

# Internet Gaming Disorder and Internet Use Disorder: Is that real?



By Emily Brunner, MD, FASAM

Addiction Medicine Physician, ASAM Fellow

Immediate Past-President of Minn Society of Addiction Medicine

@dremilybrunner

# Conflicts of Interest and “off-label” medication

- ▶ I am employed at Sage Prairie as an addiction medicine physician, and I am working there at developing an internet game treatment program
- ▶ I also do on-call work for Gateway Detox
- ▶ I do not make any dollars or rubles from nonclinical sources
- ▶ I will discuss “off-label” use of medication briefly



THIS MODERN LIFE:

WORK



HOME



PLAY



SLEEP



# What led me to interest in this problem?

- ▶ Having kids
- ▶ My daughter's sleepover- Age 10; 6 girls and 6 ipads
- ▶ Concerns from other parents
  - ▶ Rarely do I receive questions about drug use from other parents; in contrast I receive questions about when to buy a phone and the internet use of children all the time
- ▶ Anecdotally I also noticed worse outcomes in my young adult patients who have trouble looking at me in the eyes because they are in "phone position"
- ▶ I also went to MIT, and come from a long, proud line of nerdy gamers

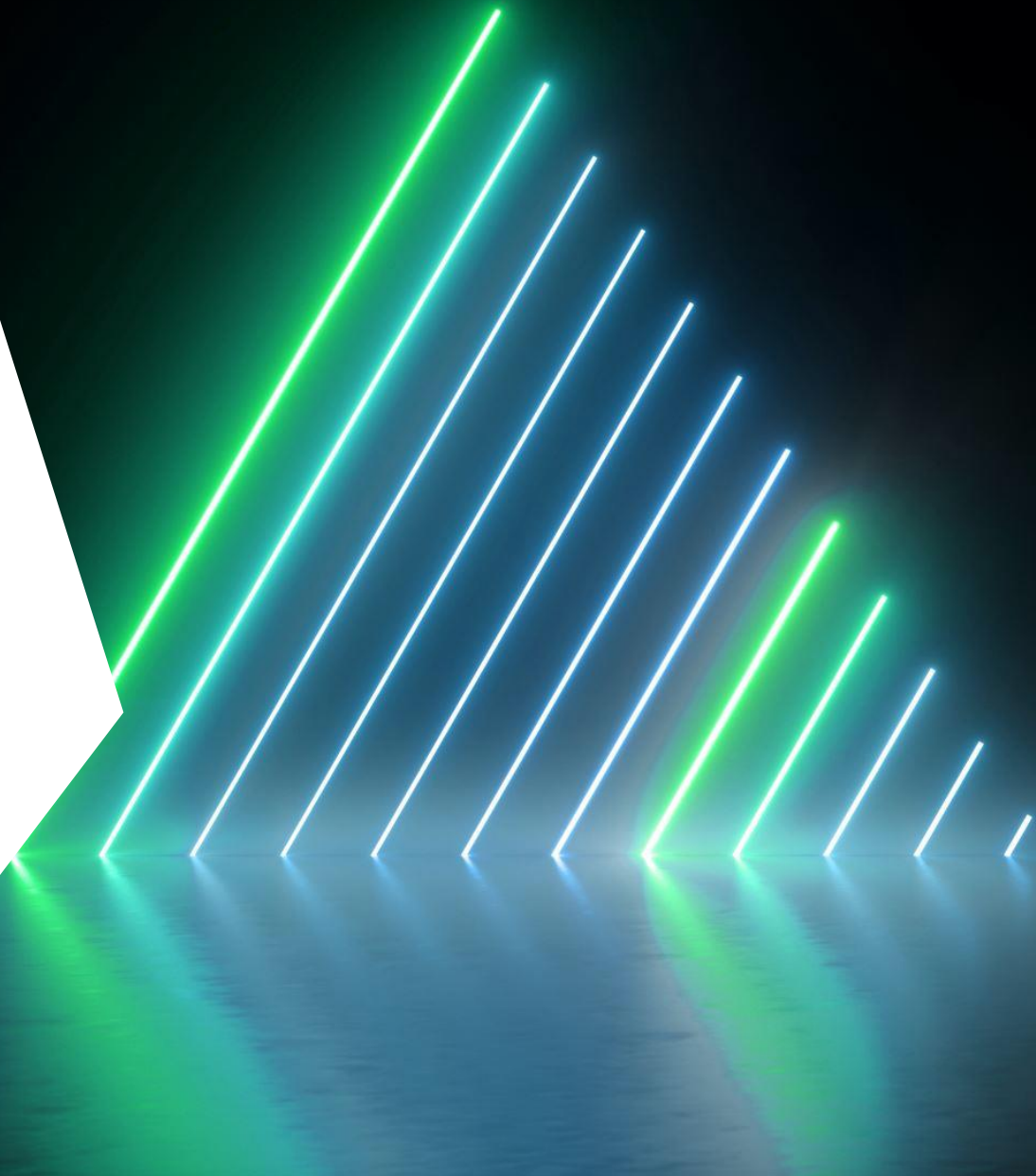




**Thank  
You!**

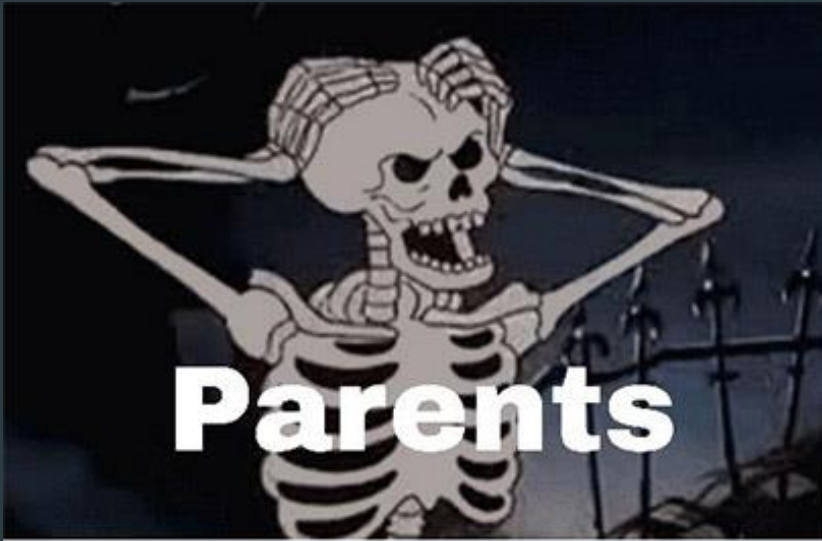


Reviewing the  
scope of problem



# Isn't internet use just normal?

- ▶ In modern society, it is unreasonable to expect anyone to completely abstain from use of the internet; participation in work, school, and a social life require use of the internet and an online presence
- ▶ We do NOT want to pathologize normal behavior
- ▶ For many marginalized populations, the internet can connect them with people that they can relate with
- ▶ Time-based definitions of the diagnosis are not subtle enough to categorize having a use disorder, esp when extensive use is now very common



**6 hours of  
gaming**



**6 hours of  
online  
"learning"**



Internet or Video gaming Disorder occurs when an issue with FUNCTION is present

- Relationships
- Work
- Mental and physical health



What do you picture when you think of a  
Gamer?

