

Boys at Risk: Biological and Experiential influences on Intersubjectivity and the Origins of Self

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**In this workshop on BOYS AT RISK, we will discuss
Intersubjectivity within the context of:**

The Risk-Resilience Continuum: Why Boys?

Epigenetic Processes and Toxic Stress

Experiential Vulnerabilities contributing to Risk

Absent and Risky Fathers

Positive Fathers

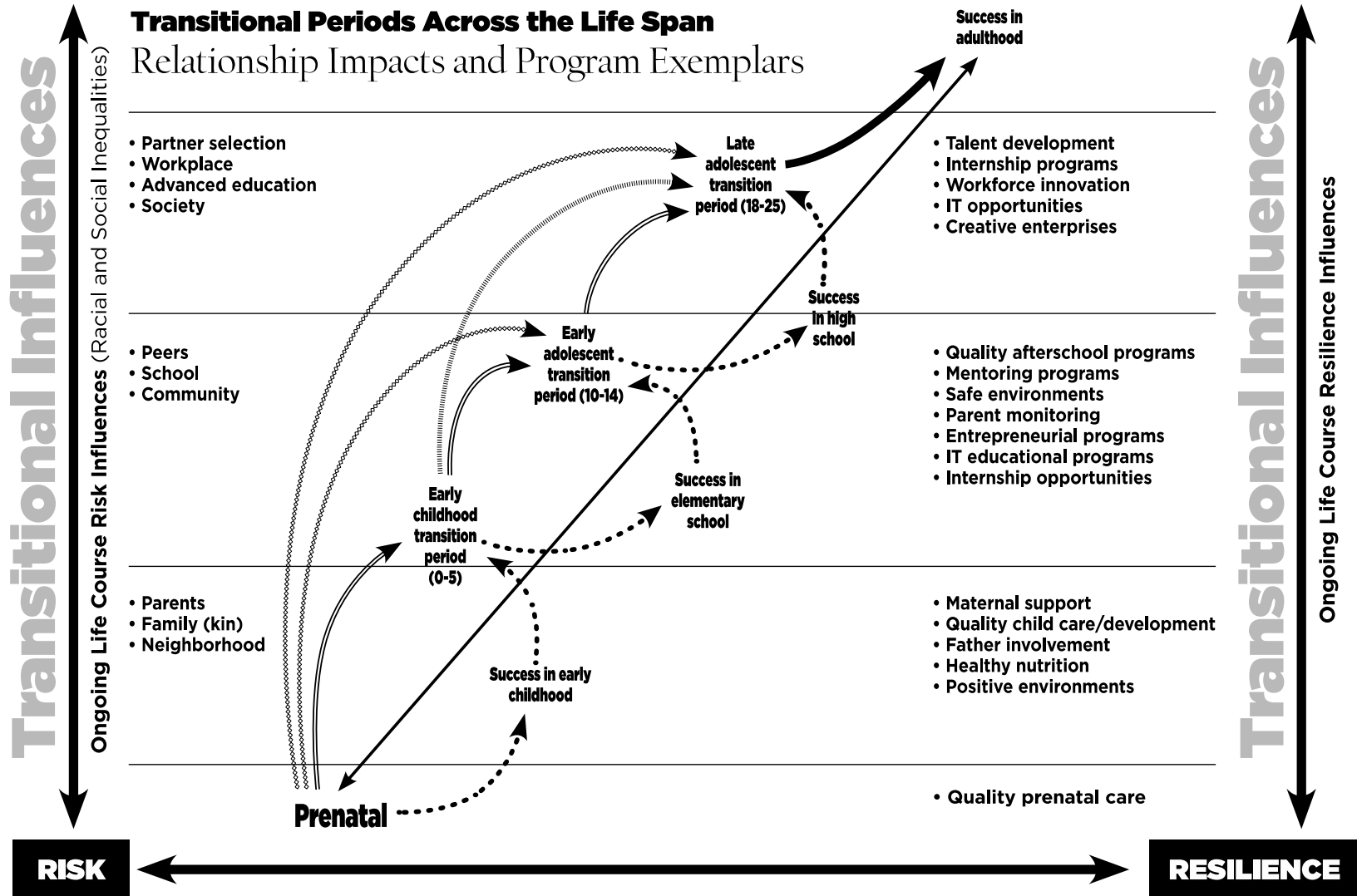
Inter-subjectivity & Meaning Making

Organization of Self and Self-Other Relationships



Risk – Resilience Continuum: The Infancy to Innovation Framework





Critical Development Transitions

- **Prenatal through Early Childhood (0 to 5 years)**
 - Rapid physical, cognitive and socio-emotional development
 - Neurobiological, behavioral, mental networks organization
 - Foundation established for transition from home to school
- **Middle Childhood/Early Adolescence (10 to 15 years)**
 - Rapid neurobiological/biological and psychological changes
 - More autonomy and skill development but increased exposure to risk
 - Sets trajectory for success in high school
- **Late Adolescence/Early Adulthood (18 to 25 years)**
 - Transition from home and school to post-secondary education, employment, and self-sufficiency
 - Must acquire skills and attitudes to be successful in rapidly changing workplace

- RISK CUMULATING INFLUENCES



