Seven Fears and Countless Opportunities for Adolescents in the Digital World

Candice L. Odgers, Ph.D

Youth-NEX, Jan 2015

adaptlab.org
Part 1

“Born digital”

miLife Study

Opportunities for Research
Part 2

7 Fears regarding how mobile tech is influencing youth

Opportunities for Positive Youth Development
The war between natives and immigrants is ending. The natives have won.

It was a bloodless conflict fought not with bullets and spears, but with iPhones and floppy disks.

Adolescent cell phone owners, 2004-2012

78%

2012
“Born digital” : Opportunities to connect ?

Living through one of the most rapid periods of technological transformation

Adolescents
• 95% of teens are online
• 78% have a cell phone:
  • Texting preferred communication, 60-100 texts per day
  • Increasing use by minority and low SES teens

We asked if mobile and virtual technologies could be used to understand adolescent health and risk behaviors
Ecological Momentary Assessment (EMA)

- Capture ‘film’ versus ‘snapshot’ of life
- Moving from the Lab -> Life in Context
- ↓ Reduce recall bias; capture variability and reactivity
- Not a new method, but is creating new possibilities for discovery
  - Wireless sensors, GPS, video and voice diaries

Focus on extreme vs. routine events,
daily stressors have large effects on adult health,
need for high-quality, high-res data,
Benefits of unobtrusive measurement
• 150 adolescents & parents
• 30 days, 3x per day
• Ages 12-15 years
• high-risk neighborhoods
• 18 month follow-up
Ecological Momentary Assessment (30 days x3)

Baseline
- child
- parent
(150 dyads)

Mixed-methods;
incl. focus groups

~ 14,000 assessments

18 month Interview
- child
Follow-up

William T. Grant Foundation
Supporting research to improve the lives of young people

Verizon Wireless
Research Questions:

- Does ETV have immediate effects on adolescents?
- Do adolescents with the highest levels of exposure exhibit ‘blunted’ reactivity?
- Are some adolescents more reactive to daily triggers?

Routine Versus Catastrophic Influences on the Developing Child

Candice L. Odlers and Sara R. Jaffee

1Stanford School of Public Policy and the Center for Child and Family Policy, Duke University, Durham, North Carolina 27708; email: candice.odgers@hsa.edu
2Department of Psychology, University of Pennsylvania, Philadelphia, Pennsylvania 19104 and MRC–Social, Genetic, and Developmental Psychiatry Centre, King’s College London, London, SE1 8AF, United Kingdom; email: sjaffee@psych.upenn.edu

Keywords
childhood adversity, toxic stress, adult health, resilience, daily stressors, differential susceptibility, early childhood intervention.

Abstract
Exposure to toxic stress accelerates the wear and tear on children's developing bodies and leaves a lasting mark on adult health. Prior research has focused mainly on children exposed to extreme forms of adversity, such as maltreatment and extreme neglect. However, repeated exposure to less severe, but often chronic stressors is likely to play as large, if not larger, a role in forecasting children’s future mental and physical health. New tools from neuroscience, biology, epigenetics, and the
Research Questions:

- Does ETV have immediate effects on adolescents?
- Do adolescents with the highest levels of exposure exhibit ‘blunted’ reactivity?
- Are some adolescents more reactive to daily triggers?

Research Questions:

- Does ETV have immediate effects on adolescents?
- Do adolescents with the highest levels of exposure exhibit ‘blunted’ reactivity?
- Are some adolescents more reactive to daily triggers?
ETV
• see people fighting in your home? School? Neighborhood?

Behaviors
• Substance use, fighting, bullying, health-risk behaviors…

Emotions, Symptoms
• Anger, depression, anxiety, irritability, hopelessness…

Health
• Sleep, diet, exercise
• **ETV**
  • see people fighting in your home? School? Neighborhood?
• **Behaviors**
  • Substance use, fighting, bullying, health-risk behaviors…
• **Emotions, Symptoms**
  • Anger, depression, anxiety, irritability, hopelessness…
• **Health**
  • Sleep, diet, exercise

**Analyses**

• Multi-level modeling framework (Raudenbush & Bryk, 2002)
• Person-mean centering
  • est. within and between-person effects of ETV
• PROC GLIMMIX, SAS v9.3
Exposure to violence predicts same day emotions and behavior (within-person effects)

within-individual effects of ETV on psychological symptoms, behavior and sleep, * p<.05, **p<.01, ***p<.001
...with effects that carry over to the next day

*within-individual effects of ETV on psychological symptoms, behavior and sleep, * p<.05, **p<.01, ***p<.001
...adolescents exposed to higher levels of violence were less behaviorally reactive
DRD4-7R carrier adolescents were more reactive

All between group interaction effects are significant at the p<.05 level
How do adolescents react to positive events and uplifts?

