Welcome to the study of Child & Adolescent Development

Please note these slides are provided as a follow up to our training, some slides may not make sense outside the context of our workshop.

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Module # 1

Brain & Behavior

STC Certification Number: 06565278

Learning to apply latest brain research to mentoring youth
The human brain is the most complex organ in the human body.

While brain development is a life long process, adolescence is
a developmental period with unique and significant brain maturational milestones.

This training will provide insight into the adolescent brain and
behavior. Participants will learn that all behavior is a result of brain activity and that every
risk factor and protective factor in a child's life before and after birth can have an impact on the brain.

Mentors/ Probation Officers/ Educators

Need to have an authoritarian/authoritative role, as do educators.

Yet having an understanding of human development improves your ability to work effectively with youth

Child & Adolescence Development (CAD)

- Children's Development & Behavior
  - Three domains of development
  - Social skills guidance
  - Recognize complexity of cultures etc.. But our focus is on more universal developmental milestones/brain maturation in all humans
  - Start out by understanding that teenagers are basically/developmentally the same as two year old's… (brain growth, food, sleep, self absorbed, striving for autonomy)

Three Domains of Development

1

Every aspect of growth involves all three domains

2

Biosocial = physical growth & development – includes biology and medicine

3

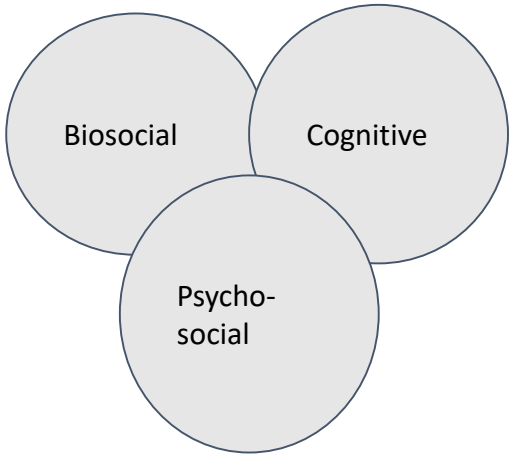
Cognitive = brain maturation & language-includes psychology and education

4

Psychosocial = sociology & anthropology

Biopsychosocial

- A term emphasizing the interaction of the three developmental domains.
- The domains are studied individually but they are completely intertwined



Brain

Brain is the most complex phenomenon in all of biology.

Despite astonishing progress in the last 20 years, it is still difficult to translate all of this research into statements about the complex human behavior such as aggression.

Brain Facts

There is more we DON'T know then we currently KNOW about the brain.

Popular myth that we only use 10% of our brain is flat out wrong. Brain scans show we use most of our brains most of the time, even when sleeping

We sense, process, think, move and dream!

Brain Maturation Key Concepts

- All behavior is a result of brain activity
- Every risk factor and protective factor in a child's life before and after birth can have an impact on the brain
- The development of higher level thinking skills depends on love and attachment.

Brain Maturation

The brain develops from the bottom

Hindbrain = fight or flight – automatic functions, survival (Cerebellum, brainstem)

Midbrain = The “Emotional Center” – emotions, impulse control, memory, sense of belonging (Limbic Brain)

Forebrain = The “Executive Center” Decision making, rational/abstract thinking

Brain & Behavior

It was once thought that genes completely controlled brain development

We thought the brain was totally developed by age 5, then age 7 , 12… now we know that the brain is not totally developed until our early twenties.

It is also clear that the environment plays an equally enormous role and is even involved in turning on genes that may otherwise remain inactive.

Duel Processing & The Brain

Limbic system is activated by puberty whereas the prefrontal cortex matures more gradually over time.

Hence adolescents are swayed by their intuition rather than logic.