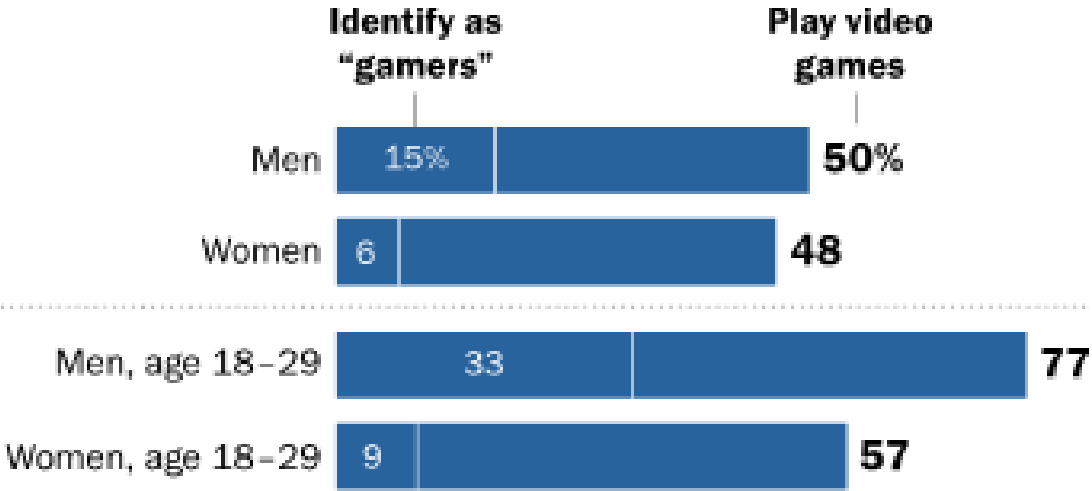


Why not him??? Or her??



# Men and women play video games, but men are more likely to call themselves “gamers”

*% of all adults who...*



Source: Survey conducted June 10 - July 12, 2015.

Note: "Play video games" includes those who identify as gamers. E.g., 50% of adults play video games, including 15% who consider themselves gamers.

PEW RESEARCH CENTER



Roughly 160 million American adults play internet-based games, one recent study estimates.

## Gaming Is Not a Question of Age or Gender

Age and gender breakdown of people playing computer and video games in the U.S. in 2017



The average female gamer is 37 years old.



The average male gamer is 33 years old.



@StatistaCharts Source: Entertainment Software Association

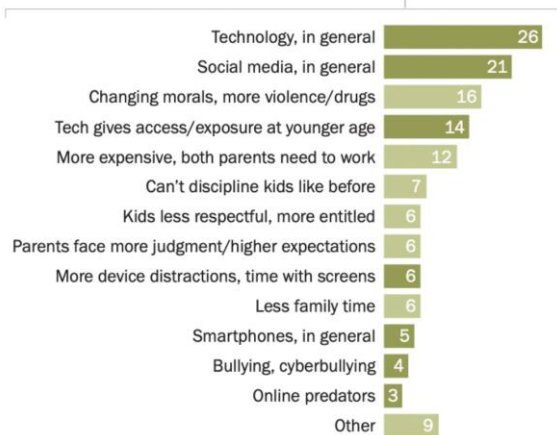
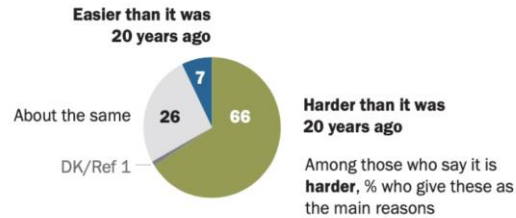
statista



## A majority of parents today say parenting is harder today than two decades ago, with many citing technology as a reason why

### A majority of parents today say parenting is harder today than two decades ago, with many citing technology as a reason why

% of U.S. parents who say that for most parents, parenting is ...



Note: Based on parents who have at least one child under the age of 18 but may also have an adult child or children. Those who did not give an answer are not shown. Verbatim responses have been coded into categories and figures may add up to more than 100% because multiple responses were allowed.

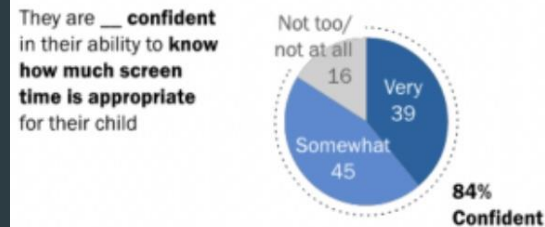
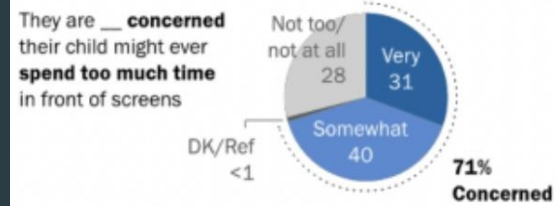
Source: Survey of U.S. adults conducted March 2-15, 2020.

"Parenting Children in the Age of Screens"

# Pew Research Study (March, 2020)

## A majority of parents are concerned that their child might ever spend too much time on screens and have reached out to doctors for advice about this

% of U.S. parents of a child age 11 or younger who say ...



\*Based on parents of a child age 5 to 11.

\*\*Based on internet users.

\*\*\*Based on social media users.

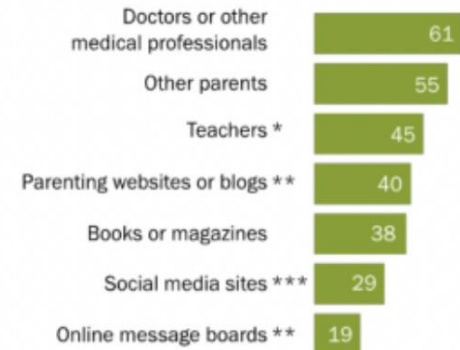
Note: If parent has multiple children, they were asked to focus on one child when answering this question. Those who did not give an answer are not shown.

Source: Survey of U.S. adults conducted March 2-15, 2020.

"Parenting Children in the Age of Screens"

PEW RESEARCH CENTER

They ever get parenting advice or information about screen time from ...



