Home Media and Cell Phone Influences on Children’s School Achievement and Behavior

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Objectives

- To describe changes in use of computers for study and gaming, the Internet for web sites and e-mail, and video games, 2003–2008
- To examine the association between media use and children’s achievement and behavior
  - Very little research on computers and the Internet.
  - More on television and video games
  - Examine differences by gender and race/ethnicity
Parents, pediatricians, and educators are concerned about excessive screen time leading to increased isolation from peers, to increased aggressive behavior, or to neglect of schoolwork.

Children’s lives have changed. As teachers, we need to understand their experiences so we can better communicate and promote learning.
I. How has Children’s Home Media Use Changed?

- **Background for this Symposium:**
  - Access to home computer, email, and high-speed Internet have transformed the way we live, and this is most notable for children, who grow up in a world we never could have imagined just 2 decades ago.

- **Conventional Media has continued**
  - TV – up to now it has remained stable – 13–15 hours per week

- **Computers, the Internet, and Video Games**
  - Computers – in 1997 just starting at home for children
    - In 1997, 17% of 9–12 year olds; in 2002, 32% used computer at home
  - High Speed Internet – permits web surfing and e-mail/IM
    - In 2002 only 10% of adults had access to broadband at home; it was 47% in 2007.
  - Video games are used by more than half of boys 9–12
Figure 2: Percentage of Weekly Time, 1997 Children 10-12

- Video Games: 62%
- Computer Games: 26%
- Computer Study: 5%
- Email: 0%
- Web sites: 7%

Figure 3: Percentage of Weekly Time, 2008 Children 10-12

- Video Games: 45%
- Computer Games: 21%
- Email: 16%
- Computer Study: 7%
- Web sites: 11%
Data Source

  – Two samples:
    • children who were 10–18 in 2003 or 10–18 in 2008 and with data from the child time diary, 1,620 children in 2003 and 1,366 in 2008
    • Children who were interviewed in both 2003 and 2008. Children were approx. 5–13 in 2003 and 10–18 in 2008, 1,221 children
  – Weights provided by the CDS were used – Nationally representative
  – Exactly the same methodology and instruments used in both years – 24 hour time days for 2 days in a week – a weekly estimate was obtained
Percentage of Children 10-18 using Media, 2003 vs. 2008

- Websites***
  - 2002: 20%
  - 2007: 26%

- Emails***
  - 2002: 15%
  - 2007: 33%

- Computer games
  - 2002: 19%
  - 2007: 18%

- Video games*
  - 2002: 34%
  - 2007: 38%

- Study***
  - 2002: 4%
  - 2007: 16%

- Television*
  - 2002: 95%
  - 2007: 92%
Percentage of Children 10-18 using Media in 2008, Boys vs. Girls

- Websites: 26% Boys, 26% Girls
- Emails: 28% Boys, 38% Girls
- Computer games: 22% Boys, 14% Girls
- Video games: 56% Boys, 19% Girls
- Study: 15% Boys, 17% Girls
- Television: 92% Boys, 93% Girls

N=690 Boys, 661 Girls
Weekly Time Spent in Media in 2008, Whites vs. Blacks

<table>
<thead>
<tr>
<th>Media Type</th>
<th>White</th>
<th>Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>Websites</td>
<td>1.11</td>
<td>1.38</td>
</tr>
<tr>
<td>Emails**</td>
<td>1.96</td>
<td>1.37</td>
</tr>
<tr>
<td>Computer games***</td>
<td>1.36</td>
<td>0.46</td>
</tr>
<tr>
<td>Video games</td>
<td>3.19</td>
<td>3.47</td>
</tr>
<tr>
<td>Study**</td>
<td>1.11</td>
<td>0.61</td>
</tr>
<tr>
<td>Television*</td>
<td>12.75</td>
<td>14.35</td>
</tr>
</tbody>
</table>

N=667 White, 509 Black
Summary and Conclusions

- The results show that the largest increases are
  - Use of the Internet for e-mail (doubled) and websites (up 30%) and
  - Studying using the computer (tripled)
- Computer game playing stayed stable
- Video game playing up slightly (younger girls)
- Television use declined about 2 hours (13%)
II. Research on Outcomes

- Almost no research on computer play or computer study and on use of the Internet for e-mail and web searching.
- It is important to distinguish what use is made of computers and the Internet.
- Video games – have been much maligned. More time associated with more aggressive behavior problems, for example. However, new research suggests that the results are not this simple...
Theory for Consequences

- **Displacement**
  - Some is expected; what is displaced is the issue
  - New media may displace reading, studying and physical activity associated with pos. development

- **Social or observational learning**
  - Media provide new information
  - Children learn from playing with media

- **Use and motivation theory**
  - Interaction between media and context
  - Depends upon age, gender, race/ethnicity
  - Depends upon type of medium
Outcome Measures

- **Achievement – Woodcock Johnson Test**
  - Letter word identification – ability to identify letters and words
  - Passage comprehension – ability to identify a missing word in a sentence.
  - Applied problems – math reading problems

- **Behavior**
  - Externalizing (aggressive) problems
  - Internalizing (withdrawn) problems
Methodology

- Examined change between 2003 and 2008 in outcomes as a function of change in media use. Separate models by race/ethnicity and gender.
  - Controls for change in age, number of children, household income, number of parents. Also included age in 2003.
Internalizing Behavior Problems

- Internet use for websites
- Internet use for email
- Computer games
- Video games
- Computer use for study

- White boys
- Black boys
- White girls
- Black girls
The findings show positive impacts of increased computer game play, particularly for girls and for black boys. Girls who increase game playing increase their reading and problem-solving scores and have reduced behavior problems. This is because computer use does not interfere with reading and studying, but complements them.

Although studying using the computer increased, the results suggest that only for girls would increasing children’s use of the computer increase their achievement; there is a positive association but it is because better students use the computer more.

Increased messaging is associated with a slight decline in letter-word identification of boys but also a decline in internalizing problems.

Video game playing reduces rather than increases behavior problems for white boys. This is contrary to popular belief.
Study linking Cell Phone to Achievement

- 2008 PSID – CDS
- 1,147 Children 10–18 living at home/not finished school
- 74% of children 10–18 owned or shared a cell phone
- Averaged 62 minutes of cell phone use/week
- And sent 78 text messages
Results show that:

1. Text messaging is associated with better reading comprehension
2. This is due to greater practice reading and writing. It may also be due to the use of textisms, which, like the passage comprehension test, require the ability to recognize words in context.
3. In contrast, using the phone for phone calls is linked with lower letter–word recognition.
The results show that the consequences are a lot more benign than many anticipate.
The results support the social learning hypotheses more than displacement.
However, use and motivation is also supported: groups who traditionally have used the computer less could benefit more: White girls and Black boys and girls. They are playing “catch-up.”
The results show that the consequences of media use are a lot more benign than many anticipated and many are positive; however, groups who traditionally have used the computer less could benefit more.
Sources