Brain Fact

- Your brain keeps developing until your late 40's – The Pre-Frontal Cortex known as the key to what makes us human. The area of the brain that goes through the most protracted development is at the front of the brain.
- It is the part of the brain that is involved in high cognitive function such as decision making, planning and social behavior. It is also to do with understanding other people. It starts to develop in early childhood, is recognized in late adolescence and continues developing well into the 30's and 40's.

It is the part of the brain that makes us human

Brain Fact

Violent homes have the same impact/effect on children's brain as combat on a solider

In both cases the brain becomes increasingly wary of potential threats. In children this may increase susceptibility to mental health problems.

Behavior

- Challenging behavior is so complex that it isn't really possible to talk about its causes. Instead, researchers refer to "risk factors" that may predispose a child to act in an aggressive or antisocial way and "protective factors" that may enable her to avoid such behavior. Risk factors increase the risk of a particular outcome, but they don't determine it. Outcomes depend on a wide range of genetic and environmental influences.

Brain Fact

- Pruning is the process of weeding out unnecessary connections and strengthening the important ones, based on the child's experiences. Some pruning begins very early in development, but the most rapid pruning happens between about age 3 and age 16. Different areas of the brain undergo pruning during different sensitive periods.

- Pruning is a process that is more important than was once believed. Experiences during infancy and childhood form the connections that shape the development of the brain. Pruning is a key part of brain development because it eliminates the connections that are not used often enough. Pruning provides room for the most important networks of connections to grow and expand, making the brain more efficient.

Pruning

Like all parts of the body, different parts of the brain grow at different rates. The limbic system, including the amygdala, where intense fear and excitement originate, matures before the prefrontal cortex, where planning, emotional regulation, and impulse control occur. Myelination and maturation continue in the entire brain but in sequence, proceeding from the inner brain to the cortex and from back to front.

Adolescent Brain

- The result is that the instinctual and emotional areas of the adolescent brain develop ahead of the reflective, analytic areas.

Mirror Neurons

Cells in an observer's brain that are activated by watching an action performed by someone else as they would be if the observer had personally performed the action

Two decades ago, scientists were surprised to discover that a particular region of a monkey's brain responded to actions the monkey had merely observed as if the monkey had actually performed those actions itself.

Mirror Neurons

For example when one monkey saw another reach for a banana, the same brain areas were activated (lit up in brains scans) in both monkeys.

Certain neurons, dubbed mirror neurons, in the F5 area of the observing monkey's prefrontal cortex responded to what was observed.

Mirror Neurons

- Neuroscientists now are finding mirror neurons in several parts of the human brain.
- Neurons fire in the same action sequences in both the actor and observer.
- Human brains mirror much more than reaching for a banana –

What is significant about Mirror Neurons?

- The human mirror neuron system may allow us to go beyond imitating the observed motor acts of others into their intentions and perhaps even their states of mind.

Why Study Mirror Neurons?

1

Anthropologists = might explain cultural transmission and social organization

2

Psychopathologists = autism as a “broken mirror”