Majority of parents worry about their children spending too much time on screens, and 61% look to doctors or med Professionals to Provide advice

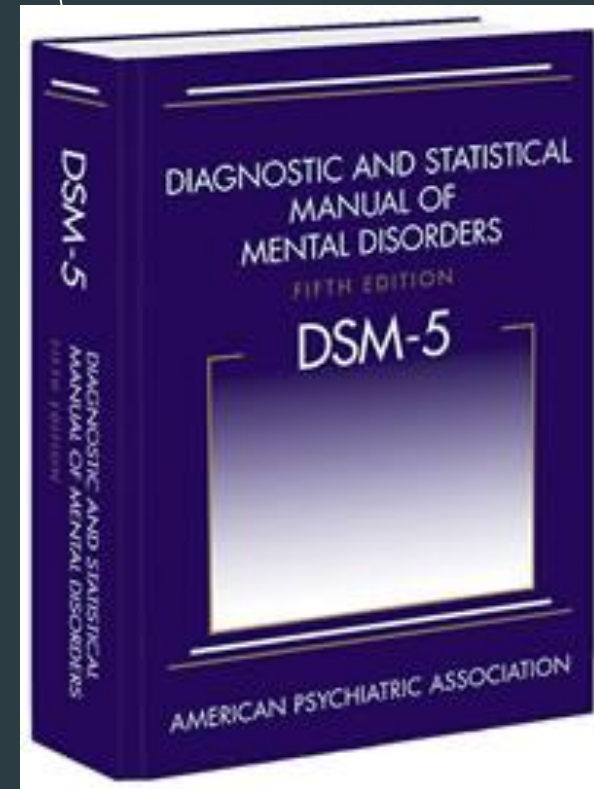
- ▶ 66% say parenting is harder than it was 20 years ago
- ▶ Specific reasons: Technology 26%; social media 21%; tech increasing exposure at younger age 14%; device distractions 6%

# What do the experts say?

- ▶ The DSM V does not include “internet addiction”
  - ▶ DSM V was finalized in 2013
- ▶ The only behavioral addiction that has been formally recognized
- ▶ Internet gaming disorder was included as a proposed diagnosis under investigation
- ▶ Of note: this condition does not include issues with internet in general or social media
- ▶ In late 2017, it was announced the WHO was adding video gaming disorder in the ICD11 as an official diagnosis
- ▶ “Treatment” is common in China and South Korea, but is not predicated on strong theoretical underpinnings

# Internet Gaming Disorder: per DSM V

- ▶ Under the proposed criteria, a diagnosis of internet gaming disorder would require experiencing five or more of these symptoms within a year. The condition can include gaming on the internet, or on any electronic device, although most people who develop clinically significant gaming problems play primarily on the internet.
- ▶ Preoccupation with gaming
- ▶ Withdrawal symptoms when gaming is taken away or not possible (sadness, anxiety, irritability)
- ▶ Tolerance, the need to spend more time gaming to satisfy the urge
- ▶ Inability to reduce playing, unsuccessful attempts to quit gaming
- ▶ Giving up other activities, loss of interest in previously enjoyed activities due to gaming
- ▶ Continuing to game despite problems
- ▶ Deceiving family members or others about the amount of time spent on gaming
- ▶ The use of gaming to relieve negative moods, such as guilt or hopelessness
- ▶ Risk, having jeopardized or lost a job or relationship due to gaming

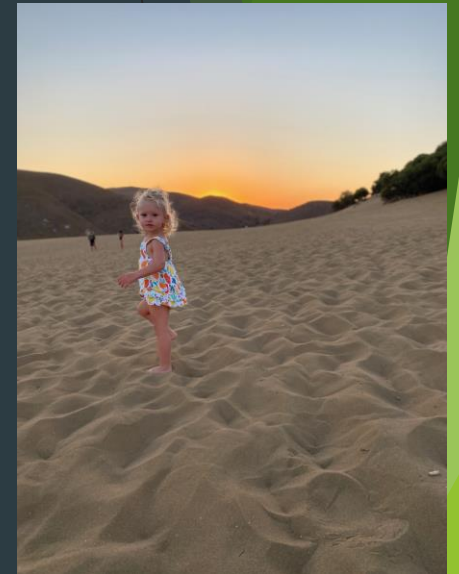


# Per American Psychiatric Association:

- ▶ A study published in *American Journal of Psychiatry* in March 2017 sought to examine the validity and reliability of the criteria for internet gaming disorder, compare it to research on gambling addiction and problem gaming, and estimate its impact on physical, social and mental health. The study found that among those who played games, most did not report any symptoms of internet gaming disorder and the percentage of people that might qualify for internet gaming disorder is extremely small.
- ▶ The research involved several studies of adults in the U.S., United Kingdom, Canada and Germany. They found more than 86 percent of young adults ages 18 to 24 and more than 65 percent of all adults had recently played online games. The percentages of men and women who recently played was roughly equal. However, the research is mixed on whether those who met the criteria for internet gaming disorder had poorer emotional, physical and mental health than those who did not meet the criteria.
- ▶ The researchers found that **0.3 to 1.0 percent of the general population might qualify for a potential diagnosis of internet gaming disorder.** The authors suggest there is an **important distinction between passionate engagement (someone enthusiastic and focused on gaming) and pathology (someone with an illness/addiction).** Whether the person is distressed with his/her gaming may be the key factor distinguishing the two.

# Summary of American Association of Pediatrics recommendations re: Screens

- ▶ For children under 18 months, avoid screen-based media except video chatting.
- ▶ For children 18 months to 24 months, parents should choose high-quality programming and watch with their children.
- ▶ For children 2 to 5, limit screen time to one hour per day of high-quality programming.
- ▶ For children 6 and up, establish consistent limits on the time spent using media and the types of media.





