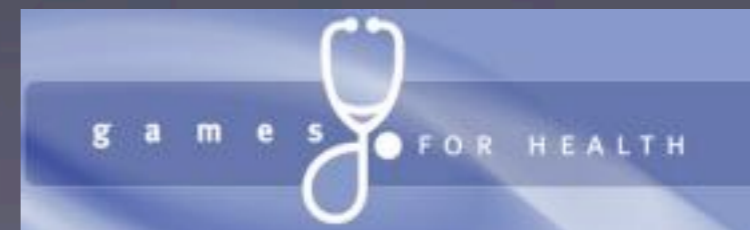


Serious Games @ NCTI

notes of interest...

bsawyer@seriousgames.org



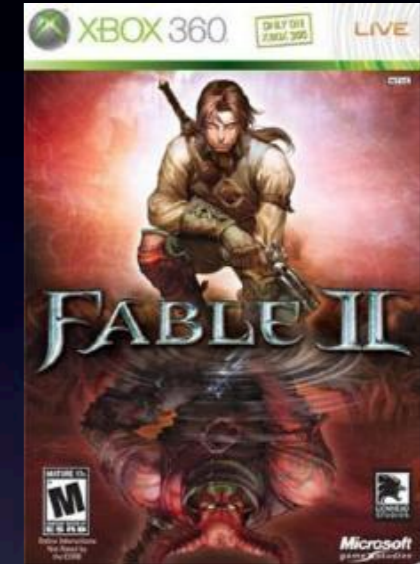
VIDEO GAMES



WHY WASTE GOOD TECHNOLOGY
ON SCIENCE AND MEDICINE?

All Games are Serious

What I'm Playing...



Agenda

- What is the serious games space?
- Roughly where do things stand?
- Special notes on accessibility

Serious Games

- Label for gamut of activity
- Often confused as just “games for learning”
- Overlapping with modeling & simulation, virtual worlds, social networks
- Driven by commercial gaming advancements

Serious Game Drivers

Research

Game Studies

Audience

**Theories of Learning /
Cognition**

Commercial Gaming

Academia

Serious Games

Technology
Graphics / CHI

**Social Networking/
Collaboration**

Traditional MS&V

Web 2.0

E-learning & Training

Industry



Market Segments

Enterprise	Non-Entertainment Users			Retail
Instructors & Utilizers	E-Learning	Modeling & Simulation	Commercial Serious	Game Developers
	Education Software	Serious Games	Serious COTS	
	Game Marketing & Cultural Cues	Serious Stuff Gamers Do	Commercial Gaming	
Game Influenced	Entertainment & Gamers			Actual Game

Simulation

Packet Tracer

Federal Budget Game

Virtual U

Bridge Builder

Simulation

Governance & Model Conventions

Game

Sim City

Half-Life 2

MS Flight Simulator

Every Day Shooter

Game

Media Conventions



Taxonomy of Serious Games

	Games for Health	Advergames	Games for Training	Games for Education	Games for Science and Research	Production	Games as Work
Government & NGO	Public Health Education & Mass Casualty Response	Political Games	Employee Training	Inform Public	Data Collection / Planning	Strategic & Policy Planning	Public Diplomacy, Opinion Research
Defense	Rehabilitation & Wellness	Recruitment & Propaganda	Soldier/Support Training	School House Education	Wargames / planning	War planning & weapons research	Command & Control
Healthcare	Cybertherapy / Exergaming	Public Health Policy & Social Awareness Campaigns	Training Games for Health Professionals	Games for Patient Education and Disease Management	Visualization & Epidemiology	Biotech manufacturing & design	Public Health Response Planning & Logistics
Marketing & Communications	Advertising Treatment	Advertising, marketing with games, product placement	Product Use	Product Information	Opinion Research	Machinima	Opinion Research
Education	Inform about diseases/risks	Social Issue Games	Train teachers / Train workforce skills	Learning	Computer Science & Recruitment	P2P Learning Constructivism Documentary?	Teaching Distance Learning
Corporate	Employee Health Information & Wellness	Customer Education & Awareness	Employee Training	Continuing Education & Certification	Advertising / visualization	Strategic Planning	Command & Control
Industry	Occupational Safety	Sales & Recruitment	Employee Training	Workforce Education	Process Optimization Simulation	Nano/Bio-tech Design	Command & Control

