Mobile Device Dependency
With Children & Families

Minnesota Fathers and Families Network Summit
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"It's so overt, it's covert."
— Sherlock Holmes
How many of you own a smartphone or other mobile device?

How many of you have your smartphone or similar device with you now?

How many would feel very uncomfortable if you had accidentally left it at home?
AGENDA

• Trends in mobile device use
• Benefits of mobile device
• Device dependency criteria & effects
• Recommendations for healthy use
• Intervention strategies
What do they Do?
Mobile Devices in the Wild
Is it new?
Differences - Portability
Differences - Scope & Scale
Differences - Frequency

#FOMO
% of U.S. adults who own the following devices

Source: Surveys conducted 2002-2018.
PEW RESEARCH CENTER
Smartphone access nearly ubiquitous among teens, while having a home computer varies by income

% of U.S. teens who say they have or have access to a ___ at home

<table>
<thead>
<tr>
<th></th>
<th>Desktop or laptop computer</th>
<th>Smartphone</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. teens</td>
<td>88%</td>
<td>95%</td>
</tr>
<tr>
<td>Boys</td>
<td>89</td>
<td>93</td>
</tr>
<tr>
<td>Girls</td>
<td>88</td>
<td>97</td>
</tr>
<tr>
<td>White</td>
<td>90</td>
<td>94</td>
</tr>
<tr>
<td>Black</td>
<td>89</td>
<td>94</td>
</tr>
<tr>
<td>Hispanic</td>
<td>82</td>
<td>95</td>
</tr>
<tr>
<td>Less than $30K</td>
<td>75</td>
<td>93</td>
</tr>
<tr>
<td>$30K - $74,999</td>
<td>89</td>
<td>93</td>
</tr>
<tr>
<td>$75K or more</td>
<td>96</td>
<td>97</td>
</tr>
<tr>
<td>Parent’s level of education:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS or less</td>
<td>78</td>
<td>94</td>
</tr>
<tr>
<td>Some college</td>
<td>91</td>
<td>94</td>
</tr>
<tr>
<td>College+</td>
<td>94</td>
<td>96</td>
</tr>
</tbody>
</table>

Note: Whites and blacks include only non-Hispanics. Hispanics are of any race. Parent’s level of education based on highest level of education associated with a teen’s parent. Source: Survey conducted March 7-April 10, 2018. “Teens, Social Media & Technology 2018”

PEW RESEARCH CENTER
Majority of Americans now use Facebook, YouTube

% of U.S. adults who say they use the following social media sites online or on their cellphone

YouTube 73%
Facebook 68

Instagram 35
Pinterest 29
Snapchat 27
LinkedIn 25
Twitter 24
WhatsApp 22

Note: Pre-2018 telephone poll data is not available for YouTube, Snapchat or WhatsApp.
Source: Survey conducted Jan. 3-10, 2018. Trend data from previous Pew Research Center surveys.
“Social Media Use in 2018”
PEW RESEARCH CENTER
YouTube, Instagram and Snapchat are the most popular online platforms among teens

<table>
<thead>
<tr>
<th>Platform</th>
<th>Say they use ...</th>
<th>Say they use __ most often</th>
</tr>
</thead>
<tbody>
<tr>
<td>YouTube</td>
<td>85%</td>
<td>32%</td>
</tr>
<tr>
<td>Instagram</td>
<td>72</td>
<td>15</td>
</tr>
<tr>
<td>Snapchat</td>
<td>69</td>
<td>35</td>
</tr>
<tr>
<td>Facebook</td>
<td>51</td>
<td>10</td>
</tr>
<tr>
<td>Twitter</td>
<td>32</td>
<td>3</td>
</tr>
<tr>
<td>Tumblr</td>
<td>9</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Reddit</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>None of the above</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: Figures in first column add to more than 100% because multiple responses were allowed. Question about most-used site was asked only of respondents who use multiple sites; results have been recalculated to include those who use only one site. Respondents who did not give an answer are not shown.

Source: Survey conducted March 7-April 10, 2018.
“Teens, Social Media & Technology 2018”

PEW RESEARCH CENTER
A little over half of parents are happy with the time they spend on cellphone or social media.

<table>
<thead>
<tr>
<th></th>
<th>Too much time</th>
<th>About the right time</th>
<th>Too little time</th>
</tr>
</thead>
<tbody>
<tr>
<td>On their cellphone</td>
<td>36</td>
<td>55</td>
<td>7</td>
</tr>
<tr>
<td>On social media</td>
<td>23</td>
<td>55</td>
<td>12</td>
</tr>
</tbody>
</table>

Around six-in-ten parents regularly feel obligated to immediately respond to messages on their cellphone.

