

**IOWA STATE UNIVERSITY** Video Game Addiction:  
What the Latest Research Tells Us



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**Addicted!** Scientific Skepticism

91% of Australian Teens say the Internet is important

81% of Australian Children not getting Enough exercise



ACMA (2009); Shirantz et al (2014)

**IOWA STATE UNIVERSITY** What happens when it's time to stop playing for some children?



**IOWA STATE UNIVERSITY** Pathological Video Gaming: How to define it?



Extreme Funny Humor.com

Addicted to video games?

**IOWA STATE UNIVERSITY** Dysfunction is the critical aspect

- There is still much debate about how to define addictions
- To my view, the commonality is **dysfunction to multiple areas of life**, including family, social, occupational, school, and psychological/emotional functioning
  - E.g., Brown's (1991) facets of addiction, DSM-IV clinical definitions of pathological gambling, etc.
- Most researchers have adapted either the DSM-IV or Brown's criteria

## Theoretical Approach

If gaming addiction exists, it should show

- **Reliability in measurement**
- **Construct validity**
  - **Convergent validity** – Addicted students should play more, buy more games, feel addicted, etc.
  - **Comorbidity** – Addicted students should be more hostile, show more antisocial and aggressive behaviors, get worse grades, etc.
- **Predictive validity**
  - **Cue Reactivity** – Addicted students should have stronger reactions to playing games
  - **Outcomes** – Addicted students should have more negative outcomes
  - **Risk Factors** – We should find factors that put some youth at greater risk

## Convergent Validity:

### Other Problem Markers - Young Adolescents

Pathological Gamers (compared to other gamers)

- Parents more likely to say they play VGs too much (60% & 25%)
- More likely to play VGs to release their anger (68% & 34%)
- Prefer more violence in VGs ( $M = 7.2$  &  $5.1$ )
- Prefer more violence now compared to 2-3 years ago
- More likely to say they have felt like they were addicted to VGs (54% & 15%)

## Construct Validity: Comorbidity - Young Adolescents

Pathological Gamers (compared to other gamers)

- Higher hostile attribution bias
- Higher trait hostility (Cook & Medley)
- Higher antisocial behaviors (e.g., arguments with friends)
- Higher aggressive behaviors (i.e., physical fights)
- More likely to have “addicted” friends (59% & 35%)
- Poorer school performance ( $M = B^-$  &  $B^+$ )
- Watch more TV ( $M = 35.7$  &  $24.5$  hours/week)
- More likely to be male

## Study 3: National U.S. Sample

(Gentile, 2009, *Psychological Science*)

- Collected by Harris Polls
- $N = 1,178$  8- to 18-year-olds across America

Harris Poll Online™ powered by Harris Interactive

- 88% of youth play
- Average time is 13.2 hours/week ( $SD = 13.1$ )
  - Boys 16.4, Girls 9.2
- Only about half of children say there are rules in their houses for VG use
- 22% of children 8-11, 41% of 12-14, and 56% 15-18 own “Mature”-rated games

## Prevalence and Validity

- **8.5%** of American gamers aged 8 to 18 would classify as pathological
- Demonstrates construct validity in several ways (both convergent and divergent):
  - Play more frequently, spend more time playing (average of 24.6 hours/week), get poorer grades, have ADD/ADHD, have a video game system in their bedrooms, feel more “addicted,” etc.



“A new study shows that about one out of every ten kids who plays video games is addicted. You know what they really need is rehab.

That Rehab’s such an awesome game! It’s on Xbox and PlayStation. I played it for 6 hours yesterday.”

LATE  
NIGHT  
with  
JIMMY  
FALLON

Jimmy Fallon, April 21, 2009

## Prevalence

- National studies in several countries appear to be converging on a prevalence of somewhere around 7-10 percent of gamers
- Recent prevalence estimates include **8.5%** (Gentile, 2009) and **8.1%** (Morahan-Martin & Schumacher, 2000) in the **US**, **8.0%** in **Australia** (Porter, Starcevic, Berle, & Fenech, 2010), **11.9%** in **Germany** (Grüsser, Thalemann, & Griffiths, 2007), **8.7%** in **Singapore** (Choo et al., 2010), **10.3%** (Peng & Li, 2009) and **10.8%** (Lam et al., 2009) in **China**, and **7.5%** in **Taiwan** (Ko et al., 2007).

