

Know Brain, Know Gain:

Making Technology Work *with* Your ADHD

Brittany Smith
<https://conquer.consulting>



New Slides!

<https://conquer.consulting/2019-adhd-conference-tech-presentation-links>

Wifi: #ADHDCon2019
Password: #ADHDCon2019

Brittany Smith
<https://conquer.consulting>



Disclaimer

- I can't tell you the perfect:
 - Task manager
 - Email system
 - (**Perfect apps don't exist. Ever.**)
- Can't solve anyone's device or gaming addictions

Please hold questions for the end

ADHD Differences

- Distraction-prone
- Procrastination
- Hyper-focus
- Decision fatigue
 - (Idea-generating forces of nature)
- Form strong habits
- Low Working Memory capacity

1. Create a Focused Computing Environment

- Reduce / customize notifications
- Reduce stress from bad reminders
- Clean up our Screens

2. Technology & Happiness

- Leisure time and happiness
- Habit-Forming Devices
- Build Positive Habits

3. Gettin' Nerdy with it

- Accessibility options
- Automation

Story Time - 2001

- Undiagnosed ADHD
- Couldn't remember what class was what day
- What room was each class in?
- How to take class notes?



Story Time - 2001

- Appointment Reminders
- Contacts
- Type Class Notes
- Word Documents
- Spreadsheets
- No YouTube, social media, or addictive games



What changed?



What changed?

1. Internet prevalence
 2. Now littered with apps and services
 3. Business of computing and software
 4. Ability to track, gather, and process data about usage and users grew
- Now "you" are worth so much more to so many companies

The world is in constant competition for your attention.



Apps are coopting cognitive processes that evolved for our survival

We can take back control

Create a Focused Computing Environment

- Slow Devices
- Notifications
- Stress from bad reminders
- Clean up our Screens

Slow Device?

Speed it up:

- Have fewer apps
- Keep storage free (15-20%)
- Throttled? Need a new battery?
- Factory Restore?
- More:
 - <https://conquer.consulting/blog/speed-up-your-device>



Notifications



Orienting Response

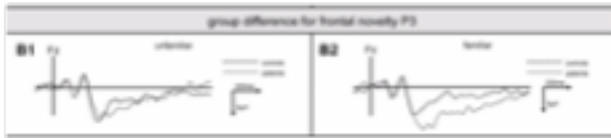
- Notification sounds trigger the "Orienting Response"
- Environmental capture of attention
- Engages potential survival instincts for things that aren't that important
- Different for those with ADHD



Orienting Response in ADHD

- Electroencephalogram (EEG) study of orienting response and attention
- Great for measuring very short attention windows (100's of milliseconds)
- Marzinzik, et al. 2012 study:
 - Compared attention responses of folks with and without ADHD
 - Target vs. non-target (stuff to ignore) sounds
 - Non-target sounds: familiar vs. unfamiliar (new) sounds

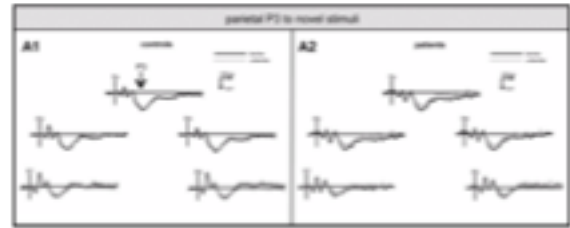
Orienting Response in ADHD



- Frontal response is the early orienting attention response:
 - when something new and sudden, it grabs everyone's attention
- But with ADHD, even sounds we've heard before grab our attention like they're new

Marzinkik, et al. 2012

Orienting Response in ADHD



- Parietal response implies sustained attention past the initial reaction to a sound
- Patients: Sustained attention to the non-targets (familiar and unfamiliar)
- Controls don't differentiate in their sustained attention
- Folks with ADHD are paying attention longer to sounds they're supposed to ignore "when the sound is familiar"

Marzinkik, et al. 2012

Orienting Response in ADHD

- Folks with ADHD:
 - Have their attention more easily grabbed by "repeated" sounds that aren't related to the task at hand
 - Keep more sustained attention on familiar distracting sounds
 - Think those notification sounds aren't interfering with work?