# What do business and industry leaders say??



## Per the CEO of Netflix

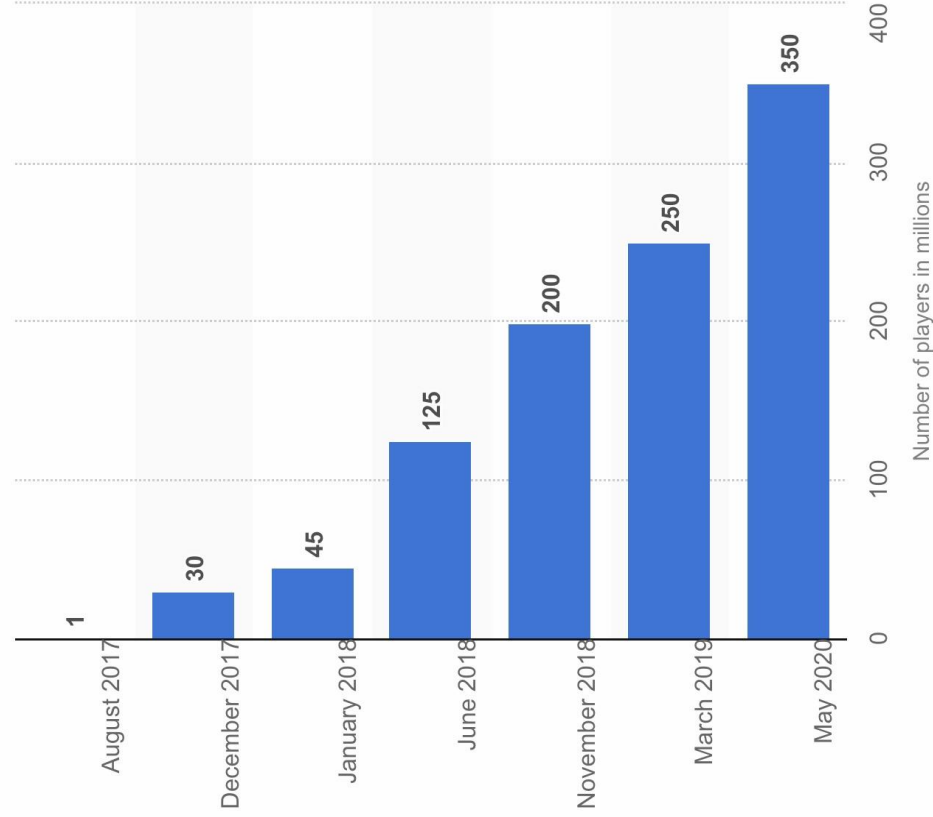
- ▶ “I am more scared of Youtube and Fortnite more than HBO and Disney”
- ▶ Is our future “Fortnite and Chill?”
- ▶ Is that bad?

The Netflix logo is displayed in white, bold, sans-serif capital letters with a black drop shadow, centered on a red rectangular background. The background of the entire slide features a dark blue-grey area on the left and a green-to-yellow gradient on the right, with abstract geometric shapes.

# As of 2020, there are 350 million Fortnite users

**Number of registered users of Fortnite worldwide from August 2017 to May 2020**

(in millions)



# The industry itself uses terminology that acknowledges gaming is like gambling

- ▶ Being a “whale” carries a different weight for each company. Fifth planet games, developer of social games for both casual and hardcore audiences, starts classifying its players as whales when they spend \$100 or more a month. That’s a big jump from whales on Facebook, for instance, where social gamers could drop \$25 per month to meet the same qualification.
- ▶ 5th Planet chief executive Robert Winkler revealed at the Game Developers Conference Online in 2012 that with its game Clash of the Dragons, **40 percent of revenue came from 2 percent of players who spent \$1,000 or more. Ninety percent came from those who spent \$100 or more, and the top whale had spent \$6,700.**
- ▶ “We’ve found that most players are more willing to spend money to help out their fellow gamers than to try to defeat them,” he said. “As an example, players who take part in our ‘guilds,’ or groups of players who come together to accomplish communal missions, are 8.5 times more likely to monetize than players who do not belong to a guild, and the ARPU [average revenue per user] of players in our guilds is 53 times higher than other players.”
  - ▶ Details from “What it means to be a whale” by Stephanie Carmichael in Venturebeat

# E-sports and Streaming Services

- ▶ In 2019, E-sports generated 1.1 billion dollars globally; est. to be 1.8 bill in 2022
- ▶ Discord has over 300 million registered users
- ▶ Twitch was acquired in 2014 by Amazon for \$970 million
  - ▶ #1 Streamer- PewDiePie (also on Youtube); over 100 million followers and has over 20 million dollars
  - ▶ These personalities hold enormous sway over what their watchers think; it is worth being aware of them
    - ▶ PewDiePie had a contract canceled with Disney after the WSJ broke a story that 9 of his videos contained blatant antisemitism

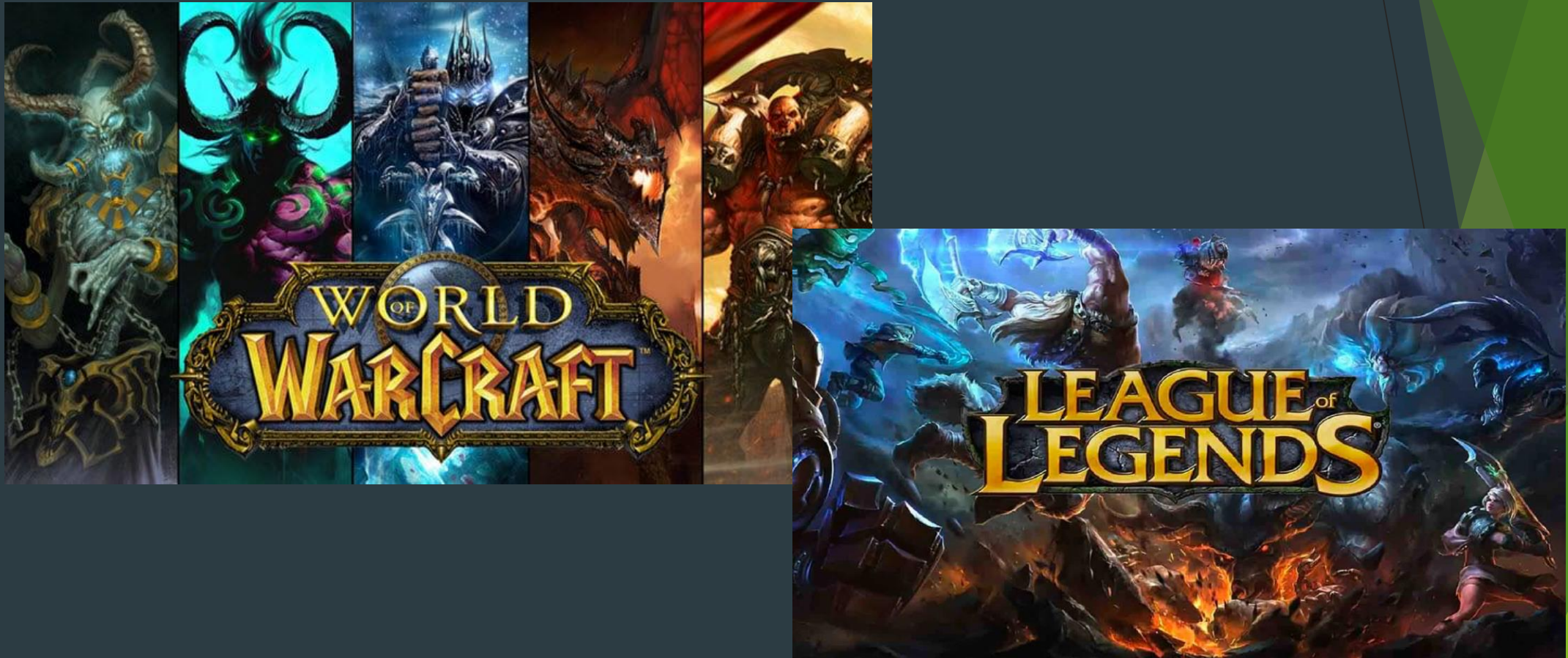




# What are the main types of games?

- ▶ Free-to-play
- ▶ Massive multiplayer online roleplaying games
- ▶ First Person Shooter
- ▶ Sports Game
- ▶ Real Time Strategy