Photo: Gustav Vigeland Sculpture Park, Oslo Norway 2009

Systemic Sources of Risk Development

- **Through Family Characteristics**
 - Children of alcoholics and other drug-using parents
 - Children of parents with antisocial personality disorder
 - Children of parents with clinical depression
 - Children of parents in conflict
 - Children of parents with low family resources
 - Children with poor prenatal & perinatal histories
- **Through Individual Characteristics**
 - Externalizing behavior, aggression, behavioral undercontrol, oppositional defiant disorder
 - Negative emotionality, depression
 - Attention problems, ADHD
 - Shyness, social withdrawal, social phobias
 - Biological diathesis (genetic, congenital, perinatal)
- **Through Social Environments**
 - High drug use environments
 - High stress environments (violence, poverty, unemployment)
 - Chronic exposure to toxic risk

Table 3. Prevalence of Specific Reported Adverse Childhood Experiences (ACEs), Total and Age

ACE	National Percentage of Children			
	All	0-5	6-11	12-17
Low Income	26	25	26	26
Separation/Divorce	20	10	22	28
Family Alcohol/Drug problems	11	6	12	15
Family Mental Illness	9	6	8	12
Witness Neighborhood Violence	9	3	8	14
Witness Domestic Violence	7	4	8	10
Parent Incarcerated Sometime	7	5	8	8
Parent who Died	3	1	3	5

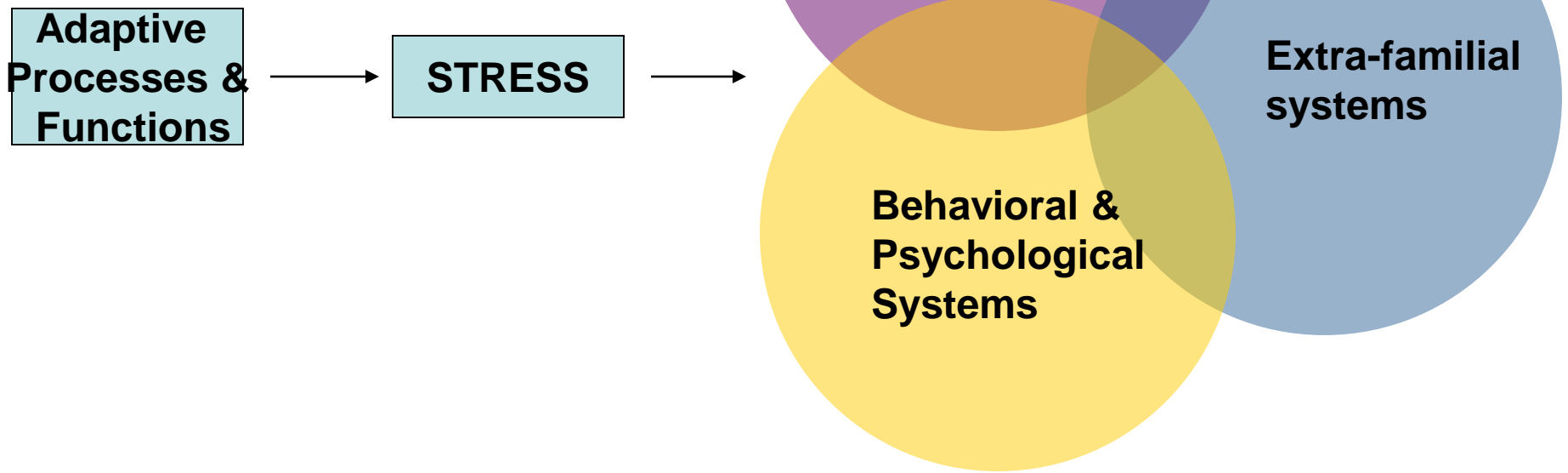
Percent of children nationally with 0 (54%), 1-2 (35%) or 3+ (11%) adverse experiences (aged birth to 17).