Marzinkik, et al. 2012

Sounds are more disruptive with ADHD

Gumenyuk, et al. 2005

- Kids with ADHD Performance on task decreased after novel sound played
- esp. More missed / omitted work



Alarm Fatigue

- High volume of alerts until we go numb to them
- Medical professionals miss crucial alarms and endanger patients



Alarm Fatigue Consequences

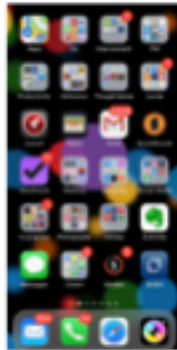
- Increased anxiety
- Sleep problems
- Compromised immune system



Red Badges

App with Red Circle around Number

- Color red has special meaning for survival
- Signals there's something we need to do
- Add resistance because there's something scary in there
- We go numb to too many red badges



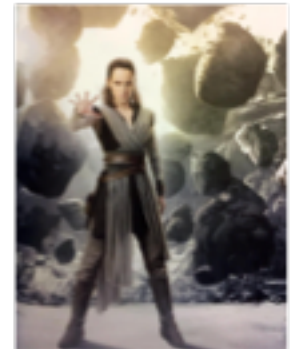
Distracting Notifications



What to do about it?

Manage Notifications

- Decide what apps get to notify you at all
- What is important enough to suck you in?
- Important enough to hide something else that's important?



Refine

Notifications, your way

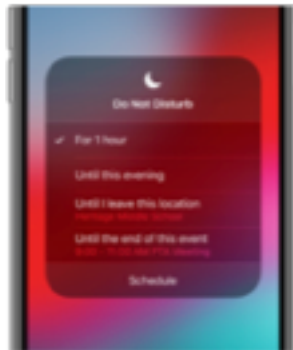


For more on Refining Notifications:

<https://conquer.consulting/blog/refining-notifications>

DND for Work

- Easy to distract?
- Put on Do Not Disturb while you work
- Can tell DND to turn off within a time frame or when you leave a location
- Setup important calls to come through
- More:
 - <https://conquer.consulting/blog/work-with-less-distraction>



Constant Vigilance!



- Notice when there's friction to clearing notifications
- When are too many building up?
- Turn them off right from the notifications window!
- Default behavior: say "no" when apps ask to notify you

When good reminders go bad

Stale Reminder?

Old thing that exists, theoretically to remind you to do something

- Older item that isn't getting done
- Gets harder the longer it's been
- Builds resistance & mental noise when you see it
- Make it harder to accomplish "everything"



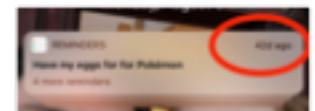
Stale Examples

- Layers of old sticky notes
- Old Reminders / too many reminders
- Overdue Tasks
- Open browser tabs you "meant" to read 6 months ago
- Inadequate Reminders
 - Invisible Dependencies
 - Invisible Follow-up



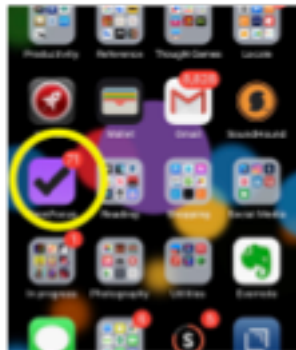
Stale Reminders

- Reminders that have been going off for days
 - Or months
- If it's been there a while, it's not working
- Notice there are 4 reminders this one is hiding