Differential susceptibility in daily life
Limitations: still relying primarily on self-reported information...

Cost and time effective, but room for improvement
Part 1 Summary
Opportunities to Connect

- Capturing kids in context
- High retention
- Cost effective
- Unobtrusive measurement
- Benefits for basic and intervention science
We began using mobile technologies as a research tool, but, the role of new technologies in teens lives quickly became part of the story line…
Adolescents 💘 their phones

- 4 out of 5 adolescent cell phone owners sleep with their phones
- Period were ‘connectivity’ and social relationships are crucial
- Heightened reward sensitivity
- High levels of reported attachment

Adults worrying over how adolescents spend their time is not new...

- radio, comic books, video games, violent media..

How common were our study parents’ fears? Should they be worried?

George, M & Odgers, CL. (under review). Seven fears and the science of how mobile technologies are influencing adolescents in the digital age.
SEVEN FEARS

1. Safety, Who are they talking to?
2. Cyberbullying, new victims?
3. ‘Alone Together’, no social skills?
4. Being ‘someone else’ online?
5. Digital divide with parents?
6. Impaired cognitive performance?
7. Losing their sleep?

George, M & Odgers, CL. (under review). Seven fears and the science of how mobile technologies are influencing adolescents in the digital age.
1. Safety, Who are they talking to?
2. Cyberbullying, new victims?
3. ‘Alone Together’, no social skills?
4. Being ‘someone else’ online?
5. Digital divide with parents?
6. Impaired cognitive performance?
7. Losing their sleep?
Fear 1: Who are teens connecting with?

- Offline versus online networks look very similar (Reich et al, 2012; Underwood et al, 2014)

  - 4-day analysis of text messages, 70% peers, 21% romantic partners, 3% parents, and only 1% other adult
  - 77% of social network ‘friends’ also face-to-face friends

- Most content is positive or neutral (Underwood, 2014)
  - But, sexting is, and continues to be frequently reported among older adolescents (Strassberg, 2013)
Fear 3: Alone Together?

- **Self report:** More time connecting online = more in person time and higher friendship quality (Valkenberg & Peter, 2007; Davis, 2013)

- **Longitudinal PSID:** Children with stronger relationships in early life, more frequent communication -> closer friendships (Lee, 2009),

- **Experimental:** Instant messaging versus solitary game play following exclusion leads to reductions in negative affect (Gross, 2009),

- But, effects (self-reported) are not uniform (e.g., shy versus depressed young people)
Fear 5: Digital Divide with Parents?

• Time spent online displaces time with parents, but does not seem to influence parent-child relationship quality (Lee, 2009),

• Shared online activities and play can foster stronger ties (e.g., Coyne et al, 2011), and some evidence that mobile devices can help maintain relationships across distance (e.g., Chen & Katz, 2009),

• Evidence that parents are using mobile devices to monitor their children’s behaviors and activities (e.g., Pew) but similar to ‘offline’ relationships, little evidence that monitoring per se is effective (e.g., Weisskirch, 2009; 2011)
Fear 7: Up All Night? *Probably.*

- Convincing evidence that devices interfere with sleep
  - Late night texting common; as is sleeping with the device
  - Light emission, time spent, emotional stimulation
- Experimental manipulation iPad versus Book lead to:
  - Disruptions in melatonin
  - Less REM sleep
  - Increased next-day fatigue

*PNAS, Chang et al, 2014*

Owen Lanahan, 15, of Portland, Ore., watches videos on his laptop and texts his friends under the bedcovers to hide his late-night activities, called vamping, from his parents. Credit Leah Nash for The New York Times.
Part 2 Summary
7 Fears & the Science

• Online and offline behaviors – and risks – are often mirrored,

• Rigorous and fast moving studies are sorely needed

• Effects are not uniform, nor should we expect them to be

• Need to focus on opportunities as well as potential costs
The future for kids still looks bright, but we will need to move quickly capture it

- For research, countless opportunities for ‘real time’ data capture, reaching new populations and engaging youth

- For intervention, some promising low-cost ‘light touch’ interventions and new tools for capturing treatment effects and heterogeneity

- For kids, the first generation of digital natives is now coming of age, and more information is needed

- But, to date, most fears have little scientific basis