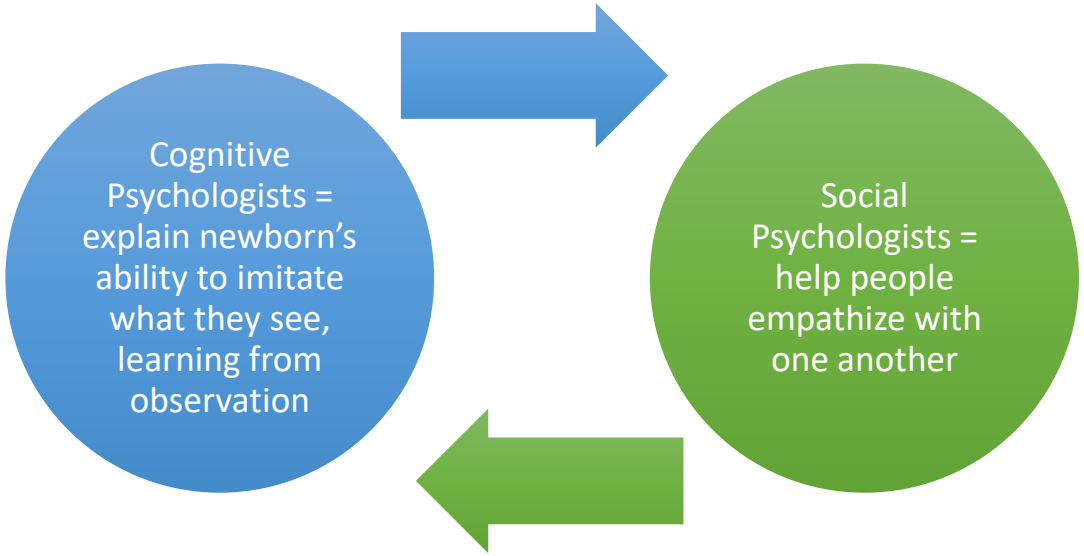
3

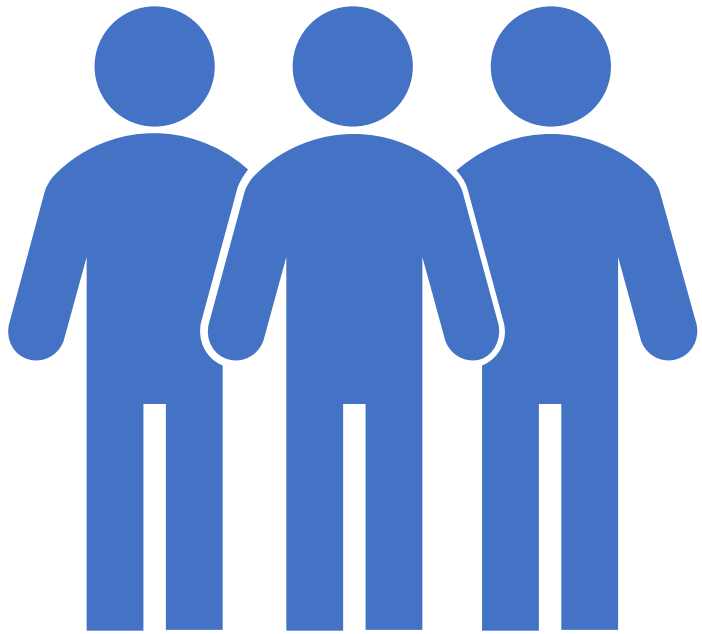
Psychiatrists = abnormalities in the mirroring functions of the brain may trigger the symptoms of schizophrenia