Overdue Tasks

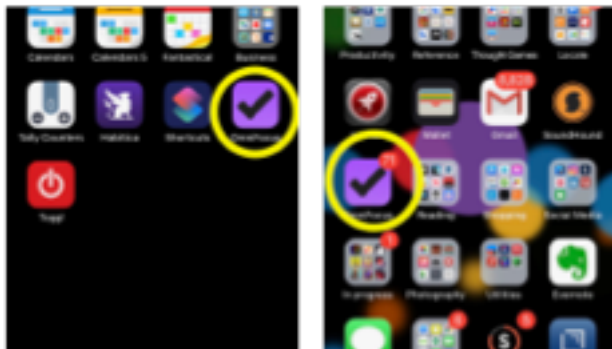
- Can't tell what is 'really' due
- Only mark due tasks that are real
- No wishful thinking due dates



WHEN EVERYTHING IS MARKED HIGH PRIORITY



Overdue Tasks



Open Browser Tabs

- Leave tab open, thinking:
 - "I'll read this one of these days..."
- Creates obligation debt
- Mixed with stuff you 'do' want closed— feels bigger



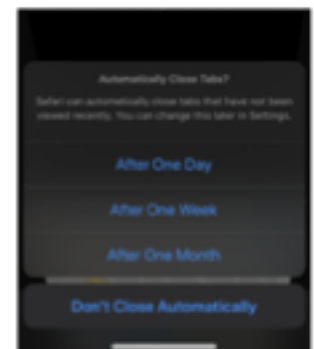
Tabs Nuclear Option 1

- Press and hold on tab button
- Close all open tabs



Tabs Nuclear Option 2

- New to iOS 13
- Automatically close after ___



Invisible Dependencies

- "Actions" with hidden, secret tasks
- When there are tasks that need to happen "before" the item on your list
- Overtask WM
- Demotivating



Invisible Dependencies

"Pay my student loan bill"

=

- "Change bank account for student loan payment because I got that new bank"
- "Do I know where my new bank info is?"
- "Get income statement."
- "Is it on my computer?"
- "Do I have to make an income statement from scratch?"
- "What's an income statement?"



Invisible Follow-up

Tasks is "mostly" done

- There are left over bits to wrap up, so you leave it
- Hides the tasks left to finish the main task



Invisible follow-up tasks

"Paint the bedroom"

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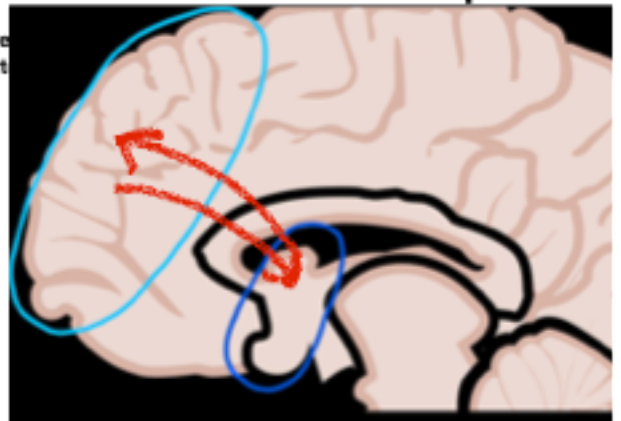
- "Clean paint brushes"
- "Take painting tape off the walls"
- "Store leftover paint in the garage"
- "Wash painting clothes"



Stale Reminders on Stress

Normal Stress Response

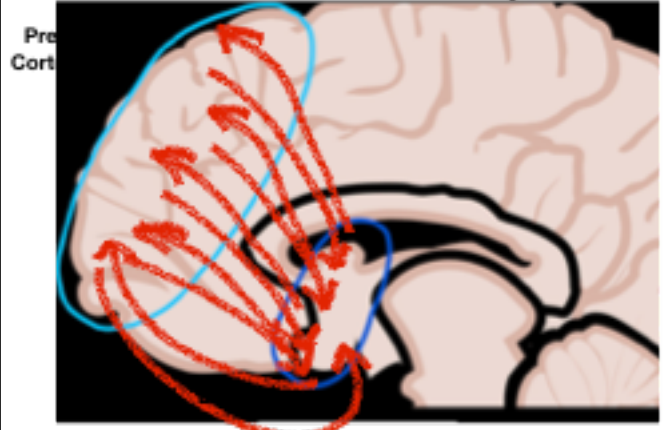
Pre
Cort



Stale Stress Response

- More mixed messages
- Contradictory:
 - Everything we see feels important and time-sensitive
 - But our response is "not now"
- Task phrasing unhelpful, because it hides the real tasks
- Volume of "not now" becomes paralyzing