## Summary of Construct Validity Data from Studies 1, 2, 3 & 5

- Pathological gamers showed patterns expected:
  - Poorer grades, spend more time playing, prefer more violence in games now compared to past, more hostile personalities, more aggressive behaviors, more diagnosed Attention Deficit Disorders (ADD/ADHD), say they feel “addicted,” etc...

### Study 4: Predictive Validity Older Adolescents



We had undergraduate volunteers play 3 randomly selected video games (out of 19)

- Before and after each game, they completed a state emotion checklist
- After each game, they evaluated each game on 14 dimensions
- Assumption:** If pathological gaming is like other addictions, “addicts” should show *cue reactivity* similar to other addictions
- Hypothesis 1:** Pathological gamers will be more emotionally reactive to playing games than other gamers
- Hypothesis 2:** Pathological gamers will rate games more positively than non-addicts on subjective dimensions (e.g., how fun, absorbing, etc.), but will not differ on objective dimensions (e.g., how action-packed, how violent, etc.)

### Male, 22, VG Addict Physiological Cue Reactivity to Play



### Study 4: Predictive Validity Emotional Reactivity - Older Adolescents

Pathological Gamers more likely (than nonpathological gamers and non-gamers) to

- Feel *less* calm, peaceful, and pleasant after playing
- Feel *less* agitated and irritated after playing
- Feel *more* angry, and both *more* and *less* mad
- Feel both *more* and *less* happy
- Feel *more* energetic
- Feel *less* lonely, sad, and unhappy

### Study 4: Predictive Validity Evaluative Reactivity - Older Adolescents

Pathological Gamers *more* likely (than nonpathological gamers and non-gamers) to rate the games as

- Entertaining, exciting, fun, absorbing, arousing, enjoyable, involving, stimulating, and addicting

Pathological Gamers *less* likely to rate the games as

- Boring

Pathological Gamers *equally* likely to rate the games as

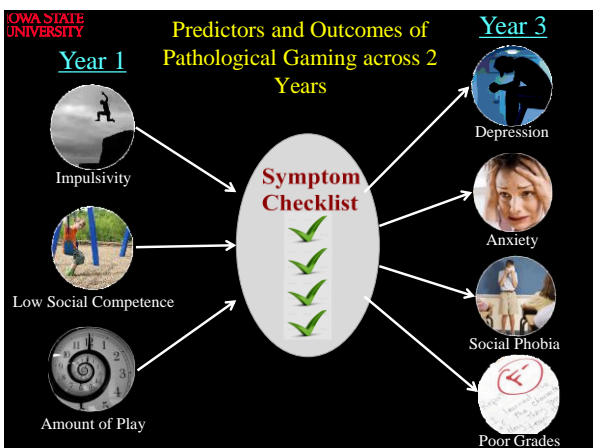
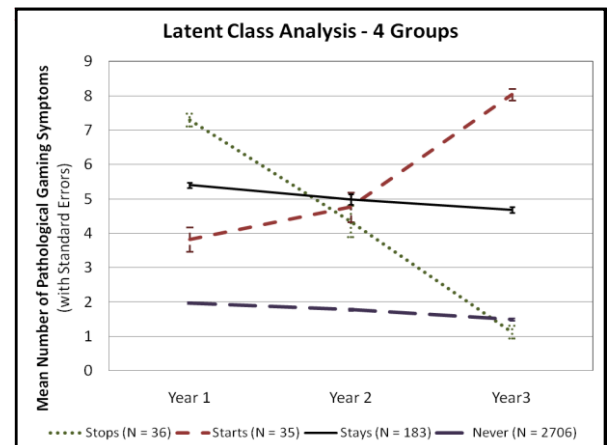
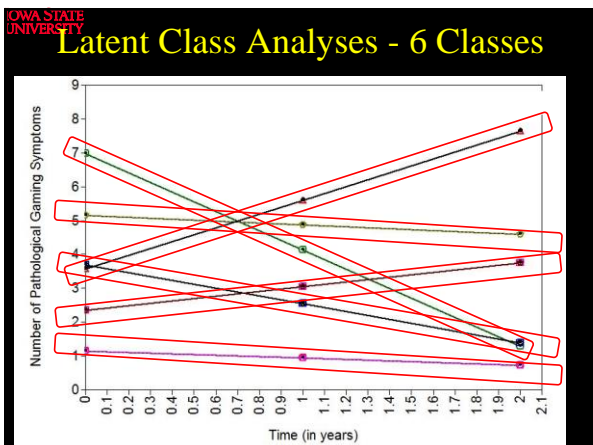
- Action-packed, violent, frustrating, difficult to play

