive smartphone use can be a problem, what kind of content can be especially problematic, and how to switch to healthier scrolling habits.

Technology & Novelty

Our brains like novelty. We get a little burst of dopamine every time something new makes us say, “Oh! What’s that?!” We like to learn, watch, and create new things. Our ancestors needed to be interested in new things so that they could figure out whether something new they came across, a new animal or plant for example, was safe or might harm them. Our brains still respond to new things with curiosity and interest, and the little burst of dopamine we get from that newness makes us want to do it again.

Smartphones were designed to keep us coming back for more. They are bright and colorful. They light up. And almost as soon as smartphones existed, so did the apps that make them even more interesting and tuned into things that we individually think are fun and exciting. Early apps included things like making your phone look like you were drinking out of it as you tipped it over, changing the color of your calculator, or playing a game you had only played before on a large game console. Internet-capable phones have been around longer than those that we currently consider smartphones. Blackberry, Motorola, Nokia, and others offered limited internet access and games like Snake on phones in the 1990s and early 2000s. The first iPhone was launched in 2007, and the AppStore opened in 2008. By 2025, millions of apps have been downloaded to billions of devices worldwide.



The Behavioral Science behind Smartphone Apps

Smartphones, and most of the apps on them, work on what is called a “variable interval reinforcement schedule.” If you have ever learned about Pavlov and his dogs, you probably remember hearing that they began to associate the ringing of a bell with getting food. Further research in this area by B.F. Skinner gave us a better understanding of learning, especially when it comes to automatic behaviors. Skinner worked with rats (and people) to figure out how often someone should be rewarded or punished for a behavior for that behavior to be hard to get rid of. What he learned was that when we are rewarded EVERY time we do something, we pick up the behavior faster, but it also stops very quickly after we stop getting rewarded for it. When we are rewarded on a fixed schedule, meaning that we can predict when we will be rewarded, it takes a little longer for the behavior to catch on and a little longer for it to stop. But we stop as soon as we figure out we won’t be rewarded anymore. The most powerful schedule is one that is a little unpredictable. The interval between the rewards varies.

Why would this work? When we are only rewarded SOMETIMES, we keep doing the behavior because...what if this is the time?! Think about slot machines. They are the perfect example of a variable interval reward schedule. You might win 3 times in a row, and then not win again for 10 plays. Just as you are about to stop...winner!!! Then you're hooked again. The impulse to keep playing is hard to ignore.

Smartphones work like this. You get a lot of notifications that are junk, but then one that has a juicy piece of gossip or a new episode of a favorite podcast or a social media update from someone you love. You continue to check the notifications because this one might be THE ONE!

Don't be too hard on yourself...**your brain made you do it.** And the people who built smartphones and smartphone apps, knew that your brain would make you do it. They have made a lot of money making ever-more-difficult-to-resist apps and algorithms to make sure you keep scrolling.

What's the Problem with Excessive Smartphone Use?

A lot of scary-sounding news stories have sounded the alarm about excessive smartphone use, especially among teens and children. The general consensus among social scientists and healthcare providers seems to be alarm, but not necessarily a 5-alarm fire. As with most things, there appears to be a spectrum of effects based on lots of different factors including preexisting health problems or risks, mental health conditions or predispositions to mental health problem such as depression and anxiety, the amount of time spent on smartphones, and, not surprisingly, WHAT you spend your time doing on your phone.

There is significant evidence that people who are on their phones excessively are more likely to experience depression, anxiety, OCD, ADHD, and addictive behaviors such as alcohol use (Wachs, & Weinstein, 2021). However, the data are correlations which simply show an association between two things. So, does the excessive phone

use cause the anxiety, or are anxious people more likely to use their phones excessively? We don't know.

The places we see the most alarming data are with young children. Excessive screen time is linked to impairment in impulse control, attention and other executive function skills, and mood regulation (Muppalla, et al., 2023). Recent research also indicates effects on brain development that are similar to the mild cognitive impairment seen in adults with the early stages of dementia such as impaired concentration, difficulty recalling recent memories, and impaired social functioning (Manwell, et al., 2022).

