

# New Technologies and Old Brains: Challenges of Digital Interactions:

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# Objectives

- Communication and the brain
- Adolescents' development, brains, and digital behaviors
- It's not all bad: positive aspects of social media for adolescents
- What can adults do to support youth on social media?



# Communication and the Brain

- Human beings are social – much of our brain is involved in social interactions. It works to help us understand and predict each other's behaviors.
- Social brain: networks of brain areas that enable us to recognize and be attuned to others' mental states, emotions, and actions.
- Theory of mind: ability to think about what others are thinking, which develops over childhood
- A complex network of areas is involved in recognizing basic and complex emotions and mental states in others.



# The Social Brain

- Children's brain development depends on social experiences which build strong neural connections (Harvard's Center on the Developing Child)
- Mirror neurons activate to reflect another's actions and emotions, as if we were experiencing the same action or emotion.
- The brain works to reinforce positive social interactions – when someone responds positively to our behavior, the neurotransmitter, dopamine, is released and we experience it as rewarding, leading us to be socially motivated and engaged.



# Verbal and Non-Verbal Communication

- Our brains evolved for face-to-face interactions.
- Before the 15<sup>th</sup> century when the printing press was invented, most people only communicated through face-to-face interactions.
- Brain is highly adapted: research on literature shows that it can create a deep experience of social interactions, which facilitates social understanding, capacity for empathy, and social inference.
- Literature is carefully crafted to provide the emotional and intentional cues that support social understanding.



# Growing Up in a Digital World

- Vast change in the nature of human interaction, with information and communication technologies
- Interactions that were once face-to-face are now digital – teens prefer texting to talking (Pew Report)
- Text-based interactions are limited in non-verbal cues – emotional expressions, gaze, tone, body language.
- But digital conversations are experienced as being more expressive and disclosing, contributing to perceptions of greater similarity and closeness



# The Adolescent Brain: Work in Progress

- Adolescence is a period of significant biological, social, and psychological changes – tied to brain development.
- Capacities for executive function and self-regulation start in early childhood, but connecting neural networks continue develop through adolescence and early adulthood
- Brain structure changes (e.g., decreased grey matter volume, which is, in part, pruning of unused synapses)
- Brain function changes (e.g., recognizing faces & emotions).
- Reward sensitivity increases, which may be positive (e.g., praise for academic achievement) or risky (e.g., peer reinforcement for deviant behaviors)



# Adolescents: The Self and Social Realms

Development of:

- Identity and self awareness: mattering
- Sexuality and sexual orientation
- Autonomy and relatedness
- Close peer relationships, belonging
- Intimate partner relationships



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# Challenges on Social Media for Adolescents (and Us!)

- Complexity of sending and receiving text communications
- Complexity of privacy, consent, & anonymity
- Longevity of text messages and digital images
- Managing one's identity – adolescents have an average of 145 Facebook friends (Girls – 175, Boys – 100) (Pew Report)
- Challenge of understanding the impact of an online communication on the receiver



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# It's Not All Bad!

- Youth rely on technology to socialize and communicate with existing friends, which may contribute to adolescents' identity formation, autonomy, and intimacy
- ICT enables youth to stay connected with friends, regardless of the physical distance between them
- ICT enables youth to seek, access, and offer support
- Youth at the margins (e.g., LGBTQ youth) can find others who are similar to them
- Provides connectedness through gaming



# Are We Trustworthy Supports?

- Many youth who are cyberbullied want adult support and are willing to approach adults who have been helpful before – who were caring, empathetic, and strong listeners
- BUT youth didn't expect teachers at their schools to provide support following cyberbullying
- When unsupportive, there is a risk of not only being unhelpful, but also making life harder for youth
- We're not seen as helpful, without education and experience with ICTs, social media, and cyber

bullying.

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# Adults' Role in Supporting On- and Off-line Interactions

- Role Models – children are highly attuned to our behaviors at all times – still face experiments
- Healthy adult-child relationship – one that values, supports, helps to buffer and doesn't create stress
- “Recognize me!” -- caring, empathetic, and **strong listener**
- Scaffold to self-reflect, regulate, and consider issues of identity, privacy, consent, and impact
- Monitoring does not equal spying



# Digital World is Here to Stay!

- 92% of teens report going online daily (Pew Report)
- Youth are more advanced than adults in ICT use
- It's challenging to get around imposed restrictions
- Uncharted territory – emergence of social responsibility and unwritten codes on social media
- Adolescence is a time of change and risk-taking, which makes digital communication challenging
- Honor mistakes and provide education for digital citizenship.



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Thanks in advance for all your help



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# Useful Resources

- Bullying, Today's Youth, and the Internet – Online Symposium
- [http://link.brightcove.com/services/player/bcpid4800111816001?bckey=AQ~~,AAADf1OjKiE~,mDP7QD494oB1XQX5ezXxoEITdrl\\_lc3U&bclid=4799707198001&bctid=4799749115001](http://link.brightcove.com/services/player/bcpid4800111816001?bckey=AQ~~,AAADf1OjKiE~,mDP7QD494oB1XQX5ezXxoEITdrl_lc3U&bclid=4799707198001&bctid=4799749115001)
- Pew Report Teens, Social Media and Technology  
<http://www.pewinternet.org/2015/04/09/teens-social-media-technology-2015/>