Factors Highly Related to Negative Early Organizational Processes

Exposure to multiple, inter-related, and cumulative **toxic risk** factors imposes heavy developmental burdens during early childhood and induces, facilitates, and/or maintains development of dysfunctional behavior patterns.

HPA Axis and Allostasis:

(Sterling & Eyer, 1988).



Types of Allostatic Load (McEwen & Stellar, 1993)

Frequent Stress: Chronic exposure to stressful experience

Failed Shutdown: Failure of homeostatic mechanisms to restore balance

Inadequate Response: Negative feedback systems producing chaotic system overload



- **WHY ARE BOYS AT RISK FOR DEVELOPMENTAL PATHWAYS THAT ARE MORE LIKELY TO LEAD THEM TO NEGATIVE LIFE-COURSE OUTCOMES.**

THE BIOLOGICAL STORY

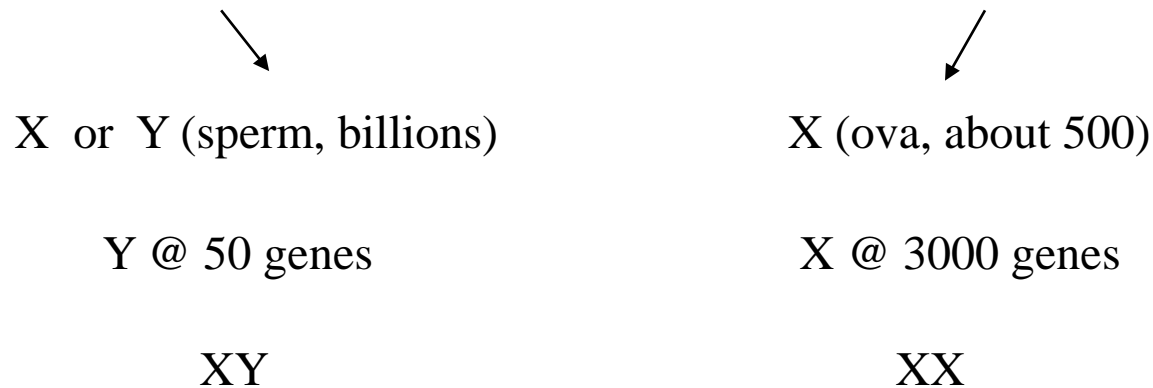


Conception

- Death rate higher in male than female fetuses
- @ 120 XY conceived for every 100 XX
- @ 104/107 XY born for every 100 XX
- Considerable variation across cultural samples, intra-cultural environmental stressors, climate changes, nutrition, age of concept (and of the conceiving couple), etc,

Pushback: Large sample from UK studied, finding 50-50 split: but, the sample was not population based, so may be a selection factor

Lifetime gamete production



Genetic mutation rates

5 times higher on X

more likely to express if paired with a Y, because no gene copy on Y

95% of Y does not exchange DNA with X

Boys at Risk: The Short Aspect of the Big Y

Induces gonads to form testes

HPA stress regulatory system
Slow down of biological maturation
Two year lag in onset of puberty

Prenatal changes in neural systems
Higher testosterone levels in males

Telomeres

Nucleoprotein material on ends of chromosomes that protect genetic code.

Telomerase: enzyme that extends length of telomeres

Adult research: **Shortening of telomeres** related to dementia, osteoporosis, diabetes, stroke, cardiovascular disease, alcoholism, stress



Telomere Shortening in Children

Fragile Family and Child Wellbeing Study:

African American 9 year old boys: **reared in disadvantaged neighborhoods** (low income, low maternal education, unstable family structures, harsh parenting), had **shorter telomeres than boys** reared in advantaged neighborhood.

Boys with specific genetic sensitivity: had **longer telomeres if they lived in advantaged neighborhoods**, than if they lived in disadvantaged neighborhoods.

