

The Impact

Think about how hard it is for you to stay on task and sustain a train of thought while working on your computer. Email, texts, and alerts of all kinds continually present you with opportunities to do something easier and more fun than what you're doing now. If you are over age 25, you have a fully mature frontal cortex to help you resist temptation and maintain focus, and yet you probably still have difficulties doing so. Now imagine a phone in a child's pocket, buzzing every few minutes with an invitation to do something other than pay attention. There's no mature frontal cortex to help them stay on task.

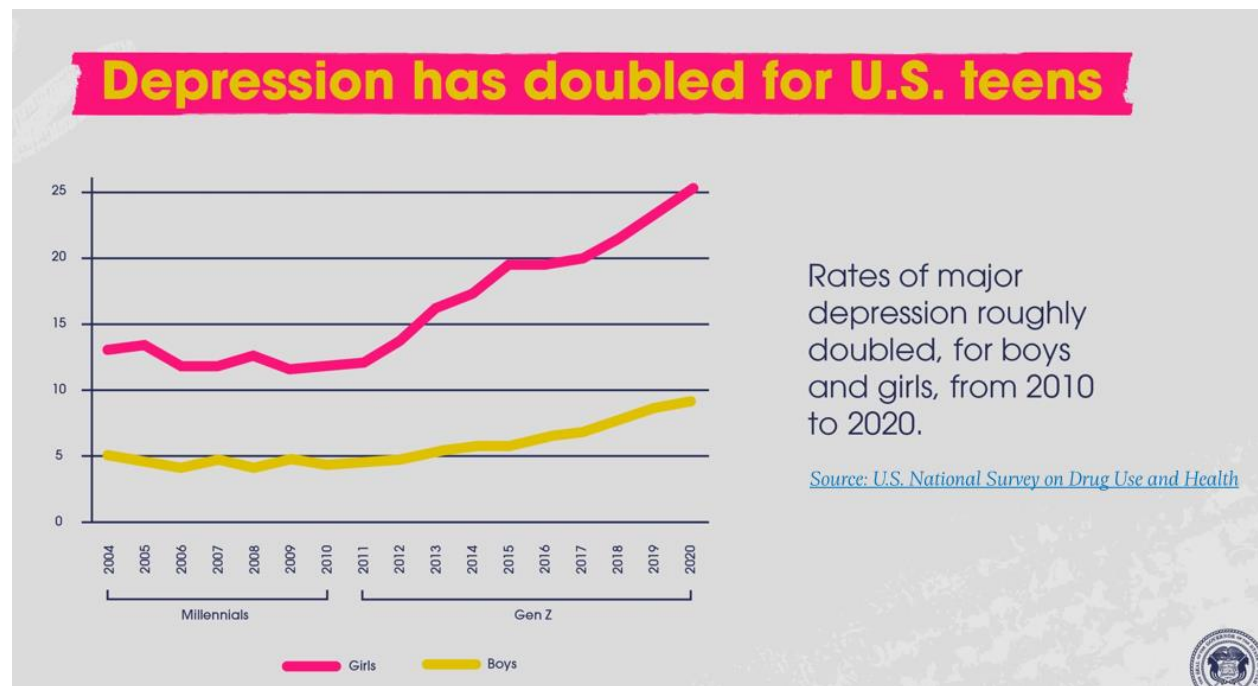
Whatever rules a school may have in place against it, many studies have established that students [check their phone](#) a lot during class, and that they receive and send texts if they can get away with it. Their focus is often and [easily derailed](#) by interruptions from their devices. [One study](#) from 2016 found that 97 percent of college students said that they sometimes use their phones during class for non-educational purposes. Nearly 60 percent of students said that they spend more than 10 percent of class time on their phones, mostly texting. Many studies show that students who use their phones during class [learn less](#) and get [lower grades](#).

You might be thinking that these are correlational findings; maybe the smarter students are just better able to resist temptation? Perhaps, but experiments using random assignment likewise [show](#) that using or just [seeing a phone](#) or [receiving an alert causes](#) students to underperform.

For example, consider [this study](#), aptly titled “Brain Drain: The Mere Presence of One’s Own Smartphone Reduces Available Cognitive Capacity.” The students involved in the study came into a lab and took tests that are commonly used to measure memory capacity and intelligence. They were randomly assigned to one of three groups, given the following instructions: (1) Put your phone on your desk, (2) leave it in your pocket or bag, or (3) leave it out in another room. None of these conditions involve active phone use—just the potential distraction of knowing your phone is there, with texts and social-media posts waiting. The results were clear: The closer the phone was to students’ awareness, the worse they performed on the tests. Even just having a phone in one’s pocket sapped students’ abilities.

The problem is not just transient distraction, though any distraction in the classroom will impede learning. Heavy phone or social-media use may also have a cumulative, enduring, and deleterious effect on adolescents' abilities to focus and apply themselves. [Nearly half](#) of American teens say that they are online "almost constantly," and such continuous administration of small pleasures can produce [sustained changes in the brain's reward system](#), including a reduction of dopamine receptors. This shifts users' general mood toward irritability and anxiety when separated from their phones, and it reduces their ability to focus. That may be one reason why heavy phone users [have lower GPAs](#). As the neuroscientists Jaan Aru and Dmitri Rozgonjuk put it in [a recent review of the literature](#): "Smartphone use can be disruptively habitual, with the main detrimental consequence being an inability to exert prolonged mental effort."