Taxonomy of Serious Games

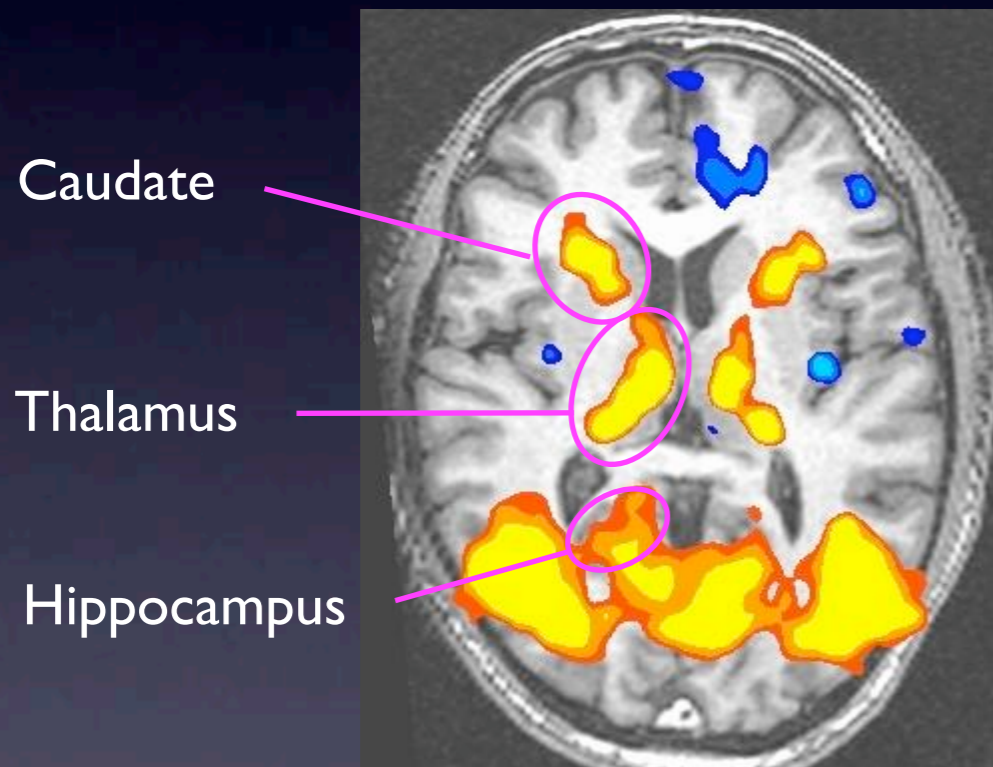
	Games for Health	Advergames	Games for Training	Games for Education	Games for Science and Research	Production	Games as Work
Government & NGO	Public Health Education & Mass Casualty Response	Political Games	Employee Training	Inform Public	Data Collection / Planning / Visualization	Strategic & Policy Planning	Public Diplomacy / Opinion Research
Defense	Combat Medicine, Rehabilitation & Wellness	Recruitment & Messaging	Soldier/Support Training	School House Education	Wargames / planning	War planning & weapons research	Command & Control
Healthcare	Cybertherapy / Exergaming	Public Health Policy & Social Awareness Campaigns	Training Games for Health Professionals	Games for Patient Education and Disease Management	Visualization & Epidemiology	Biotech manufacturing & design (Folding@Home)	Public Health Response Planning & Logistics
Marketing & Communications	Advertising Treatment	Advertising, marketing with games, product placement	Product Use	Product Information	Research	Machinima	Opinion Research
Education	Fatworld Inform about diseases/risks	Social Issue Games	Train teachers / Train workforce	Learning	Computer Science & Recruitment	P2P Learning Constructivism Documentary?	Teaching Distance Learning
Corporate	Employee Training	Customer Education & Awareness	Employee Training	Continuing Education & Certification	Advertising / visualization	Strategic Planning	Command & Control
Industry	Occupational Safety	Sales & Recruitment	Employee Training	Workforce Education	Process Optimization Simulation	Nano/Bio-tech Design	Command & Control

Where do Things Stand?