Mitchell, C., Hobcraft, J. McLanahan, S. S., Siegel, S. R., Berg, A., Brooks-Gunn, J.....Notterman, D. (2014). Social disadvantage, genetic sensitivity, and children's telomere length. *Proceedings of the National Academy of Sciences*, 111 (16), 5944-5969.

Prenatal Exposure

Telomere length in cord blood was significantly **lower for infants whose mothers experienced anxiety** during pregnancy

Entringer, S., Epel, E. S.Wadhwa, P.D. (2011). Stress exposure in intrauterine life is associated with shorter telomere length in young adulthood. *Proceedings of the National Academy of Sciences*, 108 (33), E513-E518.

Bucharest Early Intervention Study: Institutionalized children placed in Foster Care

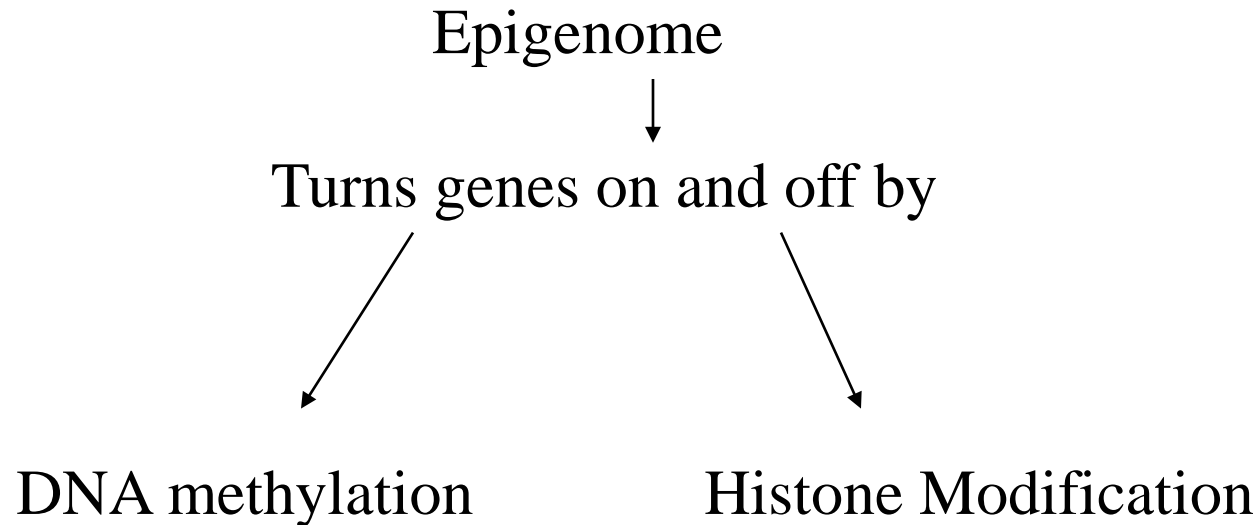
Baseline institutional care at time of Foster Care placement predicted telomere length in girls but not boys

Percentage of institutional care at 54 months of Foster Care predicted telomere length in boys but not girls

Consistent with other evidence that there are gender differences in response to stress, with boys more adversely affected.

Drury, S.S., Theall, K.,.....Nelson, C.A. (2012). Telomere length and early severe social deprivation: linking early adversity and cellular aging. *Molecular Psychiatry*, 17, 719-727.

Genetics, Epigenetics and Gene-Environment Interplay



Methylation turns off genes allowing remaining genes remaining in a cell to regulate expression. Especially relevant to organization of the HPA axis stress regulation system. Occurs primarily via gene-environment interactions.

Epigenetics refers to **altering gene expression through experience without altering the gene sequence.**

Greater Incidence for Boys

Mortality

Diarrhoeal diseases
Measles
Dyphtheria
Tuberculosis
Pneumonia
Syphilis
Respiratory disease syndrome
Haemorrhages
Birth injuries
Sudden Infant Death Syndrome
Infectious disease
Chronic lung disease
Malnutrition
Immunizations
Accidents

Morbidity

Rickets
Meningitis
Septicaemia
Enterovirus
Acute lower respiratory
disease
Malnutrition
Autism
ADHD
ADD
Dyslexia
High activity levels
Higher irritability
Self regulatory problems

Three key points to remember: **Epigenetic modifications**

1. Are dynamic and potentially reversible processes
2. Illustrate how environment and life risk factors may be linked to etiology of mental/behavioral problems
3. Are linked to basic aspects of neurobiological function

Four “Laws” of Behavior Genetics

All human behavioral traits are heritable. (all are affected by genetic variation).