But smartphones don't just pull students away from schoolwork; they pull them away from one another, too. Consider the words of the MIT professor Sherry Turkle in her book *Reclaiming Conversation*: Because of our phones, she writes, "[we are forever elsewhere](#)." If we want children to be present, learn well, make friends, and feel like they belong at school, we should keep smartphones and social media out of the school day for as long as possible.



National data



Up to 95% of youth ages 13-17 report using a social media platform, with more than a third saying they use social media “almost constantly.”



Almost 60% of teen girls say they’ve been contacted on social media by a stranger in ways that made them feel uncomfortable.



Since the invention of social media, youth worldwide are feeling lonelier than ever before.

Abstract

Electronic communication is emotionally gratifying, but how do such technological distractions impact academic learning? The current study observed 263 middle school, high school and university students studying for 15min in their homes. Observers noted technologies present and computer windows open in the learning environment prior to studying plus a minute-by-minute assessment of on-task behavior, off-task technology use and open computer windows during studying. A questionnaire assessed study strategies, task-switching preference, technology attitudes, media usage, monthly texting and phone calling, social networking use and grade point average (GPA). Participants averaged less than six minutes on task prior to switching most often due to technological distractions including social media, texting and preference for task-switching. Having a positive attitude toward technology did not affect being on-task during studying. However, those who preferred to task-switch had more distracting technologies available and were more likely to be off-task than others. Also, those who accessed Facebook had lower GPAs than those who avoided it. Finally, students with relatively high use of study strategies were more likely to stay on-task than other students. The educational implications include allowing students short “technology breaks” to reduce distractions and teaching students metacognitive strategies regarding when interruptions negatively impact learning.

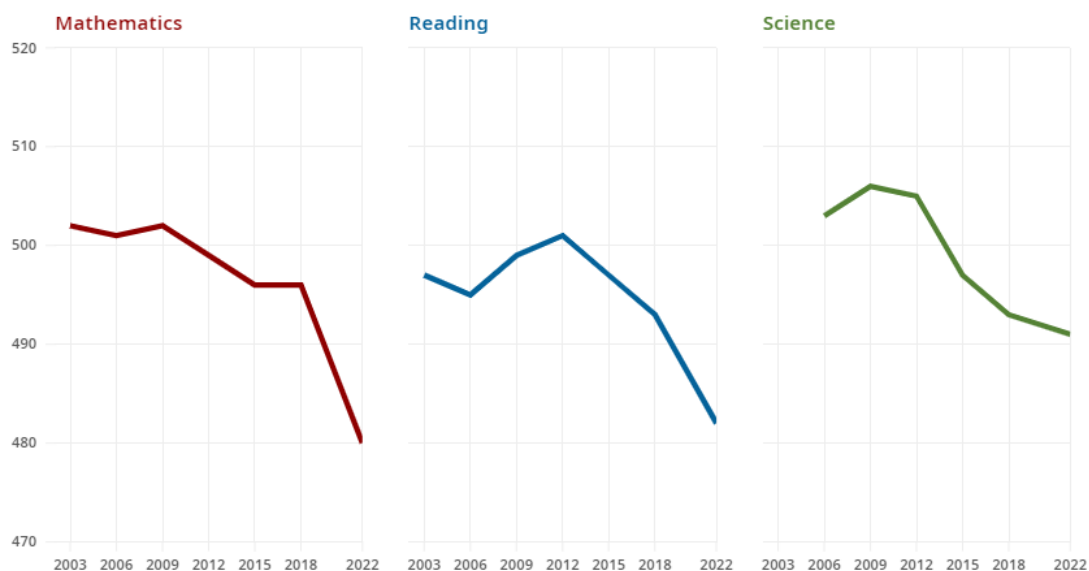
PISA Results

Since 2003, 15-year-olds globally have been assessed in math, reading, and science. It's called the Programme for International Student Assessment (PISA) and the 2022 results were shared in December. 690,000 students from 81 countries participated. There was an unprecedented 15-point drop in math scores globally. Reading scores also experienced their sharpest drop in the PISA's 20 year history. For reference, a 20-point drop is the equivalent of losing one full school year of education. For the first time, the 2022 PISA asked students about technology distractions. There were three key findings.

1. Students who spend less than one hour of "leisure" time on digital devices a day at school scored about 50 points higher in math than students whose eyes are glued to their screens more than five hours a day. A separate study found that fourth graders who used tablets in nearly all their classes scored 14 points lower on a reading test than students who never used them. In the Reboot study, 14 points equal a full grade level.
2. 65% of students said they get distracted by using digital devices, and 59% reported getting distracted by other students who are using digital devices. Students who said they were distracted by other students using digital devices in class scored 15 points lower in math than those who weren't distracted (equivalent to losing 2/3 of a year of learning).
3. Finally, 45% of students across said that they felt "nervous" or "anxious" when they didn't have their digital devices near them. On average, these students also said they were less satisfied with life and were the ones with lower math scores.

Trends in mathematics, reading and science performance

PISA test scores, OECD average



Source: OECD (2023), [PISA 2022 Results \(Volume I\): The State of Learning and Equity in Education](#).