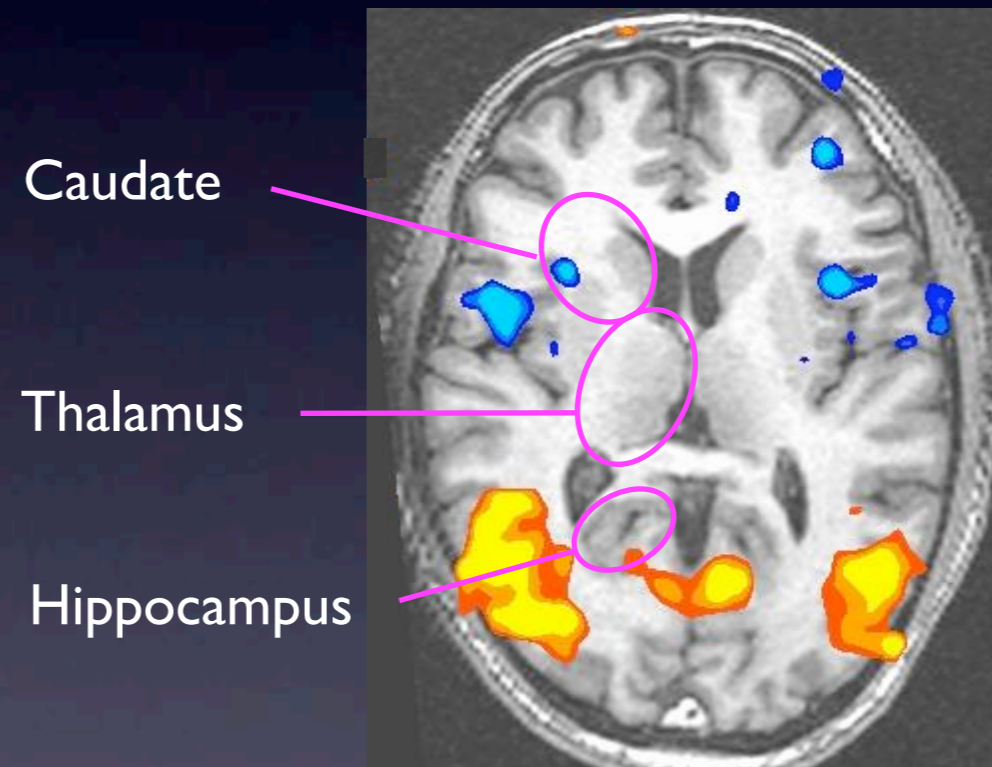
- Just beyond emergent but lots of poorly formed opinion
- More emphasis on research & development
- Limited commercialization beyond work for hire projects
- Increasingly shifting to cover gamut by pushing out to niches beyond learning
- Global