Stale Stress Response



No "!"

- Please don't use exclamation points in task names



Constant Vigilance!



- Reminders too old / too many
- Only due dates that are really due
- Almost-complete task represents hidden follow-up tasks
- Hidden dependencies before you can start the task

Take a minute and rephrase stale reminders

**Our screens are
distracting messes**

Why Clean your Apps?

- Mentally Draining
- Can't find the app you need
- Because Science and ADHD

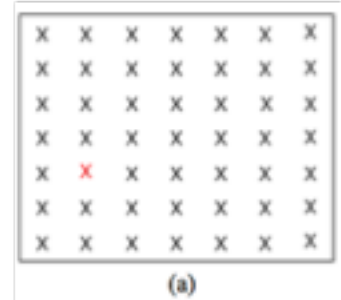
Visual Search

- Cognitive Science Paradigm
- Used to study attention
- Complex Search similar to finding the app on your screen
- Ask participants to spot the target as fast as they can



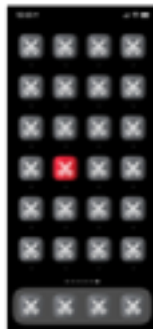
Simple Search

- "Pop-out search" stands out without effort
- Automatic attention compared to complex searches
- Folks with ADHD perform more slowly on even automatic searches



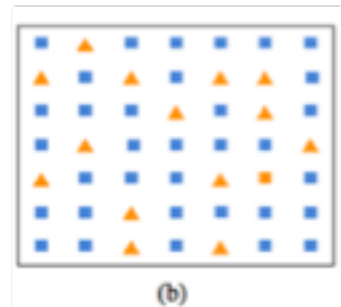
(Mullane & Klein, 2007)

Simple Search



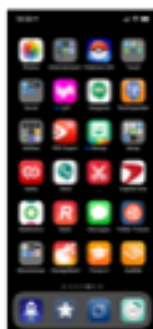
Complex Search

- Everyone is slower at complex searches
- ADHD even slower
- Compromised under high Working Memory load
- e.g. Hold a thought while finding the right app to jot it down

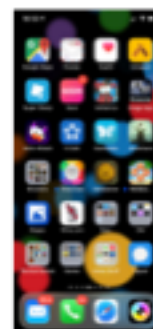


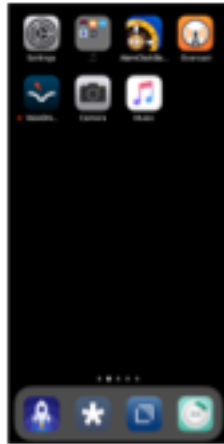
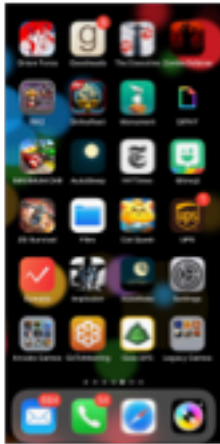
(Mullane & Klein, 2007)

Complex Search



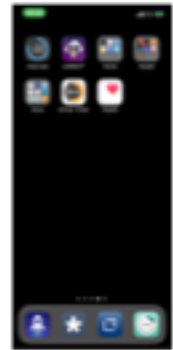
Extra Complex Search??