The effect of being raised in the same family is smaller than the effect of genes.

A substantial portion of the variation in complex human behavioral traits is not accounted for by the effects of genes or families.

A typical human behavioral trait is association with very many genetic variants, each of which accounts for a very small percentage of the behavior variability.

Turkheimer, E. (2000). Three laws of behavior genetics and what they mean. *Current Directions in Psychological Science*, 9, 1609-164.

Chabris, C. F., Lee, J. F., Cesarini, D., Benjamin, D. J., & Laibson, D. I. (2015). The fourth law of behavior genetics. *Current Directions in Psychological Science*, 24, 304-312.

Development (Independent of Positive or Negative Outcomes)

Increasingly, **development is understood as change that is:**

Emergent

Epigenetic

Systemic

Organized

Constructive

Complex

(and sometimes chaotic)

Boys at Risk:

Absent and Risky Fathers

Children's Risky Behaviors

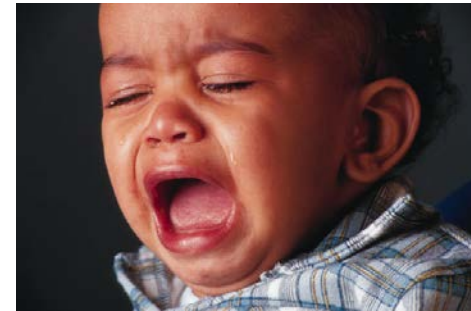
- **Self regulatory dysfunction**
- **Difficult temperament**
- **Attachment (relationship) disorders**
- **Internalizing/externalizing behavior problems**
- **Parent-child relationship disturbances**
- **Schemas for alcohol use and alcohol-linked behavior**
- **Poor value structure**
- **Cognitive deficiencies**
- **High risk peer network**

Fitzgerald, H. E., Zucker, R. A., Puttler, L. I., Caplan, H. M., & Mun, E-Y. (2000). Alcohol abuse/dependence in women and girls: Etiology, course, and subtype variations. *Alcoscope: International Review of Alcoholism Management*. 3(1), 6-10.

Evidence Clearly Indicates that Father Absence is Associated with:

Cognitive Development

- Poor school achievement
- Lower scores on intelligence tests
- Lower grade point averages
- Trouble with mathematical and puzzle tasks
- Difficulties paying attention
- Higher likelihood of being expelled, drop out
- Lower higher education attainment



Social, Emotional & Moral Development

- Poor moral development
- Difficulty delaying gratification
- More impulsivity
- A weaker sense of right and wrong
- Social and emotional maladjustment
- Conduct and anxiety disorders

Developmental Psychopathology

- Suicide
- Deviant peer group selections
- High rates of aggression, bullying, and antisocial behavior
- Higher rates of physical and sexual abuse
- Higher rates of involvement with the criminal justice system
- Higher rates of alcohol and other drug problems
- Earlier onset of sexual intercourse, smoking, AUD
- Higher probability of possessing weapons

Boundary Ambiguity:

		Psychological	
		<i>Present</i>	<i>Absent</i>
Physical	<i>Present</i>	Healthy	Neglect
	<i>Absent</i>	Challenged	Vulnerable

Gorman, L. & Fitzgerald, H. E. (2007). Ambiguous loss, family stress, and infant attachment during times of war. *Journal of ZERO TO THREE*, 27, 20-26.

Father Absence and Epigenetics

“epigenetics may help to address a number of questions about offspring phenotypes that result from **father absence** and **unstable environment**, including what kind of epigenetic process or switch is involved, whether it is partially reversible, what specific processes are involved at the molecular level...and **whether or not the phenotype can be inherited** (p. 32).

RESILIENCE CUMULATING INFLUENCES



- **MOTHERS TALK, CUDDLE, AND PLAY WITH TOYS; FATHERS DO ROUGH AND TUMBLE, ESPECIALLY WITH BOYS (Fitzgerald, 1977; Power, 1981).**



MOTHERS TEACH BABIES ABOUT INNER CONTROL, FATHERS ADD A PLAY DIMENSION, AN AROUSAL DIMENSION AND TEACH BABIES HOW TO GET BACK IN CONTROL (Yogman, 1982).