HopeLab/Stanford Brain Scans

Interactive play

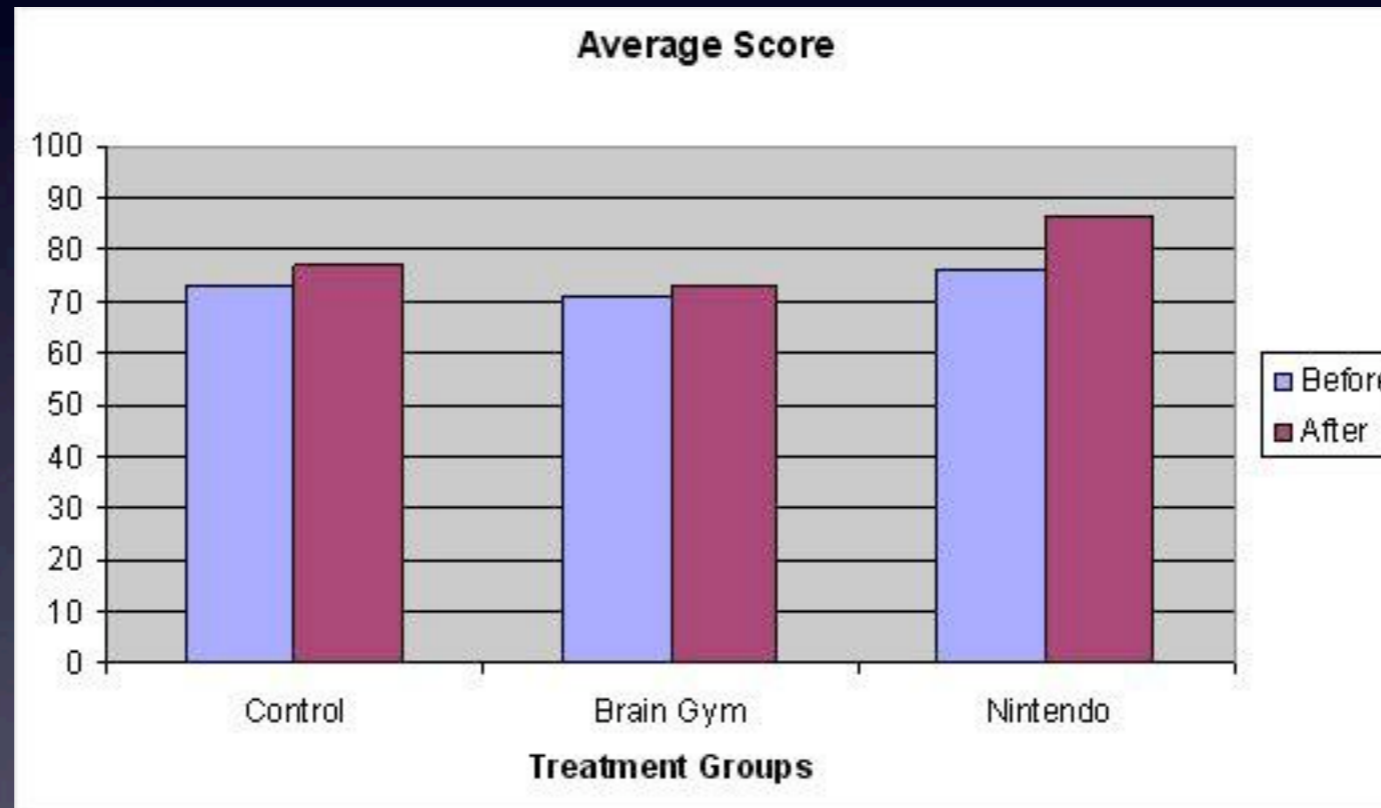


Passive exposure

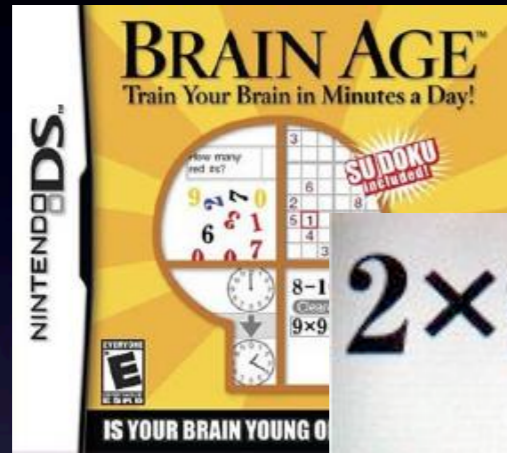


Re-Mission Attitudes Study in the Brain
Brian Knutson, Ph.D., Stanford University