Organize your apps

- So many ways— what logic works for you?
- Delete what you're not using
- Make good-habit apps visible
- Use search or "Hey Siri" / "Okay Google" to open apps
- For more: <https://conquer.consulting/blog/organize-your-apps>



Constant Vigilance!



- When apps take too long to find, clean up
- If you're feeling tense when you look at your phone, simplify how it looks
- Put new apps in their organized home when you download them

Technology & Happiness

Leisure time & Happiness

- Passive Leisure (tv and video games) associated with lower well-being
- Flow states— important for happiness— happen more with active leisure activities
- Time with friends (in person) highest happiness



Holder, Coleman, & Sehn, 2009
(Csikszentmihalyi, 1997)
(Csikszentmihalyi & Hunter, 2003)

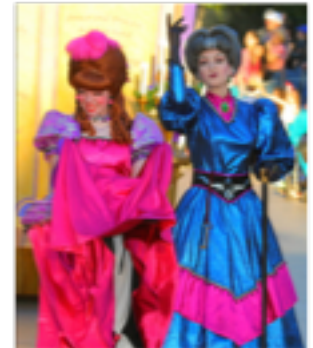
Habit-Forming Devices



"I feel it again... The pull to the app."

ADHDers form strong Habits 😊

- Can be great!
- Building routines to buffer against distraction
- Powerful "muscle memory"



ADHDers form strong Habits 😞

Dark side:

- Can become an addiction in your pocket
- Procrastinating with your pet distracting app
- Endless clicking, scrolling, watching



Gaming



Programmed for Addiction

- Gotta get that "engagement"
- Operant conditioning:
 - Variable (random) Reinforcement
- Casinos & video games use it
- ADHDers are more susceptible to addictions
- Muscle memory for distracting apps can be strong



Games have always been more alluring than work



Why are games (more) problematic?

- More Addiction Science — tons of player data
- Clear path to "false accomplishment"
- Offers a sense of achievement and skill (easy & fast)
- Some success is guaranteed

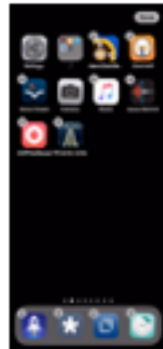


How to Break the Habits?



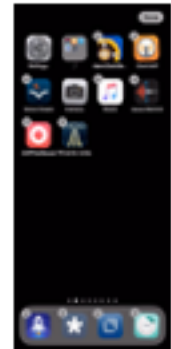
How to Break the Habits?

- Delete the apps



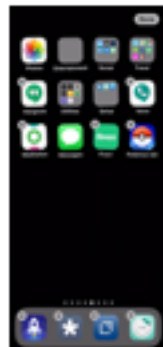
How to Break the Habits?

- Delete the apps?
- Turn off the notifications?



Hide the app

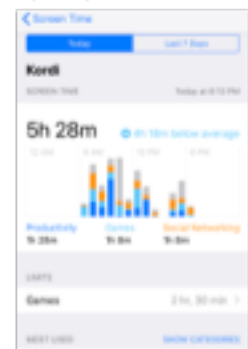
- Physically move the app into a folder
- Move the app to the last page of apps
- Hard close the app from "Recents"
- Remove from search & suggestions
- More: <https://conquer.consulting/blog/avoid-distracting-apps>



Get Real

Data: Insights on how you "actually" use your devices

- Battery Usage
- Apple: Screen Time
- Android Pixel: Digital Health
- More:
 - <https://conquer.consulting/blog/get-real-data>



Options for Services

- Media habits:
 - Turn off Autoplay!
- Shopping habits:
 - Don't save the credit card
- Social media
 - Have someone else log in (and log out!)

Constant Vigilance!