Yogman, M. (1982). Development of the father-infant relationship. In H. E. Fitzgerald, B.M. Lester & M. Yogman (eds). *Theory and research in behavioral pediatrics* (221-279). New York: Plenum

Father Involvement: Activation Relationship Theory, shifting the focus on what fathers do.

Stimulation: fathers encourage the child's interaction with the outside world

Discipline: fathers provide children with limits that will maintain their safety

fathers.....stand for the recognition of independence and desire as reflected in parental attitudes of **stretching** the child's adaptive capacities, **challenging** children to conquer obstacles, as well as **confronting** the child with the world of differentiation and the demands of reality (Diamond, 1998, pp 262-263).

Diamond, M. J. (1998). Fathers with sons: Psychoanalytic perspectives on “good enough” fathering throughout the life cycle. *Gender and Psychoanalysis: an Interdisciplinary Journal*. 3, 243-299

Good Fathering

“Good fathering is characterized by a high degree of **engagement** with, **accessibility** to, and **responsibility** for children, each of which reflects fathers’ sensitive, mutual delight, developmentally facilitative practice, and other-centered ethics” (p. 135).



Phenomenology

- Edmund Husserl (1859-1938)

Phenomenology: the study of phenomena

Understanding the world as we subjectively experience it
one's self and thoughts (subjectivity)
one's experience with others (intersubjectivity)

Who am I?

Intersubjectivity

Self

Self – Other Differentiation

Self – Other Relationship

Related Concepts:

Empathy

Meaning-making

Mind-reading

Mental models

Representational models

Related Theories:

Simulation theory

Embodied simulation theory

Theory of mind

Theory-Theory

Interaction theory

Systems theory

Daniel Stern: Self and Intersubjectivity

Components of Self	Organizational period
• Emergent Self	birth-2 months
• Core Self	2-6 months (Lewis & Brooks-Gunn categories of self)
• Subjective Self	7-15 months (emergence of Intersubjective relatedness)
• Verbal Self	15 Months---

Intersubjective Relatedness: Sharing Attention, Affect, and Intentionality

inter-attentionality: sharing attention or joint attention

inter-affectivity: social referencing, affective experience enters intersubjectivity:

Affect attunement: “performance of behaviors that express the quality of feeling of a shared affective state without imitating the exact behavioral expression of the inner state.

inter-intentionality: mutual sharing of intentions and motives

Lewis and Brooks-Gunn: Categories of Self

Categorical Self:

Anchored to external context

Gender

Height

Skin Color

Temperament

Intelligence

Religion

Existential Self:

Anchored inwardly (and one's intersubjective sense of self)

Who am I?

Where do I fit into the world?

What can I become?