Exposure to Negative or Problematic Content

One of the common concerns about habitual smartphone use is that it interferes with in-person interactions. People are on their phones when, in the past, they were more engaged in a conversation or paying attention to their surroundings. While this can be an issue, the ways people use smartphones and the content they engage with is often of greater concern.

People who get most, if not all, of their information from social media or curated online sources are at higher risk of encountering dis- or misinformation than those who get information from a variety of sources. Social media is also filled with targeted ads that are geared specifically toward your likes, spending habits, and what you have recently looked for as well as increasingly realistic AI-generated content. In addition, phones can provide opportunities for disassociation through mindless scrolling and even anxiety through doomscrolling. We will talk about each of these issues as well as targeted texts and calls from scammers.

1. **Dis- & Misinformation:** these are often used interchangeably, but they are two different things.
 - a. **Disinformation** is FALSE information that is intended to be misleading. Someone may intentionally misstate facts, research findings, or experiences to serve their own

agenda or ends. This has been especially problematic related to public health messaging, political life, and climate change.

- b. **Misinformation** is sharing false or inaccurate information – getting the facts wrong – without ill intent. Misinformation happens accidentally all the time. You might state something in a conversation and then say, “Wait, no, it wasn’t that it was this.” Your correction happens in real time, and you can make sure the person you’re speaking with understands. The biggest issue with misinformation in the digital age is that it can’t be fully corrected. Even if someone takes a misleading post down, creates a fact-checked, corrected post, or comments to someone that their post is incorrect, there is no guarantee that everyone who saw the incorrect information will see the corrected information.

- c. **What to do about it:** Increase your media literacy. If something online (or in traditional established forms of mass communication like newspapers, magazines, evening news) causes you to feel very strong feelings, independently fact check it before sharing it. One of the ways that disinformation in particular is dangerous is that it plays to people’s emotions. When they feel big feelings about something, they are more likely to share it. Remember: People make money off of the shares, comments, and other interactions on social media, so they have a vested interest in making people engage with their content. Don’t share something if you haven’t checked it, and if you accidentally share something that turns out to be false, take it down.

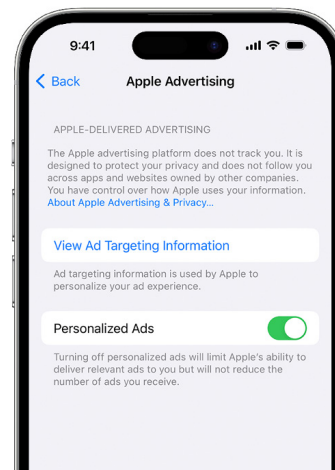
- 2. **Targeted advertising:** If you have ever seen an ad on social media or a search engine and wondered if your phone is listening to you, you have been the recipient of a targeted ad. **Targeted ads** don’t have to be problematic, but if you have difficulty with finances or shopping habits, ignoring or shutting down targeted ads can be helpful. You can choose

to have advertising be more general instead of targeted toward your search history, content you have interacted with, or your likes and follows on social media. Research your phone and social media settings to find how you can turn off targeted advertising if you want to do so.

A related issue is **ad placement in social media**.

Influencers are often paid to feature products that are likely to be of interest to their followers. These ads should be marked in some way such as a hashtag like #ad or #sponsored, but they are not always shown that way. Many are very obvious because the influencer is doing a commercial; however, some are sneakier and can be influential in ways that are less noticeable.

What to do: The only real way to avoid the ads is to avoid the media altogether, but there are ways to limit the information your phone and social media use to target you specifically. Social media apps and web browsers have settings you can change to limit what information is used to target ads to your interests. Devices also have these settings. Below are the typical settings for an Apple/iOS device and an Android device.



Turn Ad privacy features on or off on Apple/iOS Device (see left)

Turn Ad privacy features on or off on Android Device: Here’s how you navigate to your ad privacy settings.

1. On your Android device, open Settings.
2. Tap Google > All services.
3. Under “Privacy & security,” tap Ads Ads privacy.

