

THE BRAIN AND TECHNOLOGY

*What developmental issues derive
from excessive screen time use?*

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OBJECTIVES

- Students will examine the alteration in white matter integrity in the brain and observe screen use effects.
- Students will assess the effects of screen use on children's brain development and performance.
- Students will describe how addiction and overuse can hurt children's brains

The Brain Itself



www.technologynetworks.com/neuroscience/articles/gray-matter-vs-white-matter-322973

How Screens Alter Brain Chemistry



te.com/technology/2016/03/how-big-is-the-brain-who-knows-even-our-best-efforts-to-calculate-its-capacity-are-flawed-and-meaningless.htmlsla

White Matter

- Definition: The brain's internal communications network, allows electrical signals to move from one area of the brain to another (Basu).
- Lower white matter integrity in children

Academic Performance Issues

- Study at Journal of the American Medical Association found that greater amounts of screen time from young ages were associated with significantly poorer performance (Basu).



ACTIVITY

How many hours have you been awake today?

How many times do you think you have checked your phone today?

Mobile devices are a big part of our lives

68%

check their phone
within 15 minutes
of waking up



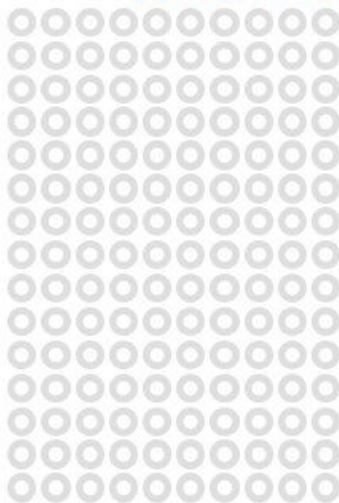
87%

of millennials
always have their
phone, day & night



We check
our
phones

150 times
a day



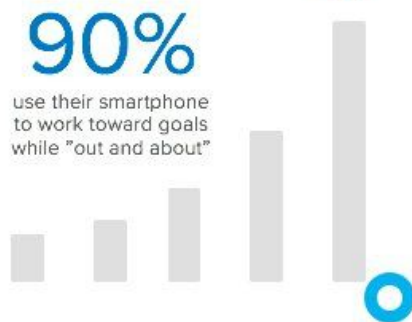
70 secs

is the duration of the
average mobile
session



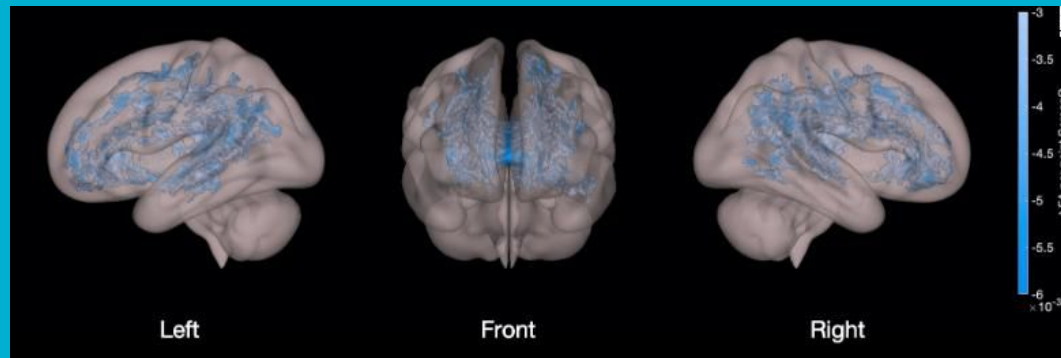
90%

use their smartphone
to work toward goals
while "out and about"



Brain Development and Performance

- “Studies have shown excessive TV viewing is linked to the inability of children to pay attention and think clearly, while increasing poor eating habits and behavioral problems” (LaMotte).
- MRI scans are showing results



MRI Scans

- “Scans of 3 to 5 year old brains who exceed recommended use had lower development levels of white matter, affecting language, literacy, and cognitive skills” (LaMotte).
- Excessive screen time was also linked to testing lower on the ability to rapidly name objects on cognitive tests
- 90% of kids are using screens by age one (LaMotte).

Too much screen time changes children's brains



Recommended Use

- Parents should manage their children's use
- 90% of kids are using screens by age one (LaMotte).
- “The American Academy of Pediatrics (AAP) recommends that parents of children 1 to 2 years of age shouldn’t exceed one hour of screen time per day” (Citroner).

**Have you ever
heard of a gaming
addiction?**

Scientist's Discovery

- Scientists have trouble deciphering whether screen addiction exists
- “The British tabloids last year reported that a nine-year-old girl was so addicted to playing the hit video game *Fortnite* that she wouldn't leave the couch to go to the toilet” (McDuling).



The addiction of screens

- Last June the World Health Organisation declared that gaming addiction was a mental health disorder (McDuling).



Screen Limitations

- Benefits from limiting use:
 - Children become creators rather than users
 - Improvements in wellbeing, happiness, life satisfaction, depression, and anxiety (McDuling).

www.irishtimes.com/life-and-style/health-family/parenting/screen-time-for-children-how-much-is-too-much-1.3515022



TEST YOUR KNOWLEDGE

Kahoot!

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