Massive Multiplayer Roleplaying Games  
tend to be the most reinforcing



# It's not all bad, there have been positive effects noted with use of video games

- ▶ Children with autism spectrum disorder often report feeling more connected to peers when they are able to network with them on games; although other professionals express concern they may be uniquely susceptible to developing issues
- ▶ EndeavorRx is a video game that has been approved to be a prescription treatment for ADHD
  - ▶ Children aged 8-12
  - ▶ Approved June, 2020



# The Bigger Picture





# Let's consider the broader structural issues with the internet

- ▶ “If you are not the customer, then you are the product”
- ▶ It is fascinating how many of the engineers behind video games and software systems discuss specifically a goal of “dopamine hits”. For those of us who work in addiction, this gets our attention.
  - ▶ Of note, this term is often thrown around without underlying truth, but appears to truly apply in these situations. For one thing, psychologists are employed to specifically make these systems more addictive, and hard to leave to increase “eyeball time”



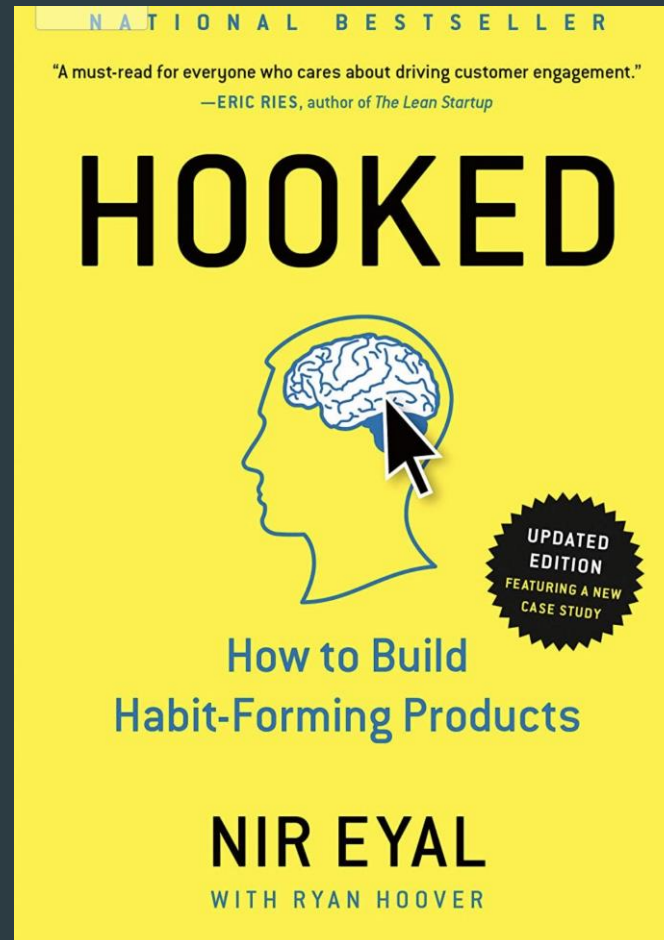


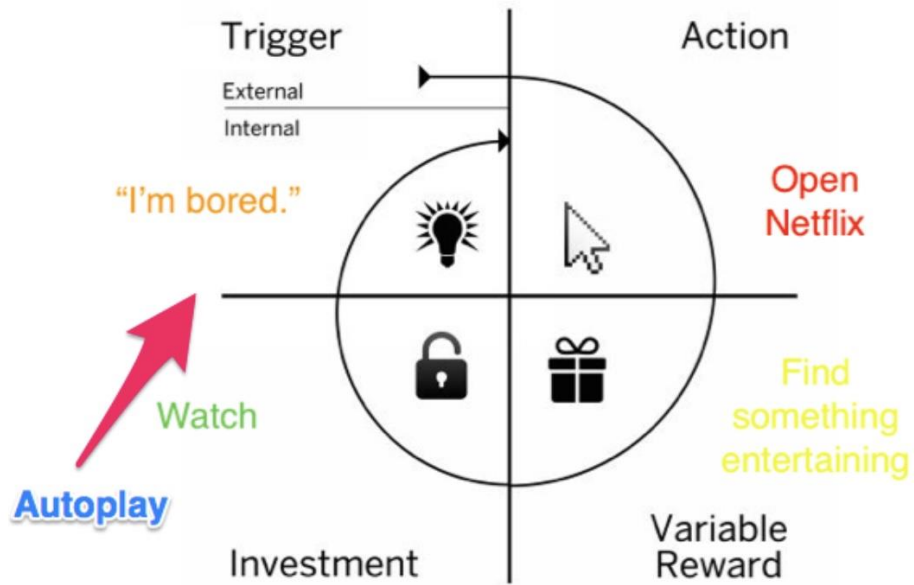
# Stanford Center for Persuasive Technology

- ▶ A class on how to make technology irresistible, and specifically how to manipulate human behavior manipulating technology
  - ▶ “Persuasion is intuitive, but thinking about it systematically is not” -B.J. Fogg
- ▶ Led by B.J. Fogg, PhD and founded in 1998
  - ▶ In an interview with the MIT Technology Review in 2010, he is quoted as saying, “the web is not about information, it’s about influence”
- ▶ Specifically encourages the “Move fast and break things” ethos, in Silicon Valley
- ▶ Trained many of the key designers of the systems at Facebook, Google and Instagram
- ▶ **Tristan Harris, one of his students, has now created the center for Humane Technology, actively involved in highlighting these issues**