**Note:** Respondents who did not give an answer or who do not have a cellphone or use social media are not shown.

Source: Survey conducted March 7-April 10, 2018.

“How Parents and Teens Navigate Screen Time and Device Distractions”

PEW RESEARCH CENTER
45% of teens say they’re online almost constantly

% of U.S. teens who say they use the internet, either on a computer or a cellphone ...

<table>
<thead>
<tr>
<th></th>
<th>Almost constantly</th>
<th>Several times a day</th>
<th>Less often</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>45</td>
<td>44</td>
<td>11</td>
</tr>
<tr>
<td>2014-2015</td>
<td>24</td>
<td>56</td>
<td>20</td>
</tr>
</tbody>
</table>

Note: “Less often” category includes teens who say they use the internet “about once a day,” “several times a week” and “less often.”


PEW RESEARCH CENTER
# Mobile Device Usage - Teens

Teens hold mixed opinions about whether they spend too much time in front of screens...

<table>
<thead>
<tr>
<th>Activity</th>
<th>Too much time</th>
<th>About the right time</th>
<th>Too little time</th>
</tr>
</thead>
<tbody>
<tr>
<td>On their cellphone</td>
<td>54</td>
<td>35</td>
<td>8</td>
</tr>
<tr>
<td>On social media</td>
<td>41</td>
<td>43</td>
<td>13</td>
</tr>
<tr>
<td>Playing video games</td>
<td>26</td>
<td>41</td>
<td>22</td>
</tr>
</tbody>
</table>

...but half or more have cut back on the time they spend using various technologies

<table>
<thead>
<tr>
<th>Activity</th>
<th>% of U.S. teens who say they ever cut back on the amount of time they spend</th>
</tr>
</thead>
<tbody>
<tr>
<td>On their cellphone</td>
<td>52</td>
</tr>
<tr>
<td>On social media</td>
<td>57</td>
</tr>
<tr>
<td>Playing video games</td>
<td>58</td>
</tr>
</tbody>
</table>

What parents are saying about their teen’s screen time

<table>
<thead>
<tr>
<th>% of U.S. parents of teens who...</th>
</tr>
</thead>
<tbody>
<tr>
<td>say they worry about their teen spending too much time in front of screens</td>
</tr>
<tr>
<td>say they limit when and how often their teen can go online or use their cellphone</td>
</tr>
<tr>
<td>say they are very or somewhat confident about how much screen time is appropriate for their teen</td>
</tr>
</tbody>
</table>

Note: Respondents who did not give an answer or gave other responses are not shown.
Source: Survey conducted March 7-April 10, 2018.
“How Parents and Teens Navigate Screen Time and Device Distractions”
PEW RESEARCH CENTER
Girls are more likely than boys to feel anxious or lonely without their phone

% of U.S. teens who say they feel___ when they do not have their cellphone

<table>
<thead>
<tr>
<th>Feeling</th>
<th>Boys</th>
<th>Girls</th>
<th>U.S. teens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxious</td>
<td>35</td>
<td>49</td>
<td>42%</td>
</tr>
<tr>
<td>Lonely</td>
<td>20</td>
<td>32</td>
<td>25</td>
</tr>
<tr>
<td>Upset</td>
<td>20</td>
<td>28</td>
<td>24</td>
</tr>
<tr>
<td>Relieved</td>
<td>16</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>Happy</td>
<td>16</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>None of these</td>
<td>23</td>
<td>33</td>
<td>28</td>
</tr>
</tbody>
</table>

Note: Respondents could select multiple options.
Source: Survey conducted March 7-April 10, 2018.
“How Parents and Teens Navigate Screen Time and Device Distractions”
PEW RESEARCH CENTER
520 smartphone users were asked to complete a cognitively demanding task with their silenced phones face down, in a pocket or bag, or in the next room. (Ward, et al., 2017)
Majority of users say it would not be hard to give up social media

Among U.S. social media users, the % of who say it would be ___ to give up social media

<table>
<thead>
<tr>
<th>Hard to give up</th>
<th>Not hard to give up</th>
</tr>
</thead>
<tbody>
<tr>
<td>All social media users</td>
<td>40%</td>
</tr>
<tr>
<td>18-24</td>
<td>51</td>
</tr>
<tr>
<td>25-29</td>
<td>40</td>
</tr>
<tr>
<td>30-49</td>
<td>43</td>
</tr>
<tr>
<td>50+</td>
<td>33</td>
</tr>
</tbody>
</table>

Note: Respondents who did not give answer are not shown. “Hard to give up” include those saying it would be very or somewhat hard. “Not hard to give up” include those saying it would be not too hard or not hard at all.

