



The Association between Playing Video Games in Adolescence and Future Income

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Introduction

- The impact of video game usage during adolescence on future income is a compelling topic with conflicting perspectives. While conventional wisdom suggests a negative influence on future success indicators like personal income, the existing literature offers varied viewpoints.
- Studies by Brunborg et al. (2014) suggest negative correlations between video game usage and academic performance, while others like Whitbourne et al. (2013) propose positive associations. This highlights the necessity for a thorough literature review to understand the intricate relationship between video game usage and future success.
- Despite extensive research on video game usage's impact on academic performance, a notable gap exists regarding its influence on future income and other success indicators. Addressing this will enhance our understanding of the consequences of video game usage during adolescence.

Research Questions

- What is the association between playing video games during adolescence and future income levels?
- Which factors, including video game usage during adolescence and academic performance, exhibit the most significant relationship with future income levels?

Methods

Sample

The data were obtained from The U.S. National Longitudinal Survey of Adolescent Health (ADDHEALTH). Wave 1 capturing them during adolescence and Wave 5 revisiting them in their late 30s to early 40s. The sample included 6504 adolescents in 1994-1995, with 4121 adults remaining in 2016-2018.

Measures

- Personal income was measured with the question "In the last calendar year, how much income did you receive from personal earnings before taxes?".
- **High income**, the response variable, is a constructed binary variable with high income being \$50,000 and above.
- **Game time**, the main explanatory variable, is a constructed categorical variable with 4 levels of time spent playing video games per week in adolescence: 0 hour, 1-5 hours, 5-10 hours and more than 10 hours.
- **Education levels** is a control categorical variable for highest level of education, 0 for below high school level, 1 for graduated high school, 2 for graduated college, 3 for Masters Degree and 4 for PHD and above.

Results

Univariate

- 43.32% of respondents have income higher than \$50,000. 56.58% of them have income lower than \$50,000
- 47.18% of respondents didn't play video game at all (0 hour). 36.54% played 1-5 hours of video games per week. 8.29% played for 5-10% per week. And only 7.99% played for more than 10 hours per week.
- 4.3% of respondents are below high school level. 54.71% graduated high school. 24.56% graduated college. 11.37% have a Masters degree. And only 5.05% have a PHD.

Bivariate

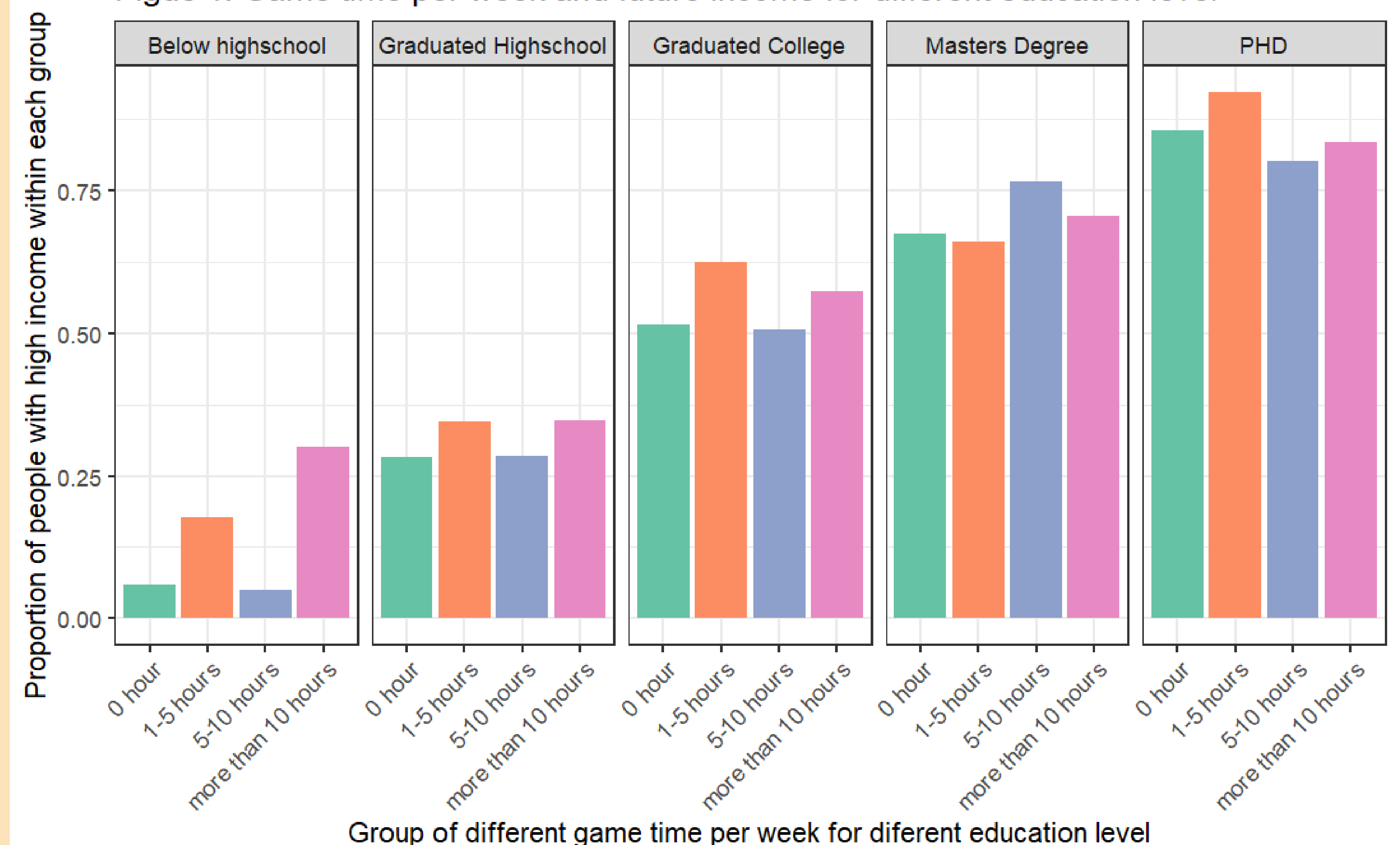
χ^2 test of independence revealed that:

- Levels of time spent playing video games per week during adolescence and future income were significantly associated ($X^2 = 26.456$, $df = 3$, $p = 7.6e-06$).
- Post hoc comparisons revealed that individuals in 1-5 hours group have higher expected income than those who didn't play video games. And individuals in 5-10 hours group have higher expected income than those in the 1-5 hours group.

Multivariate

- After controlling for education levels (as education levels plays a huge role in future income), individuals who played 1-5 hours of video games per week seem to have higher change of having higher income in the future compared to those who didn't play video games. (Figure 1)
- Playing more video games (5-10 hours and more than 10 hours) seems to have to significant impact on future income. (Figure 1)
- Logistic regression without controlling for education levels showed that only the 0-hour group and 1-5 hours group variables are significant:
 - Individuals who played 1-5 hours of video games per week are 1.4 times more likely to have higher future income compared to those who didn't play video games
- Logistic regression after controlling for education levels showed that all variables are significant except for 5-10 hours time played. Also worth noting that even though more than 10 hours variable is significant, the p-value is still many times higher than other variables:
 - Individuals who played 1-5 hours of video games per week are still 1.38 times more likely to have higher future income compared to those who didn't play video games
 - People with higher education obviously have significantly higher odds of having higher income: 3.32 times for graduated high school to 53.9 times for having a PHD.

Figure 1: Game time per week and future income for different education level



Discussion

- Moderate video game usage (1-5 hours per week) during adolescence is associated with a higher likelihood of achieving higher future income than no video game usage, contrary to common beliefs.
- Excessive video game usage (more than 5 hours per week) does not exhibit a significant association with future income levels, suggesting a threshold effect.
- Even after controlling for education levels, the link between moderate video game usage and higher future income remains significant, highlighting the importance of exploring the long-term dynamics and potential causal relationships between video game engagement and financial outcomes. This also suggests the importance of early exposure to technology.

References

- 1) Brunborg, G. S., Mentzoni, R. A., & Frøyland, L. R. (2014). Is video gaming, or video game addiction, associated with depression, academic achievement, heavy episodic drinking, or conduct problems? *Journal of behavioral addictions*, 3(1), 27-32. <https://doi.org/10.1556/JBA.3.2014.002>
- 2) Whitbourne, S. K., Ellenberg, S., & Akimoto, K. (2013). Reasons for Playing Casual Video Games and Perceived Benefits Among Adults 18 to 80 Years Old. *Cyberpsychology, behavior and social networking*, 16(12), 892-897. <https://doi.org/10.1089/cyber.2012.0705>