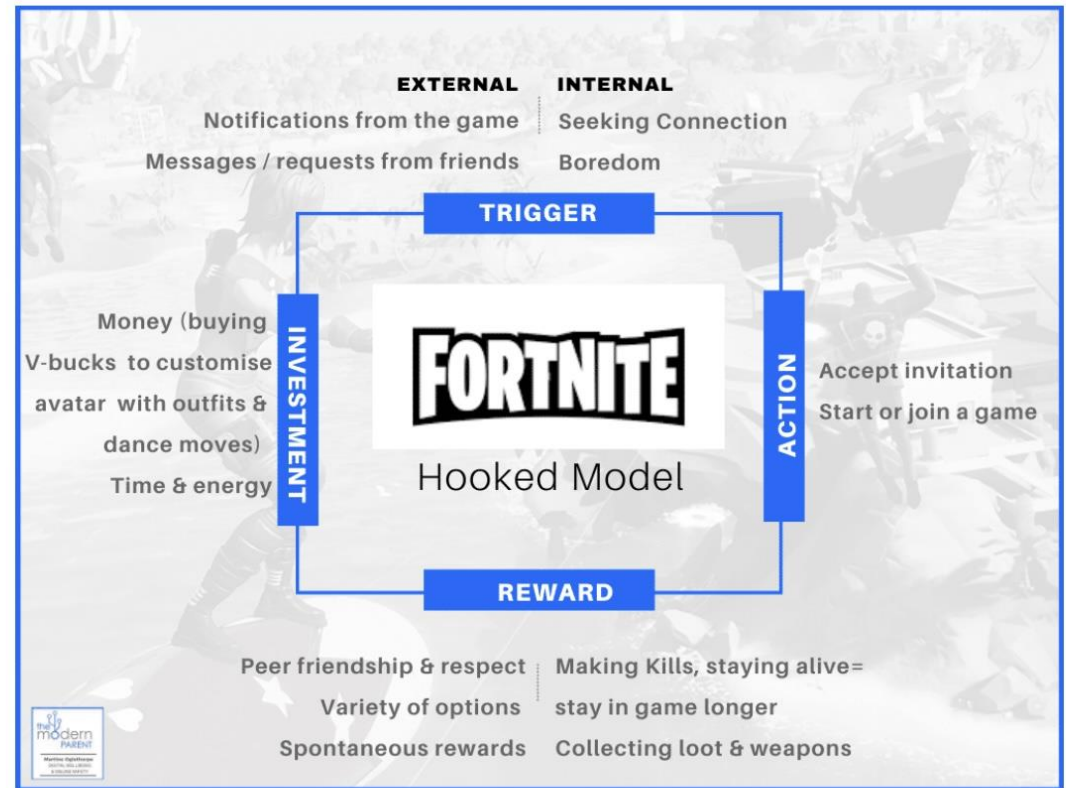
# “Hooked: How to build Habit-Forming Products” by Nir Eyal

- ▶ Trigger
  - ▶ internal (stress)
  - ▶ External (notification)
- ▶ Action
- ▶ Variable Reward \*this is the key draw
- ▶ Investment





The Hook Model for Netflix.



# Facebook manipulates emotions to increase time on their service

- ▶ In 2014, an experiment of 689,003 unknowing users on facebook randomized people to receive either more positive or more negative items in their news feed; of note they did find a (small but in aggregate powerful) trend of positive posts leading to more positive posts and the same with negative (Kramer et al 2014)
- ▶ Of note, neutral posts resulted in “reduced words produced” than either positive or negative posts
- ▶ **Experiment took place over 1 week in January, 2012**
- ▶ This study was controversial as users were not informed of this experimentation, and after backlash Facebook became less transparent re: their research, but did not stop



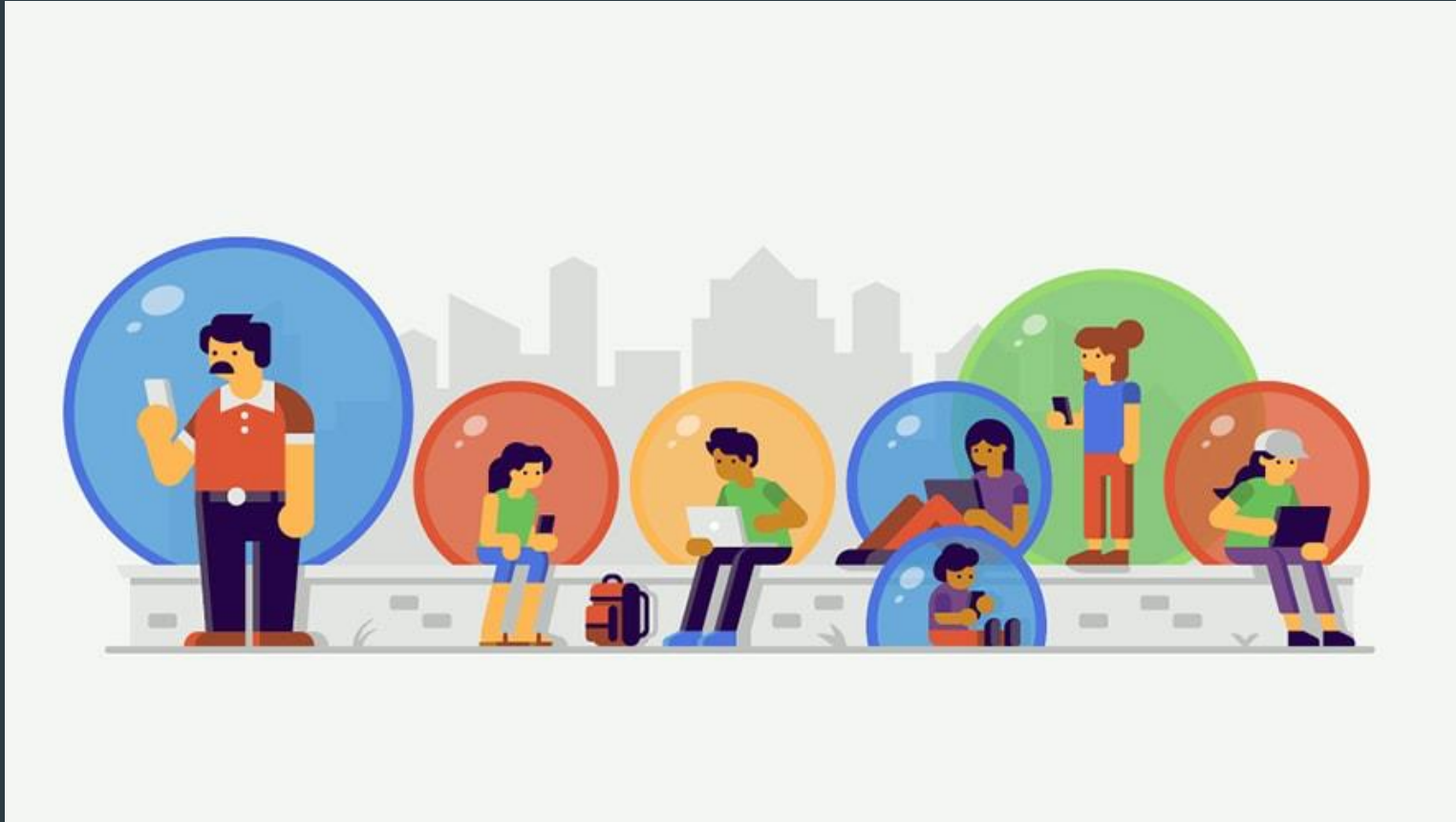
We compare our insides to other people's outsides (FOMO- Fear of Missing Out)