4

Linguists = aid language learning

Mirror Neurons

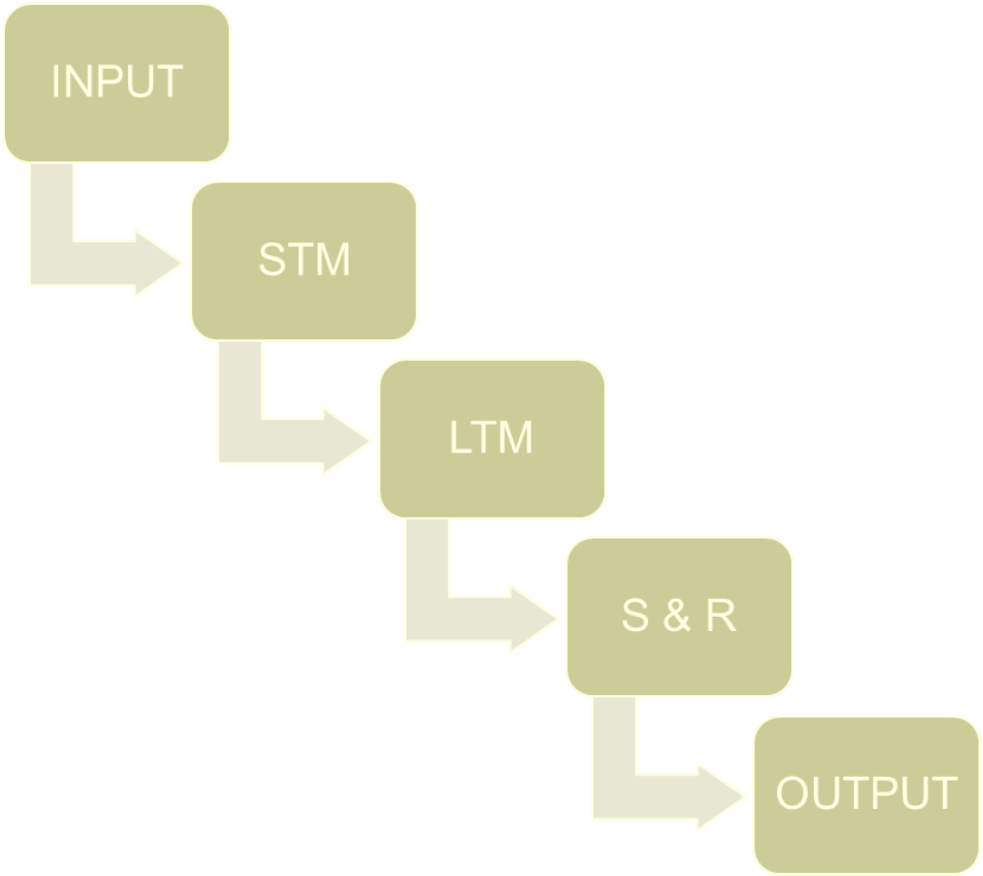




What We Have Learned…

- Behind all of this work will be a growing consensus that mirror neurons evolved in humans so we could learn from observation and communication.

Information Processing Theory



- Brain & Behavior Practical Application

Juvenile Justice Reform A Developmental Approach

- A developmental approach to juvenile justice reform focuses on law enforcement officers being trained in the core curriculum of the science of child and adolescent development. Providing officers and youth outreach staff with a basic understanding of the three domains of development, age and stage milestones and brain maturation.

CAD in Practice

Three Domains = divide all aspects of your program into three domains-

- Sports-Based Youth Development
- Cognitive-Based Youth Development
- Social/Emotional Youth Development

Brain Maturation

- Teenagers and two year old children go through similar developmental milestones.
- Working with adolescents mentors need to understand how sleep, nutrition, physical growth and a sense of moral autonomy impact every decision young people make with regard to life decisions.

Risk Factors vs. Protective Factors

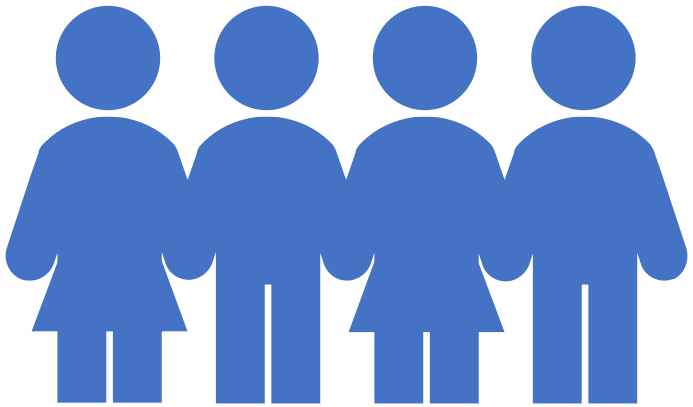
Risk factors and protective factors both impact brain development.

Recognize risk factors impacting the children you work with on a daily basis.

Take a proactive role in becoming a protective factor in a child's life.

Communication

- Adolescents are experiencing an “amygdala hijack” – understand this element of development and be patient with and model healthy communication skills.



Law Enforcement & Child/Adolescent Development

I reach out my hand to yours.. Together we can make an even stronger impact in our communities and in the lives of children.

Thank you ~