Source: Survey conducted Jan. 3-10, 2018. “Social Media Use in 2018”

PEW RESEARCH CENTER
Mobile Device Trends

Digital Media Usage @ +4% Growth...
5.9 Hours per Day (Not Deduped)

Daily Hours Spent with Digital Media per Adult User

What did the 3 hours cost us?
Why are so many apps free?
Addictive Design

You are the product

Data

Premium

Advertisement
The Casino Reinforcement Hook

- High sensory involvement: Visual, auditory, kinesthetic
- Rapid engagement & feedback
- Personally interesting and relevant information
- Social reinforcement & community (likes, friends, gossip, events), symbol of status
- Inattention to other cues
- Variable ratio of reinforcement: High reinforcement after variable number of responses
We can all be vulnerable

- Checking e-mail
- Checking stocks
- Facebook, Twitter, etc
- Texting
- Multitasking
- News browsing
- Web surfing
- Online gaming
- Online shopping/bidding
- Online simulations
- Chatrooms
- Online gambling
- Online pornography
- Cybersex
- Cyber bullying
The Impact of Devices on Us
Here—take my phone....

- 92% of phones have bacteria on them
- 16% of cell phones and hands have E. Coli
- The average phone has *10 times the amount of bacteria* that is found on a toilet seat!
- It can pass off strep and staph if the phone is passed to a friend
Digital Eye Strain “Computer Vision Syndrome”

- Repetitive eye movements, viewing close objects, screen contrast, flicker and glare strain the eyes.
- Strain presents as fatigue, discomfort, dry eyes, headache, blurred vision, neck and shoulder pain.
- Eye strain affects 76-87% of all age groups using digital devices.
- **20-20-20**: Take a 20-second break every 20 minutes and look at an object 20 feet away.
Blue Light & Sleep

• At night, blue light emissions from devices (smartphones, tablets, TV) interfere with melatonin production

• Teens have greater light sensitivity than adults; just 1/10\textsuperscript{th} as much light as adults can affect them

• High use among youth:
  • 95% of students use devices within an hour of bed;
  • 42% Gen X/Y read/receive texts almost every night before bed;
  • 20% of Y/Z are awakened almost every night with text messages, emails or calls

• The amount of caffeine in a double espresso has less of an effect on sleep schedule than bright light exposure at night
Multi-tasking
• Shifting mental gears costs time, especially when shifting to less familiar or more complex tasks
• Switching reduced mental efficiency equivalent to a loss of 10 IQ points or losing a night’s sleep, or twice the effects of marijuana
• Mental calculations are 40% slower during task switching
• MT produces physical stress resulting in release of stress hormones & adrenaline
• Prolonged multitasking seems to interfere with learning to concentrate on single intellectual tasks
• Employees loses about 2 hours a day to interruptions & distractions, or 546 hours annually

Texting pedestrians take 1.87 extra seconds to cross an average intersection and 4x *more likely* to ignore lights or forget to look for traffic before crossing.
Distracted Driving

• Almost a half million people are injured or killed annually in traffic accidents attributed due to texting and driving

• Drivers talking on phones can miss seeing 50% of their driving environments (including pedestrians and red lights)

• Somebody staring at their phone for only two seconds at 30 mph has covered 88 feet!

• In 52% of accidents, drivers have been on their phones
Short Attention Span

• When devices are kept on ping, ring or vibrate people report more signs of inattention and hyperactivity (fidgeting, restlessness) in a nonclinical sample

• This inattention was further related to lower productivity and lower well-being

• Average attention span in 2000 was 12 seconds; now it’s 8 seconds (a goldfish is 9 seconds)

• Symptoms could be reduced by reducing phone settings
Excessive phone use: Effects on Mood

• The stimulation of receiving a message is rewarding & satisfying but short-lived and increases cravings
• Anxiety about receiving messages or depression about not receiving them can be high
• Teens who spend five+ hours per day on their devices are 71% more likely to have one risk factor for suicide

HOW DID YOU FEEL WHEN YOU MISPLACED YOUR PHONE?

73% Panicked
14% Desperate
7% Sick
6% Relieved
Smartphones and Dumb-Brains?