- 3. **Dissociation & Doomscrolling:** Sometimes, we use our devices mindlessly to avoid boredom. Two ways this can be a problem are when we use them to disassociate, or we start doomscrolling.

- a. **Dissociation** is a coping strategy that can be very helpful at times. When we are overwhelmed or intensely focused, we

might be completely unaware of the world around us. Dissociation makes us feel like time is going quickly, and it can calm our brains through anxious moments or when we're overstimulated. Habitually using a device to dissociate from our surroundings can become a problem over time. We may miss important things, spend more time on the device than we intend to, or develop a feeling of anxiety when we don't have the device available.

- b. **Doomscrolling** is related to dissociation. When we feel overwhelmed by the state of the world or about a specific event, we might scroll and scroll through content on social media or news sites waiting for updates or confirmation that what we fear is happening. This term was coined in 2020 to describe the ways people stayed glued to their phones waiting for updates about COVID-19. Doomscrolling can cause anxiety, depressed mood, irritability, and hopelessness. It is important to remember that we train our algorithms to show us more of what we spend time watching. If we watch sad, scary, or upsetting content, the algorithm will show more of the same.
- c. **What to do:** If you find yourself scrolling with no purpose, take a moment to breathe and put down your phone. Stretch and think about why you might have been scrolling in the first place. Was it simply out of habit? Were you looking for something specific and then just started scrolling? (This is very common.) Setting a timer for yourself can be an easy way to interrupt mindless behaviors like scrolling. Carry a puzzle book, a book to read, or a craft project like crochet or knitting to do if you have to wait somewhere. Walk around or strike up a conversation!

4. **AI-Generated Content & Bots:** Currently, one of the most concerning forces in social media and other technology is realistic AI-generated content.

- a. **Realistic, AI-generated content** can include videos that appear to involve well-known politicians or celebrities, news stories that are written by AI and have not been adequately fact-checked, video or audio content shared as though it shows a real event when it was, in fact, created by artificial intelligence, and many, many other applications. This type of content is concerning for a multitude of reasons, not the least of which is that when people share AI-generated content as though it is real, it becomes misinformation. The more realistic these pieces of content become, the more difficult it is to discern when something is real or not.
- b. A related concern are “**bots**” who comment or create content with the sole purpose of building engagement. Sometimes these are created by real people who do this for a job, but other bots are AI-generated and responding to key-words in posts. They are often written to upset the target audience for the post by “trolling” or providing “rage bait.” If a comment is especially upsetting and against the typical audience for the post, they might be a bot trying to drive engagement.
- c. **What to do:** Think through what you are seeing. Is it something that makes your jaw drop in shock or that feels too bizarre to be true? Then it might not be true. Take a moment to independently verify what you are seeing or reading. Using Google Reverse Image Search to find other instances of a photo or other image, looking at things like background features and expected imperfections in a photo, or noticing if the subject of a photo just doesn't look quite right are all ways to discern if something is AI or not. If you feel so upset by a comment or post that you can't help but respond or share it with, “Can you believe this?!!” you may want to take a step back and consider an alternative explanation or whether your time and energy is best spent in this way.

5. **Scam calls, texts, and messages:** Although scam calls are not a new nuisance, they have become more sophisticated. It is possible to clone phone numbers or make a phone number show up on caller ID as the name of a bank, county jail, IRS, or even a family member. Common scams include things that will seem urgent such as a government debt, suspected identity theft, a problem with a delivery, or a loved one who is in trouble. You may be offered something exciting like a trip or a big discount if you act fast! The caller's goal is to make you act quickly before you have too much time to think.

Although phone calls are likely the most common way to attempt this type of scam, text messages, social media posts, and social media direct messages are also growing targets. A text message or direct message may include a link to resolve a problem with a bank or a delivery. Another common target is selling something on social media marketplaces. You may get messages from someone claiming to want to buy your item or you may contact someone who appears to be selling something you are interested in.

What to do: If it seems urgent, take a breath and call for some help. Sometimes it takes another person to hear what is going on to help you realize that something is off. Never give out bank account numbers or other private information over the phone to someone who called you unsolicited. Don't send gift cards or wire money, even if the call seems legitimate.