- Move bad-habit apps regularly
 - (if you keep it)
- Learn from your "real data"
- Watch out for YouTube turning your autoplay back on
- Time of day matters

Positive Habits

Better Habits for Families

- **Apple:**
 - <https://www.apple.com/families/>
 - "Pay Once to Play" section of the App Store
- **Android:**
 - <https://families.google.com/familylink/>



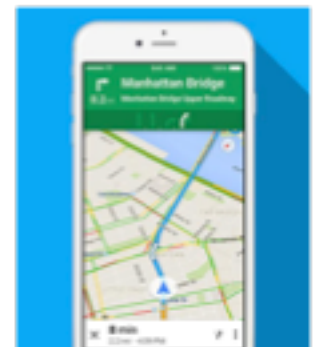
Capture Ideas

- Capture your brilliant ideas to a note before they get lost
- iOS: Drafts
 - Get: <https://apps.apple.com/us/app/drafts/id1230254471>
 - More info: <https://conquer.consulting/blog/capture-your-ideas>
- Android: Google Keep Widget
 - Get: <https://play.google.com/store/apps/details?id=com.google.android.keep>
 - More info: <https://www.computerworld.com/article/323964/best-note-taking-apps-for-android.html>



Use Navigation

- More likely to miss a turn when late?
- Thinking about what you're going to tell them or the meeting you're going to...
- Turn on navigation when you get in the car!



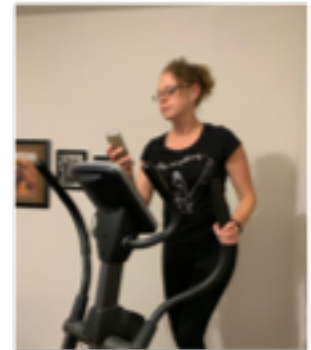
No Unprotected Googling

- Capture what you're going to search for
- Set a timer
- Avoid late night/early morning searching
- More:
 - <https://conquer.consulting/blog/no-unprotected-googling>



Make mobile work for you

- You can do focused work while exercising
- Capture your amazing ideas from anywhere
- Task/grocery list always with you
- Anxiety about getting bored?
 - Always "something" to work on in your pocket



Movement & Your ADHD Brain

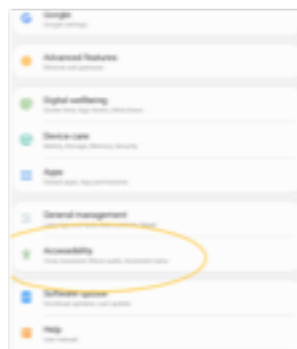
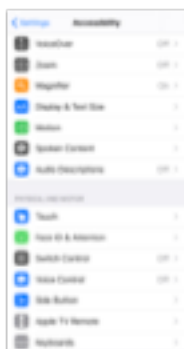
- Exercise stimulates our brains!
- Children with and without ADHD asked to perform a cognitive task
- ADHD kids performed better after a quick workout

(Eroletto, et al. 2014)

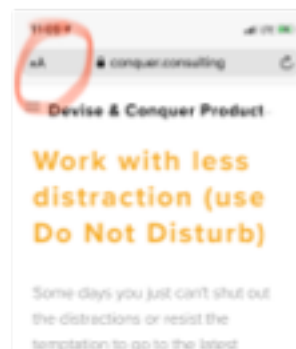


Gettin' Nerdy with it

Accessibility Settings



Accessibility Settings



Automation

Who, Why, When, of Automation

Automate

- Tasks you do all the time
- Small, annoying steps
- Things you procrastinate
- Feel guilty didn't get done

Automation Tools

If This, Then That

- For all devices
- Connects items over the internet
- Home automation, calendars, emails...
- More deep links in Android