- Frequent multitasking is related to poor working memory performance
- Automatic navigation impairs personal conceptual map building
- Frequent Facebook users have poorer performance on recall tasks
- Weaker tendency to delay gratification and increase impulsiveness
- Develops more intuitive and less analytic thinking
- High use is negatively correlated with academic performance, GPA, & homework completion.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5403814/table/T1/
Adverse Relationship Effects from Excessive Use

- Lower relationship quality and less trust in their communication partner
- Felt their partner was less empathic to their concerns
- Makes us more selfish, and less likely to engage in ‘prosocial’ behavior
- 54% of children thought their parents check their devices too often and 32% of kids feel unimportant when parents are distracted by their phones
- *phubbing* (phone + snubbing) makes people feel ignored and rejected
The Addiction Continuum

**Preoccupation:** frequent and preferred use of a media but without adverse consequences

**Dependency:** psychological habituation, with highly rewarding experiences without tissue-related withdrawal; periodic need to obtain a feeling of satisfaction or avoid discomfort

**Addiction:** craving for tech that dominates one’s life to the exclusion and impairment of other aspects of a healthy/normal lifestyle

How much should addiction be based on duration of use?
Reinforcement of Dependency

If you place food out at exactly 7:15 am every day, Scrat will come at exactly that time and not come at any other time.

If the food is present only when the yellow light is on, Scrat will check for food only at that time and ignore the location the rest.

If the food is randomly available at no specific time and with no cues, Scrat can’t predict when it will come and checks for food every few minutes—just like e-mails...
Solutions & Interventions
Self Regulation

• Set boundaries: Where & when will you NOT use it
• Get required tasks done before using media
• Schedule specific & limited times for checking messages, or use a timer & put it away
• Disable notifications for some/all apps; turn screen-side down or place it away from yourself
• Practice self-soothing: meditation, relaxation, distraction

Self Regulation

• Leave phone outside of the bedroom; no “blue-screen” 1-2 hours before bedtime

• If friends need urgent contact after hours, use a phone call & not text

• Recognize the triggers that make you reach for your phone (e.g., lonely or bored)

• Understand the difference between interacting in-person and online

• Strengthen your support network

• Recognize any underlying problems that support your compulsive behavior
Countering Blue Light

• Avoid looking at bright/blue lights 2 hours before bed

• Wear blue-light blocking glasses or install an app that filters the blue/green wavelength at night.

• Turn brightness down and keep the device farther away from your face

• Software such as F.lux and Twilight warm up the colors of devices (more reds and yellows) at sunset and returns to normal at sunrise

• Blue light may help us wake up, boost attention, and reaction time!
Residential Treatment Programs

• 30-90 days residence
• Identification of adverse consequences
• Cold Turkey— 3 weeks “digital detox” with no phone, TV, computer access
• Repair basic life skills: eating, sleeping chores, crafts, interacting
• Individual and group sessions focusing on dependency
• Impulse control and self-soothing techniques
• Time-limited phone use & recognition of triggers
• Aftercare support and “device-free” weekends
Mobile Device Manners (and matters!)

- Out of sight
- Silence device
- Apologize for exceptions
- 10 foot rule
- Avoid immediate emotional responses
- Respond promptly with relative importance
- Avoid talking/texting/viewing and driving
- Not a crutch when you feel badly
- Focus on activities/hobbies outside of device
Benefits of Life Outside of the Device

• Become more observant
• Reset normal dopamine levels
• Increase productivity
• Decrease FOMO
• Learn to be alone
• More time to try new things
• Time for thinking and inspiration
• Learn/develop a sense of direction
• More focused, better decision making
• Improved quantity and quality sleep
• Reduce fatigue (eyes, hands, neck)
• Create opportunities for random social interaction
• Improved relationships with real people
The Takeaways

• Tech innovation often advances faster than our understand of its consequences; where does this take society?
• Smartphones are not inherently bad— they have many benefits, but can be misused
• Extensive use can create a physiological and psychological dependency due to the dopamine reward system
• Smartphone dependency and addiction can produce physical, emotional, cognitive, and health changes that can further affect relationships, academic and work performance, and well-being
• Assessment tools can help identify excessive use and symptoms
• Interventions can include parental/family guidelines and rules, personal practices, and counseling & psychotherapy.
Supplements
Parent Guidelines for Kids

10 Rules for Smartphones and Social Media (Violation Means Restricted Use for Days or Weeks)

• *Never* text while driving a car.
• *Never* write a text or send a photo that you wouldn’t want your parents to see.
• Always ask before you forward a text or photo.
• Never post your cell phone number anywhere.
• Turn off location services and never broadcast your location.
• Never respond to numbers you don’t recognize.
• If someone asks you to send an inappropriate photo, say “No!” and talk to your parents about it.
• If you receive an inappropriate photo, delete it immediately and tell your parents; block the sender.
• Don’t download apps without your parents’ permission.
• Don’t use social media or electronic devices to bully or gossip.