**CONCLUSIONS**

- The results of these five studies converge to demonstrate that Pathological Use of Video Games shows high construct validity and predictive validity
- In addition, it shows reasonable test-retest reliability

**Longitudinal Study**  
(Gentile, Choo, Liau, Sim, Li, Fung, & Khoo, 2011, *Pediatrics*)

- 3034 Singaporean Children, measured across three years (beginning in grades P3 (3), P4 (4), S1 (7), & S2 (8))



**What about Time Spent Playing?**

- Amount of time is *not* a criterion for diagnosis
- Amount of time, however, does predict poorer school performance
- Pathological gaming should be a distinct construct, over and above amount of play
- ANCOVA controlling for sex, age, and weekly amount of play (Gentile, 2009 study)
  - Pathological status still a significant predictor of school performance ( $F = 27.7, df = 1, 1003, p < .001, \eta^2 = .027$ )

## Length of the Problem

- Ko and colleagues (Ko et al., 2007; 2009) found that about 50% of Taiwanese adolescents who were classified as pathological users of the Internet showed signs of being “addicted” one and two years later. High hostility, depression, and ADHD, among other variables predicted stability of addiction.
- Gentile et al (2011) found that 84% of pathological gamers were still pathological gamers two years later

## My Personal Summary Opinions

- At this point, I do not see good evidence for differences between technologies
  - That is different, however, for Internet gambling or pornography addictions
- I have a hard time thinking about games or technologies as being “addictive”
- I currently think of it as an impulse-control disorder – the problem is with the player, not the game
- Nonetheless, it is possible that there are features that make some technologies/games higher risk

## Human Motivation: Self-Determination Theory

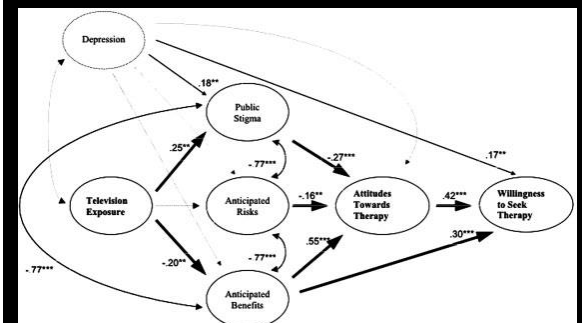
- Three basic needs that humans have that relate to why we find some things intrinsically motivating
  - Autonomy
  - Relatedness
  - Competence
- To the extent that some technologies or games are better at meeting these needs, they may have a higher percentage who become pathological

## The Good News? All this publicity is apparently good for the economy



## But will people seek the help they need?

(Vogel, Gentile, & Kaplan, 2008, *Journal of Clinical Psychology*)  
N=369



## What's New: International Consensus?

- DSM-5 has included non-substance addictions, including Internet Gaming Disorder
- Paper just out (*Addiction*) by large international team representing 9 countries: Nancy M. Petry, Florian Rehbein, Douglas A. Gentile, Jeroen S. Lemmens, Hans-Jürgen Rumpf, Thomas Mölle, Gallus Bischof, Ran Tao, Daniel S. S. Fung, Guilherme Borges, Marc Auriaconbe, Angels González Ibáñez, Philip Tam, and Charles P. O'Brien