# Filter bubbles

- ▶ We are all being reshaped by hidden algorithms
- ▶ You may think of a google search as showing objective reality, it is NOT
- ▶ It is shaped by the goal of keeping you on your computer and maximizing engagement with the product to sell ads (same applies to Instagram, facebook, tiktok,etc)
- ▶ Thus, we are shown items the algorithm expects we would like to see and over time we teach our computer to essentially radicalize us
- ▶ If the model of you that has been created predicts you don't click on news, the algorithm will place websites containing news lower in your search results, because the goal is to maximize screen time
  - ▶ This occurs also with political “filters”
  - ▶ One person's panther search shows all about the cats, another the football team

We end up no longer sharing the same objective facts



# Social media use correlates with depression

- ▶ Issues with sleep predispose to depression for adolescents, and at this time 60% of teenagers use their phone in the hour before bed.
- ▶ A 2017 study of over half a million eighth through 12th graders found that the number exhibiting high levels of depressive symptoms increased by 33 percent between 2010 and 2015. In the same period, the suicide rate for girls in that age group increased by 65 percent.
  - ▶ Social media in many studies found to be more dangerous for girls
- ▶ Smart phones are ubiquitous; they were introduced in 2007, by 2015, 92% of young adults and teenagers had them.



# Various subheadings of problematic internet behavior

- ▶ Internet shopping (Amazon, Zulily)
- ▶ Social Media Use
- ▶ Pornography
  - ▶ In 2015 per psychology today, 4% of the web contains pornography, and 10-15% of internet searches are for pornography (Ogas and Gaddam 2012)
  - ▶ “The internet is for porn”; Song by Avenue Q
- ▶ Online Gambling
  - ▶ A specific kind of Gambling Disorder, which is in the DSMV





Back to Gaming- Harms that occur  
generally



# Video Games & Social Media activate the Brain System related to addiction

- ▶ Just like with substance use disorders, the reward system of the brain is hijacked and because less responsive to “natural” rewards like food and achievement
- ▶ Each new level or completed mission (or “like” on Instagram) provides a small hit of dopamine in the brain
- ▶ Video game loot drops and levelling up (as well as social media notifications) are set up with intermittent variable rewards (operant conditioning model)
  - ▶ Operant conditioning can result in dramatic changes in behavior, this is how B.F. Skinner taught pigeons to play ping-pong
  - ▶ Per experiments with mice, these are the most reinforcing, and would result in the most compulsive lever pressing of any reward schedule
  - ▶ You never know when you will obtain “likes”, so you compulsively keep trying



# Part of the issue is what you are NOT doing, esp for adolescents and children (Brain is a use-dependent organ)

- Adolescents normally spend much of their time learning how to socialize, make friends, be part of a team and take on responsibility; one of the worst things excessive gaming is takes all these experiences away at the time when your brain is developing.
- Gamers do interact in online universes at times, but this interaction does not stimulate brain development and growth in the same way being in person does







# Internet Gaming and Obesity

- ▶ Seated video game play is associated with increased caloric intake
- ▶ Also for each 1 hour per day of video games played, there is a 2-fold increase in obesity
- ▶ The relationship is more complicated however: given the rise in “Exergaming”, such as Nintendo Wii or Pokemon Go
- ▶ Lu et al. (2013) reviewed 14 studies of 28 different health video games published between 2005 and 2013 and observed significant reductions in obesity in six studies ( all six of these were exergames)





# Gender Disparity

- ▶ Heteronormative gender roles the norm
- ▶ Gamergate
- ▶ Hyper-sexualized depiction of women
- ▶ Often choose a male avatar
  - ▶ Strategy to handle harassment
- ▶ Male characters 4 times as likely to be portrayed on cover as females (Burgess MC 2007)
- ▶ Issues with gaming disorder often Are not identified in women





# #GamerGate Aug 2014

- ▶ Started when the ex-boyfriend of Zoe Quinn, a software designer, wrote a blogpost accusing her of sleeping with a video game journalist for favorable coverage of her game (the fact the journalist never reviewed her game didn't matter)
  - ▶ She began to get viciously trolled immediately, and no longer even votes to try to keep her address private
- ▶ Anite Sarkeesian, a feminist media critic, had to leave her home after receiving explicit death threats
- ▶ Game Developer, Brianna Wu, had to leave her house because of physical threats

**Insomnia** (for all tech use; think doomscrolling)





# What interventions can help?



# No one is talking about prohibition of the internet, this is an issue of scope

- ▶ E.g., the vast majority of people who drink alcohol do not have alcohol use disorder and drink recreationally
- ▶ At some point, alcohol use begins to interfere with normal functioning and issues develop with other areas of life (physical health, work, relationships and mental health)
- ▶ The vast majority of people who use the internet do so without harm





# Gold Standard

- ▶ Individualized assessment per a physician who can identify existing comorbidities
- ▶ ADHD, anxiety, major depressive disorder and substance use disorder can complicate the picture



# Treatments of internet gaming disorder: a systematic review of the evidence (Zajac 2020)

- ▶ 22 studies were included in this review with 7 evaluating medications, 8 evaluating cognitive-behavioral therapy, and 7 evaluating other non-medication approaches.
- ▶ In summary, the research on medications for IGD is inconclusive. **Bupropion shows some promise but remains in initial stages of evaluation. There was no evaluation of naltrexone in these studies (established treatment for gambling disorder).**
- ▶ Current evidence shows **mixed outcomes for cognitive-behavioral therapy**. Additional research is needed on these approaches.
- ▶ In general, weaknesses in the designs of the reviewed studies, including lack of appropriate control groups, nonrandom assignment to treatment conditions, and small sample sizes, prevent strong conclusions about the efficacy of treatments for IGD.