(Higbee, 2017)
10 Smart Guidelines for Smartphones and Social Media (Violation Means Restricted Use for Hours or Days)

1. Demonstrate you have a life beyond your smartphone (you are not addicted to it).
2. Turn in phones at a certain time each night (different times based on age).
3. Kids must leave phones at a charging station in a public room in the house at night.
4. No cell phones at the dining room table.
5. No cell phones out of your backpack while you are in class.
6. Don’t text someone in the same room. Talk face to face.
7. Don’t wear your cell phone on your body (jury is still out but those waves can’t be good for you).
8. No Snapchat-type apps that allow you to erase history.
9. Parents can look at phone or take phone at any time.
10. If you break, it you buy it.  

(Higbee, 2017)
Smartphone Compulsion Test

1. Do you find yourself spending more time on your cell or smartphone than you realize?
2. Do you find yourself mindlessly passing time on a regular basis by staring at your cell or smartphone?
3. Do you seem to lose track of time when on your cell or smartphone?
4. Do you find yourself spending more time texting, tweeting or emailing as opposed to talking to people in person?
5. Has the amount of time you spend on your cell or smartphone been increasing?
6. Do you wish you could be a little less involved with your cell or smartphone?
7. Do you sleep with your cell or smartphone (turned on) under your pillow or next to your bed regularly?
8. Do you find yourself viewing and answering texts, tweets and emails at all hours of the day and night—even when it means interrupting other things you are doing?
9. Do you text, email, tweet or surf while driving or doing other similar activities that require your focused attention and concentration?

10. Do you feel your use of your cell or smartphone decreases your productivity at times?

11. Do you feel reluctant to be without your cell or smartphone, even for a short time?

12. Do you feel ill-at-ease or uncomfortable when you accidentally leave your smartphone in the car or at home, have no service or have a broken phone?

13. When you eat meals, is your cell or smartphone always part of the table place setting?

14. When your cell or smartphone rings, beeps or buzzes, do you feel an intense urge to check for texts, tweets, emails, updates, etc.?

15. Do you find yourself mindlessly checking your cell or smartphone many times a day, even when you know there is likely nothing new or important to see?
1. Which medium is increasing the fastest?
   A. Newspapers
   B. Television
   C. Laptop
   D. Mobile devices

2. Which of the following is the currently most popular social media
   A. Instagram
   B. Facebook
   C. Snapchat
   D. Twitter

3. What does “FOMO” refer to?
   A. Facebook Optimized Metric Organization
   B. Fear of Missing Out
   C. Friends on Media Outlets
   D. Frequency of Multitasking Operations

4. Excessive mobile device use is related to which of the following:
   A. Anxiety
   B. Sleep disturbance
   C. Eye strain
   D. All of the above

5. Blue light from devices has the effect of
   A. Helping people fall asleep faster
   B. Concentrating more intently
   C. Interfering with melatonin for sleep onset
   D. Improving nighttime vision
6. What is the 10-Foot Rule:
   A. The distance radiation can travel from your phone
   B. The restraining order from people who abuse social media
   C. The distance you should separate self from others while taking a phone call
   D. The largest size a device can be to be considered “mobile”

7. Nomophobia refers to
   A. A fear of others not knowing your name
   B. Anxiety about not having a device close by
   C. Apprehension about unknowingly breaking some media law
   D. A fear of using mobile devices

8. Which reinforcement schedule describes the mechanism for device addiction
   A. Continuous reinforcement
   B. Frequent reinforcement
   C. Variable ratio
   D. Withdrawal

9. The mere presence of a phone:
   A. Can produce inattention and stress
   B. Can improve concentration
   C. Is unrelated to attention and concentration
   D. Increases the entropy level

10. Research on multitasking finds that
    A. Most people can multitask very effectively
    B. People are good estimators of their ability to multitask
    C. Multitasking actually improves task effectiveness
    D. Multitasking generally impairs performance

ANS: 1(d), 2(b), 3(b), 4(d), 5(c), 6(c), 7(b), 8(c), 9(a), 10(d)