## 9 Issues

### Time-bounded at 12 months

(Petry et al., 2014, *Addiction*)

1. Do you spend a lot of time thinking about games even when you are not playing, or planning when you can play next? (**Preoccupation**)
2. Do you feel restless, irritable, moody, angry, anxious or sad when attempting to cut down or stop gaming, or when you are unable to play? (**Withdrawal**)
3. Do you feel the need to play for increasing amounts of time, play more exciting games, or use more powerful equipment to get the same amount of excitement you used to get? (**Tolerance**)
4. Do you feel that you should play less, but are unable to cut back on the amount of time you spend playing games? (**Attempts to reduce**)
5. Do you lose interests in or reduce participation in other recreational activities (hobbies, meetings with friends) due to gaming? (**Sacrifice other activities**)

## 9 Issues

### Time-bounded at 12 months

(Petry et al., 2014, *Addiction*)

6. Do you continue to play games even though you are aware of negative consequences, such as not getting enough sleep, being late to school/work, spending too much money, having arguments with others, or neglecting important duties? (**Continue despite problems**)
7. Do you lie to family, friends or others about how much you game, or try to keep your family or friends from knowing how much you game? (**Deceive/Cover up**)
8. Do you game to escape from or forget about personal problems, or to relieve uncomfortable feelings such as guilt, anxiety, helplessness or depression? (**Escape adverse moods**)
9. Do you risk or lose significant relationships, or job, educational or career opportunities because of gaming? (**Risk/Lose relationships or opportunities**)

## What Remains to be Studied

- Are there clearly identifiable risk factors?
- Are there clearly identifiable protective factors?
- Is there a clear etiological pattern?
- Is there a clear course of the problem?
- What types of treatment are most effective?

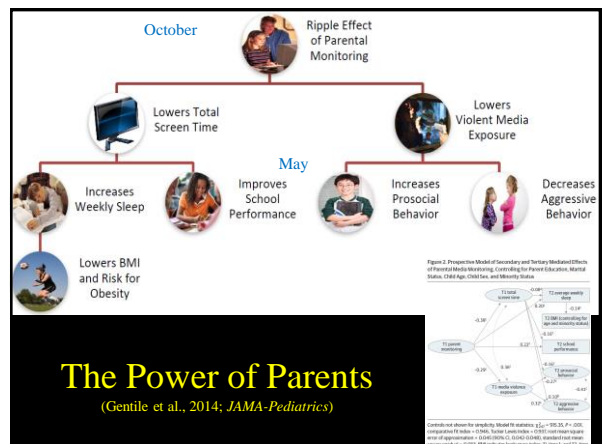
## Three Reasons to Take Action



- Clearly, many millions of people are already suffering damage to their functioning from Internet Gaming Disorder
- Each year, higher percentages of children and adults gain access to digital technologies
- As technologies improve, they will become more immersive, interactive, and pervasive

## What might the actions be?

- Media literacy curricula should be in every school
  - Help the children to be aware so that they become a partner in promoting their own health
- Change the parenting, school, and therapeutic cultures to ask about media habits
  - Limiting access matters
  - Parental monitoring matters



## *Key Role of School Counsellors:*

- S/Cs very well-placed to have central role in complex cases:
  - At the 'coal face'
  - Can liaise with families, as well as Education
  - 'Gatekeeping' role to formal mental health
- Key is trust, rapport, full understanding / technical 'lingo'

### Tools

- International checklist is a good starting place
- **IMPROVE** tool by Dr. Philip Tam (see <http://www.niira.org.au>)

Thank you!



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Worst game ever.

[www.DrDouglas.org](http://www.DrDouglas.org)