Example: You get a call from a number marked "Bank of America." They tell you that your account has been compromised, and they need you to verify your debit card number so that they can shut it down for you to avoid the money in your account being taken.

You have an account with Bank of America, so you get worried and think it must be correct because the number says Bank of America and why else would it say that?

Take a pause here and think through what is going on.

1. Bank of America would have your card number, so they don't need you to give it to them.
2. Generally, banks would contact you in multiple ways to warn of identity theft and calling to ask for that information is not one of them.
3. Hang up and call your local bank branch using the number either on your debit/credit card or that you find online. They can verify it for you at your request.

If someone calls saying they are your relative who is in jail and needs help, hang up and call the relative directly or call the jail directly.

Any links sent to you via text message or direct message should be ignored unless you know where they are from. If you signed up for texts from Michael's Craft Stores and you got a coupon from them, that's probably safe.

Verify. Verify. Verify.

Healthier Scrolling Habits

It can be difficult to change behavior, especially

1. **Turn off notifications** – Only leave notifications on for your phone, text messages, and other apps you might need important information from such as a weather alert. Social media, news outlets, games, and even email alert you so often that they can be distracting and pull you away from the things you would rather be doing. Choose a specific time or activity to check your social media and email instead.
2. **Turn ON filters for spam calls and text messages** – To help you limit the number of spam texts messages and phone calls you receive, activate your phone's filters. Some will still get through, but the filters often catch and label things as "possible spam" or prompt you to report and block the number.

3. **Set timers and screentime limits for activities you use for distraction such as social media or games.** – If you find yourself mindlessly scrolling on your phone, even when you know you're bored, set a timer or use the internal screentime limitations to help you manage your time and remind you to step away.
4. **Avoid screens before bed and just after waking.** – Screen use just before sleep or just after waking can interfere with your sleep cycles and increase anxiety. Setting your phone on a charger that is out of arm's reach and using a traditional alarm clock can simplify this switch.
5. **Curate your social media** – if it causes anxiety or rage or other big emotions...skip it. Your social media is programmed to give you more of what you click on or spend time watching. Even if you watch a video or reel because you are shocked or upset by it, the platform's algorithm will begin to show you similar things. You will also be shown accounts and "suggestions" based on what people like you interact with. Because social media platforms make their money through advertising, they benefit from sending you suggestions and products that have paid for placement. Most platforms have options to go directly to a feed of the accounts that you have chosen to follow, but it is usually not the default. And, in the interest of your blood pressure, friendships, and mental health...skip the comment section. Unless you are looking for a recommendation that is being given in the comments, it is someone's birthday or anniversary, or it's your own post, the comment section is often a cesspool of negativity, bots, and misinformation that isn't worth your time or energy.
6. **DON'T click on links in text messages unless you know exactly who they are from.** – Links in text messages are a common phishing technique used by spammers to access information from your phone, install viruses such as ransomware, and lead you to websites

that prompt you to enter information that can be stolen. If you receive a text message from a bank, insurance company, or someone else claiming to be letting you know something important or urgent take a moment to think before you respond.

Smartphone Smarts Guide to Healthier Scrolling Habits

1. Turn off non-essential notifications.
2. Turn on filters for spam calls and text messages.
3. Set timers and screentime limits for activities you use for distraction.
4. Avoid screens at bedtime and just after waking in the morning.
5. Curate your social media.
6. Don't click on links in text messages, emails, social media posts, or direct messages that you do not recognize or that come from unknown numbers.

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Resources for More Information

How to Stop Unwanted Calls: <https://consumer.ftc.gov/features/how-stop-unwanted-calls>

How to Spot a Phone Scam: <https://www.aarp.org/money/scams-fraud/phone/>

Arkansas Attorney General's Office – Common Scams: <https://arkansasag.gov/divisions/public-protection/common-scams/>

Texas A & M University Library -- Understanding & Spotting False News: <https://tamu.libguides.com/falsenews>