Brain Age & Math



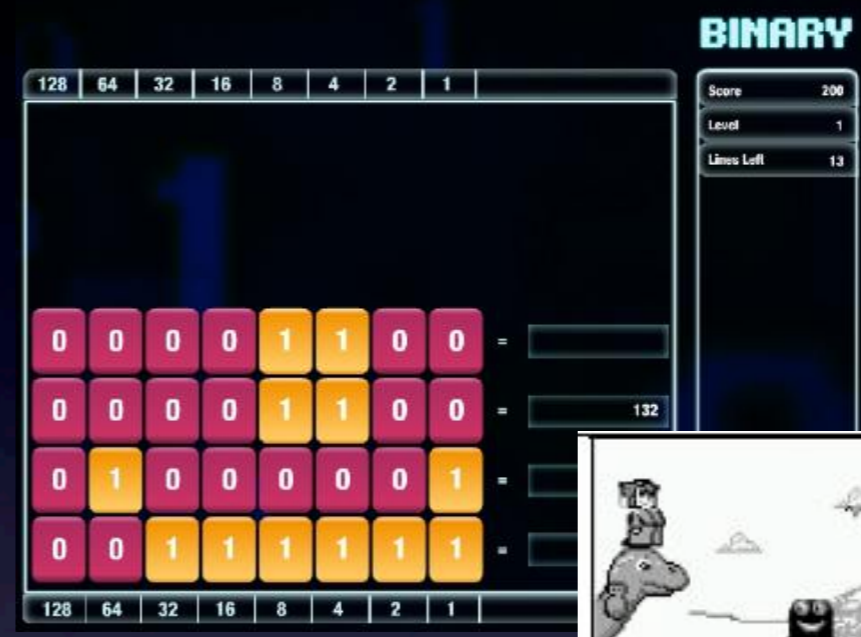
The New Age of Drill & Skill



$$2 \times 9 = 18$$

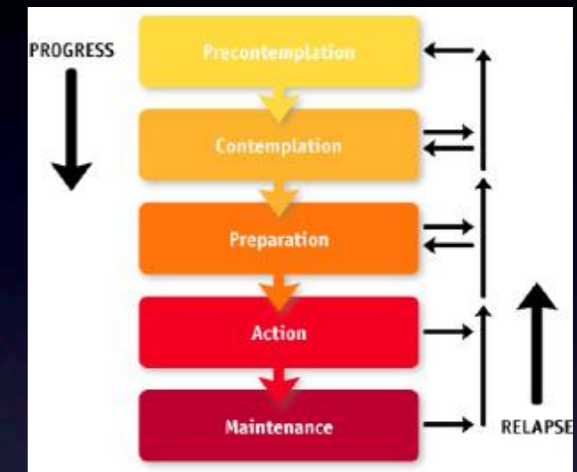
$$3 + 8 =$$

$$1 + 9 =$$



Learning as Behavior Change

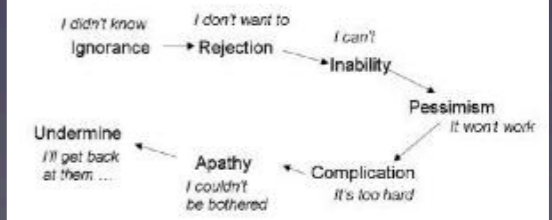
- Gameplay & Interface induces extended practice through advance “flow”
- Improved learning through faster iteration through problems
- Mobile devices creates “practice anytime” environment
- Cumulative score across games, diaries, etc.
- Steal from Health Behavior Change to Affect Learning?



