Social and Skill Learning and Transfer

Douglas A. Gentile, Ph.D.
Director, Media Research Lab, Iowa State University
Associate Director, Center for the Study of Violence

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Part of the reason is that video games are fantastic teachers
(Gentile & Gentile, 2008)

• They use at least 9 of the Best Practices techniques that exemplary teachers use
  – They train not just to basic levels, but to mastery and automaticity
  – They encourage a close-to-optimal combination of massed and distributed practice
  – Knowledge/skills learned and practiced in multiple ways in a variety of contexts
  • Important if transfer is desired

Playing multiple violent games transfers better: (Gentile & Gentile, 2008)

Prosocial Game Effects
(Gentile et al., 2009)

• In three studies, we tested prosocial game effects
  • Study 1: 727 Singaporean 7th-8th graders
    – Correlational: Playing prosocial games predicted helping behavior, empathy, cooperation, and lower hostile attribution bias and attitudes
  • Study 2: 1,830 Japanese 3rd-5th graders
    – Longitudinal: Playing prosocial games predicted later prosocial behavior
  • Study 3: 161 US college students
    – Experimental: Played game, then had the opportunity to help or hurt another student

fMRI Study
(Gentile, Swing, Anderson, Rinker, & Thomas, under review)

• 13 late adolescent males (18-20 years)
• Video game play at least 10 hrs/wk
• No current or past diagnosis or treatment for behavioral or psychiatric disorder, including depression, anxiety, learning disability, or attention deficit
• No psychoactive medications
• Classified as having high (n=7) or low (n=6) violence experience based on most frequently played video games
Laparoscopic Surgeons Study 1
(Rosser, Lynch, Haskamp, Gentile, Yalif, & Klonsky, 2007)

- N = 33 Laparoscopic Surgeons
- Played 3 video games, requiring
  - Fine motor skills/reaction time
  - Non-dominant hand dexterity
  - Two-handed choreography
  - Targeting
  - 3D depth perception from 2D information
- Participated in Top Gun laparoscopic training and standardized scored drills

The surprise

- Demonstrated VG skill and past amount of VG play are significant predictors of advanced laparoscopic skills and suturing capability after controlling for sex, years of medical training, and number of laparoscopic surgeries performed

Laparoscopic Surgeons Study 2

- 303 Surgeons (83% M, 17% F)
  - M = 13 years experience (SD = 9.6)
  - M = 328 laparoscopies performed (SD = 491, median = 112)
- 180 completed Top Gun in standard form, and 123 completed it with embedded VG play
- Not randomly assigned, but received same training, not different in number of surgeries performed or pretest measure of suturing skill

Laparoscopic Surgeons Study 2
Study 2

- Replicated previous surprising finding – game best predictor of skill
- All surgeons performed Cobra Rope drill
- Surgeons playing VGs prior to the drill were significantly faster at first attempt (t = 2.17, df = 301, p < .05) and overall across 10 trials (t = 2.28, df = 301, p < .05)

Suturing Drill

- When examining suturing skill after playing VGs, significantly fewer errors

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On the Player side…

• At its simplest, these effects are **learning**
• One primary way humans learn is through repetition

[Image: Long Term Potentiation]

Your grandmother was a great neuroscientist

But even she never expected such far transfer

On the game side, there are **Multiple Dimensions** on Which Video Games can have an Effect

• Amount
• Content
• Structure
• Context
• Mechanics

The benefit? More thoughtful design will save us from debacles such as…

Conclusion

• Education (both formal and informal) has a phenomenal amount to learn from games
• This isn’t new…
• But we haven’t even begun to start to live up to the potential