Automation Tools

Bixby Scripts

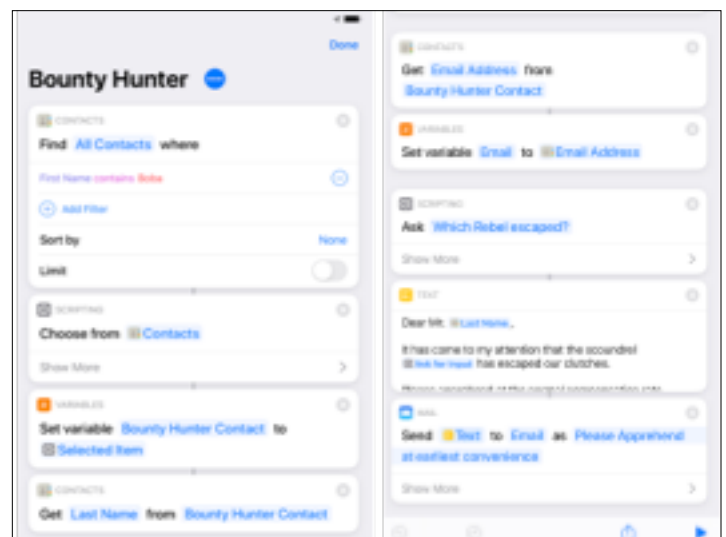
- For Samsung devices
- On-device automation



Automation Tools

Siri Shortcuts

- For iPhone, iPad
- On-device automation
- Create workflows from small information and apps



Quit When it's "Good Enough"

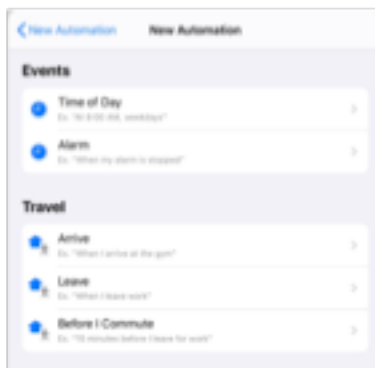
- Could have added ALL bounty hunters
- Why? Boba Fett is the best
- Don't add others while Boba is available



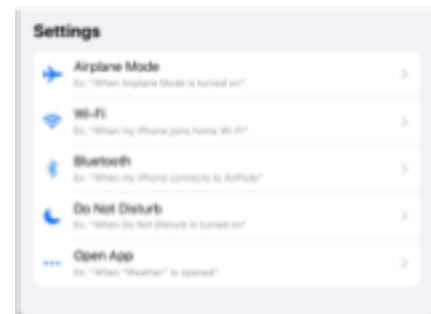
Routine Automation



Routine Automation

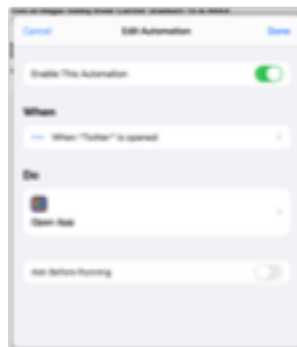


Routine Automation



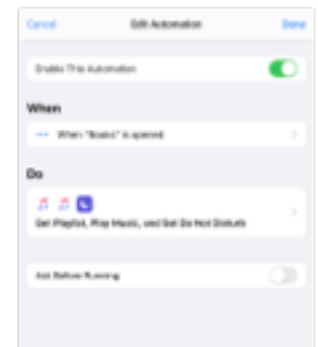
Break the Twitter Habit?

- When I open Twitter
- Open "Books" app



Build Reading Habit

- Open Books app
- Play reading playlist
- Set to Do Not Disturb



Don't Confuse Yourself

- Don't make a million and forget them
- Might end up triggering at the wrong time
- Know yourself



Constant Vigilance!



- Stop avoiding a simple, repetitive task
- Watch for Premature Optimization
 - Are you really doing it enough to automate it?
 - Quit when it's "good enough"
 - (80/20)
 - Could "always" be better
- Delete automations you aren't using

Devices can be your friend

- Create the environment you want
- Watch your notifications
- Watch stale reminders
- Watch negative habits
- Build positive habits
- Automate the boring stuff



Thank you!

Links & slides:

<https://conquer.consulting/2019-adhd-conference-tech-presentation-links>



If you love Star Wars, terrible jokes, and want to do yoga, but less boring:
<http://jedi.yoga>