# Modeling

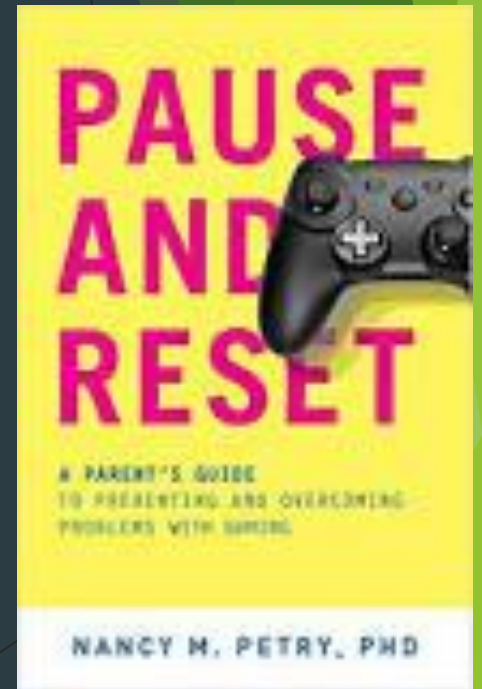
- ▶ OF NOTE, the most powerful thing we do is MODEL BEHAVIOR
- ▶ As I create this, I am in a rural cabin, hunched over my screen, with my kids begging for my attention and outside roasting marshmallows
- ▶ A great thing is to find a local showing of the movie "Screenagers", I took my kids twice, and now they call me a "Scrownup"
- ▶ Physician, first heal thyself





## Per the book “Pause and Reset” by Dr. Nancy Petry

- ▶ In treating adolescents struggling with video gaming use disorder, it is often helpful to focus on assisting parents in effectively setting boundaries
- ▶ The adolescent may not be able to recognize the problems obvious to outsiders, despite objectively noticing problems in their lives and functioning
- ▶ The general behavioral treatment paradigm is focused on rewarding and replacing alternative behaviors to gaming, NOT PUNISHMENT
  - ▶ Step 1: Record: Monitor quantify gaming
  - ▶ Step 2: Replace: Finding healthy recreational activities
  - ▶ Step 3: Reward: Positive reinforcement for nongaming





# Assertive Communication: Not passive or aggressive

- ▶ Nonjudgemental
- ▶ Focus on facts
- ▶ Approach subject openly and with love



Remember- there is a reason for playing



# Record- quantifying the problem

- ▶ Patient should be observed for at least 2 "typical" weeks to get pattern ideas
- ▶ Try to write down the time checked and whether or not gaming was observed to also get a pattern of when gaming is not occurring
- ▶ Best done by objective observation, ideally without your child being aware of it (as this often leads to attempts to hide behavior or briefly change)
- ▶ Consider rearranging the house to allow for the gaming to be observed more easily- do not allow consoles or laptops in the bedroom, where it may be more difficult to observe behavior
- ▶ Consider also looking at browser history if gaming is on a laptop
- ▶ Just by paying attention to this and recording the behavior, there may be an improvement
- ▶ **Gaming 5 days a week or over 20 hours per week is concerning, but a problem cannot be diagnosed based on time spent gaming alone**

# SET LIMITS: Gaming is not a constitutional right

- ▶ 1 hour or less on school days
- ▶ 2 hours or less on weekends
  - ▶ Specifically consider what to do on holidays
  - ▶ Some days should have no gaming so that other social skills may be developed



# Replace

- ▶ May want to involve your child in this process, because it should be something your child thinks is fun, NOT something that you want them to do
- ▶ Offer activities at the same time the gaming usually occurs
  - ▶ E.g., if gaming occurs after dinner, consider making an offer to go on a walk or go out for ice cream at this time
  - ▶ If gaming occurs on weekends, consider planning a visit to a museum or amusement park (or hiking trail in covid times) that you have never been to
- ▶ Consider activities that fulfill the same need being filled by the gaming
  - ▶ Social? Join a sports team; spend time with friends
  - ▶ Fantasy roles? Join a theater club; either acting or backstage
  - ▶ Cognitive? Learn an instrument; chess club; lego building; robot class



# Reward

- ▶ You may feel that providing rewards for simply not playing video games is not right, as this should be a basic expectation
  - ▶ Consider that positive reinforcement for not using drugs (contingency management) is an effective and powerful treatment method for ceasing their use.
- ▶ Rewards go beyond replacing the behavior with other activities and involves actively rewarding your child when engaging in behaviors that are not gaming
  - ▶ Tangible rewards- money; new skateboard; ticket to an expensive concert
  - ▶ Intangible rewards- verbal praise with words of affirmation; attention
- ▶ Remember to pick activities your child desires, if they are not social, then they will not enjoy a social activity as a reward.
  - ▶ Also, confine the rewards to things that are financially feasible
  - ▶ Consider smaller rewards that can be included repeatedly (like a kind note included in lunch or leaving sticky notes with encouragement posted on the fridge) in combination with larger and more “special rewards”, like a trip to the movies.



## Case of BS, 17-year-old girl living with her parents who is failing school and playing WOW 25 hours per week

- ▶ Assessed per her primary care physician, who finds significant social anxiety and discuss issue with her school, as prior to this year she never got below a B
- ▶ She begins therapy for her anxiety, and you record her world of Warcraft, finding she tends to play 7-8 hours both weekend days and 2 hours before bed, usually alone in her room
  - ▶ She is also part of a guild, and feels a commitment to joining in required raids, even when she has other homework to do
- ▶ She always wanted to do karate, so offer for her to start lessons 2 days a week, and on weekends begin to spend time with her at least one weekend day. She is also connected with a tutor after school, who helps her set priorities.
  - ▶ Also whenever she is noticed to be practicing her karate or doing homework, positive rewards in terms of words of affirmation are offered
- ▶ After a few months, she consistently reduces gaming to below 10 hours per week and agrees to leave the guild-> Grades improve to all B-range

# Times Change. . . So stay tuned

He's one of the busiest men in town. While his door may say *Office Hours 2 to 4*, he's actually on call 24 hours a day.

The doctor is a scientist, a diplomat, and a friendly sympathetic human being all in one, no matter how long and hard his schedule.

According to a recent Nationwide survey:

## MORE DOCTORS SMOKE CAMELS THAN ANY OTHER CIGARETTE

DOCTORS in every branch of medicine—113,597 in all—were queried in this nationwide study of cigarette preference. Three leading research organizations made the survey. The gist of the query was—What cigarette do you smoke, Doctor?

*The brand named most was Camel!*

The rich, full flavor and cool mildness of Camel's superb blend of costlier tobaccos seem to have the same appeal to the smoking tastes of doctors as to millions of other smokers. If you are a Camel smoker, this preference among doctors will hardly surprise you. If you're not—well, try Camels now.

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**T for Taste . . .**  
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that's your proving ground for any cigarette. See if Camels don't suit your "T-Zone" to a "T."

**CAMELS** Costlier Tobaccos

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Thank You!!!

Please contact me with any questions at [Emily@sageprairie.org](mailto:Emily@sageprairie.org)

@Dremilybrunner

# Useful Resources

- Common Sense Media
- NAMI (of course!)
- Center for Humane Technology
- Movie Screenagers (I and II)
- “Pause and Reset” by Dr. Nancy Petry**
- “Hooked: How to build a habit-forming product” by Nir Eyal**



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