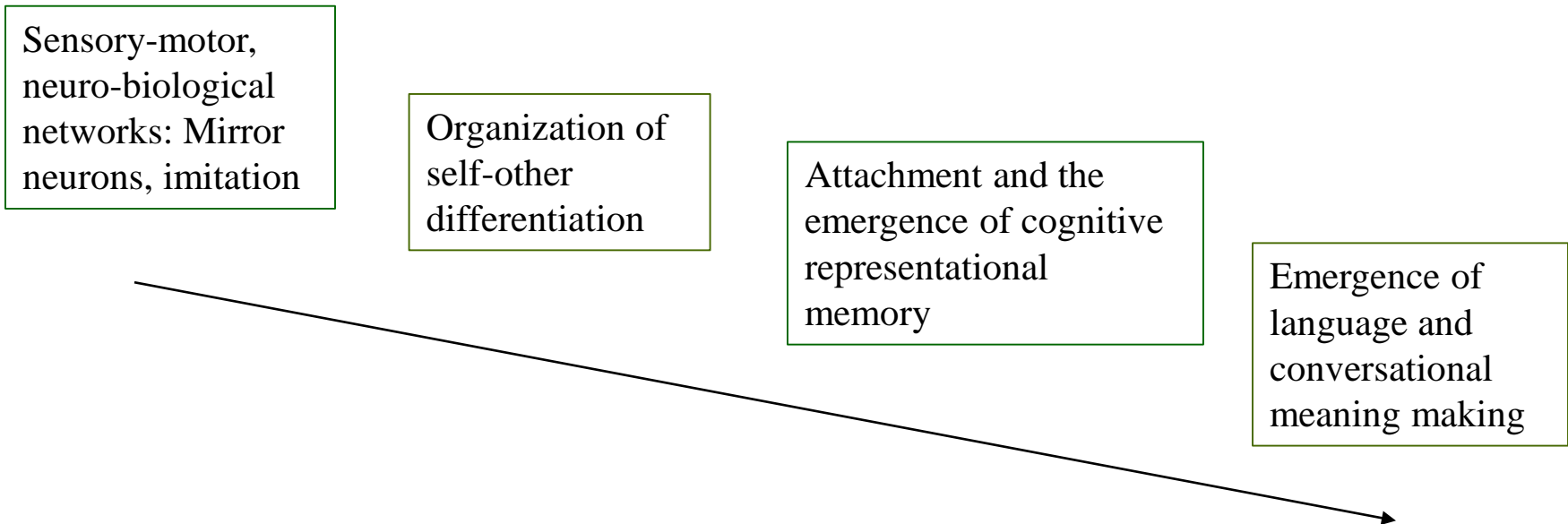
Homo Sapiens and Symbolic Meaning

“Human beings are creatures who are evolved to critically rely upon **sharing symbolic meanings to live in their world**, and such symbolic meanings, ‘depend upon the human capacity to internalize language and use its systems of signs...such a social meaning readiness is a product of our evolutionary past’ (Bruner, 1990).” (p. 271)

An emergent question is therefore: **might the genders construct rather different stories, originating from a sexually selected, evolved neuronal template**, and consequently, might the earliest expression of such narratives be represented in the first free play activities? (p.271).

Embodied Simulation Theory

Proposes that the ability to understand others' intentional behavior has its origins in sensory-motor processing (imitation, mirror neurons) which is then scaffolded into more complex social-cognitive mental abilities



Early Imitative Behaviors

Tongue thrusting,
Mouth gaping,
Finger movements

Meltzoff, A. N., & Moore, M. K. (1977). Imitation of facial and manual gestures by human neonates. *Science*, 198, 75-78

Meltzoff, A. N., & Moore, M. K. (1998). Infant inter-subjectivity: Broadening the dialogue to include imitation, identity and intention. In S. Braten (ed). *Intersubjective communication and emotion in early ontogeny* (pp 47-62). Paris, France: Cambridge University Press.

Perspective taking: **Early experience with intersubjectivity facilitates the development of neurobiological underpinnings for perspective taking or mentalization**—the ability to imagine another’s viewpoint and understand what might be motivating their behavior, a critical capacity for effective human relations. (p 79).

Narvaez, D. (2014). *Neurobiology and the development of human morality: Evolution, culture, and wisdom*. New York: W. W. Norton.

Attachment theory

“Attachment theory supports the notion that **children derive meaning about themselves through parent-child interactions**, determining constructed paradigms of self and self-in-relationships.”

Bocknek, E. L., Brophy-Herb, H. E., Fitzgerald, H. E., Burns-Jager, K., & Carolan, M. T. (2012). Maternal psychological absence and toddlers' social-emotional development: Interpretations from the perspective of boundary ambiguity theory. *Family Process*, 51, 527-541

Gender Differences in Attachment

Attachment: Story Stem Completion Studies

Girls representations expressed more relationship oriented and coherent themes

Boys representations expressed more non-interpersonal and aggressive themes

Doll play

Girls represented more secure mother-child relationships

Boys represented more relationship difficulties

Family Disturbances (across many studies)

Boys have substantially more disorganized attachment

Activation Relationship Theory: Gender Differences

“The affective bond that enables children to open up to the outside world, focusing primarily on parental stimulation of risk taking and control.”

“Children’s feelings of confidence result from parental encouragement of risk-taking during exploration of their environment, with parents protecting [them] through discipline (limit setting, control).”