7 Steps to Behaviour Change

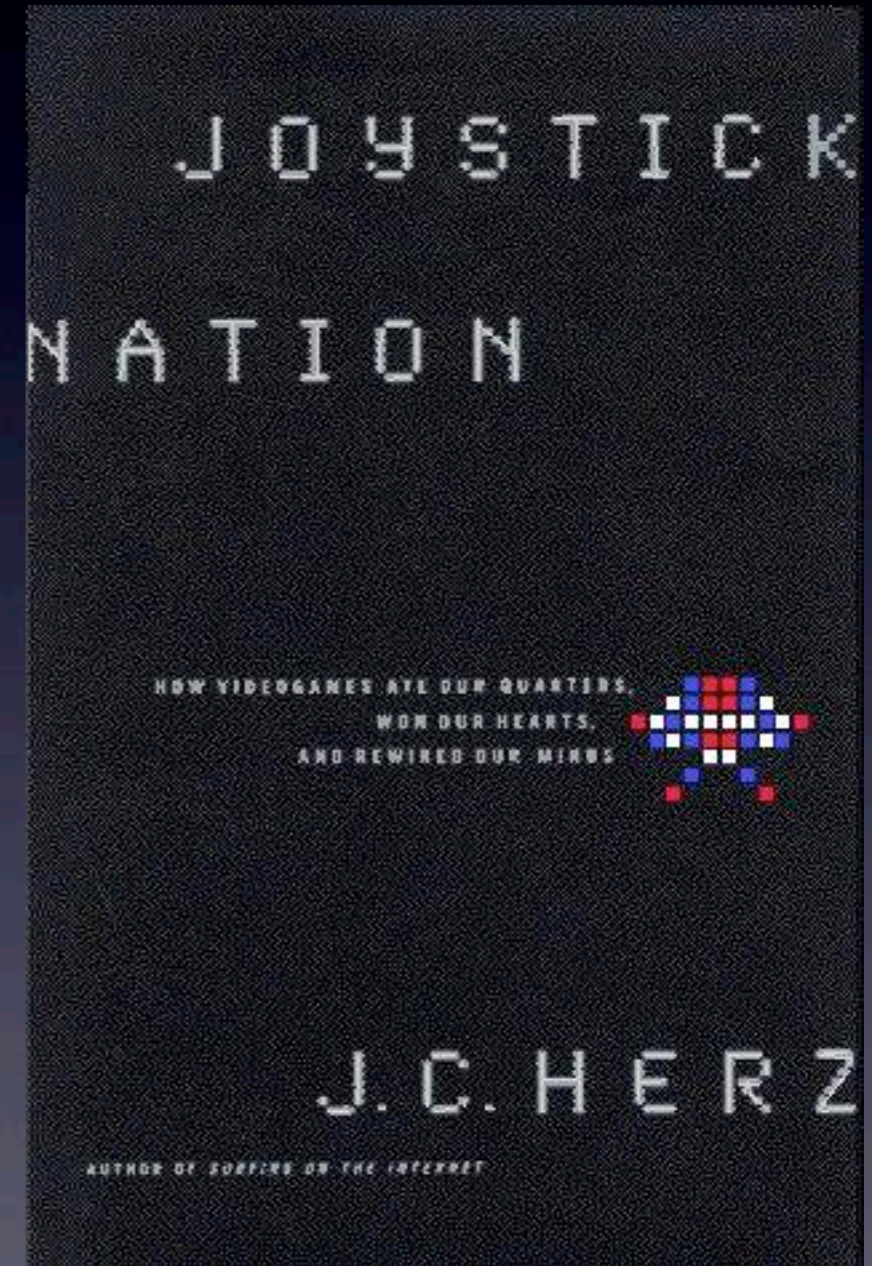


7 Stages of Behavioral Inertia



J.C. Herz

“Games as a
Culture of
Interface”



Accessibility Notes

- IGDA Accessibility SIG & Whitepaper

http://www.igda.org/wiki/Game_Accessibility_SIG

- Ablegamers.com

- Games Accessibility Day

- One Switch, Ben Heckendorn

- Growing community efforts



Resources....

- [Accessibility Assistance](#) (Forums to help developers wishing to make their games more accessible)
- [AGDev](#) (Accessible Game Developers)
- [AGRIP](#) (Accessible Gaming Rendering Independence Possible)
- [Accessible Gaming Shop](#)
- [Assistive Gaming](#) (Accessible Gaming on the Apple Macintosh)
- [AbleGamers](#) (Serving as a community site for disabled gamers)
- [AudioGames.net](#) (Reviewing games from a blind gamer's perspective)
- [DeafGamers](#) (Reviewing games from a deaf gamer's perspective)
- [Game-Accessibility.com](#) (Game Accessibility resource & community website)
- [Games\[CC\]](#) (Info for developers about closed captioning in games)
- [Gameport Blindzeln](#) (A german community for AudioGames)
- [Help You Play](#) (Accessibility Guidance for Game Designers)
- [Namco Rehabili-tainment](#) (Barrier-Free Group)
- [OneSwitch.org.uk](#) (Switch gaming for learning and/or physically disabled gamers with [Accessible Gaming News Blog](#))
- [Pin Interactive](#) (Game Accessibility Development company)
- [Special Effect Gamebase](#) (Accessible Games Review Site)
- [UA-Games](#) (Universally Accessible Games)