Study ART through use of the **Risky Situation**: a 12-18 month old variation of the Strange Situation

ART Classifications

Underactivated: inhibited

Activated: Confident

Overactivated: Externalizing

Attachment Classifications

A: Avoidant

B: Secure

C: Resistant

D: Disorganized

Attachment Theory vs. Activation Theory and Child Confidence

Relationship Theory	Parental Role	Parental Behavior	Primary Parent
Attachment	Sensitivity to children in times of distress	stay in close proximity (secure base)	Mother
Activation	Encourage risk taking, exploration	discipline (limit setting, control)	Father

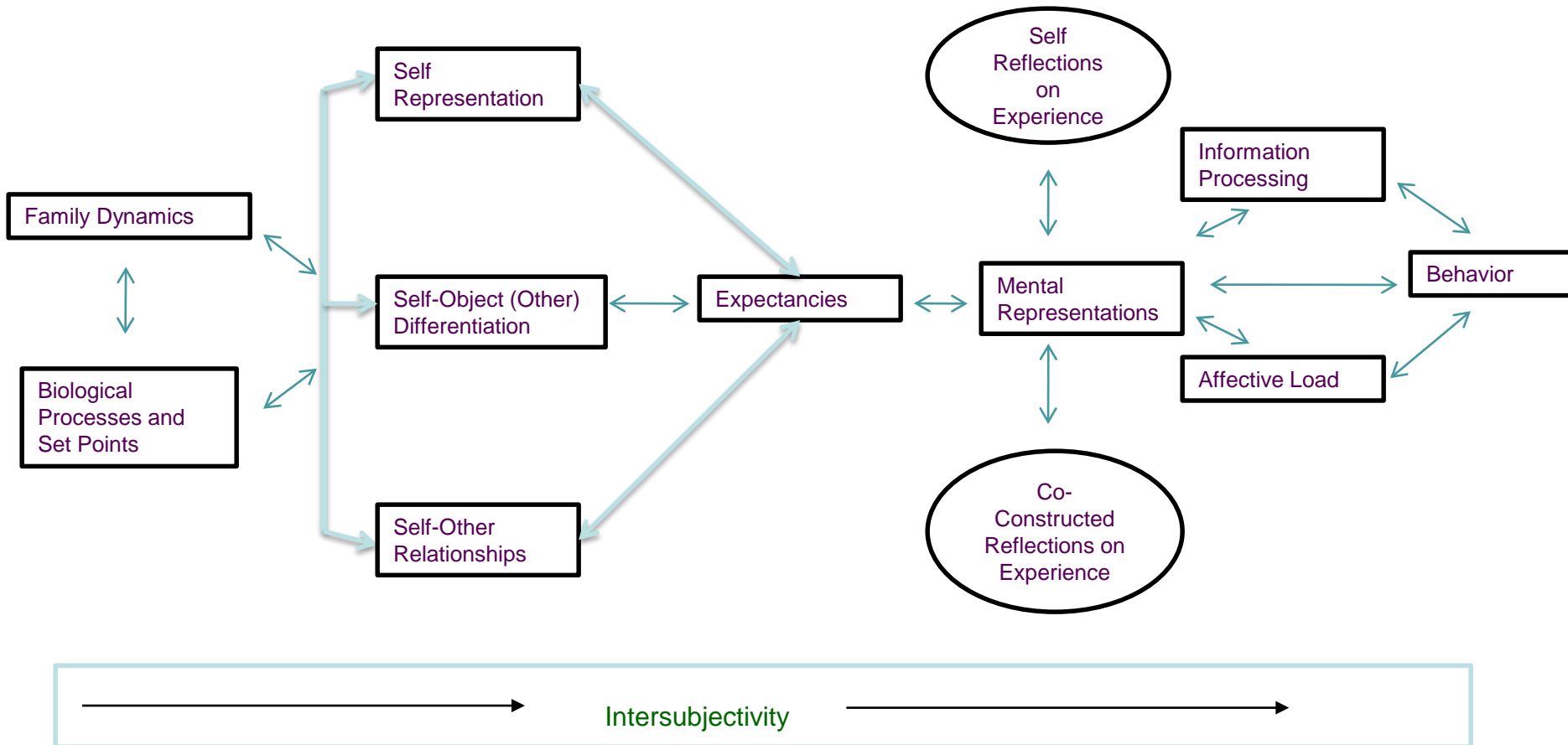
Activation scores for boys are significantly higher than for girls

24.1 percent of boys had disorganized attachments with father

Confident toddlers engage in more rough and tumble play with fathers at age 3.

Also at age 3, boys engage in significantly more physical aggression and become more dominance focused than girls

Mental Representations: Priming Set Points for Developmental Outcomes



Adapted from Fitzgerald, Wong & Zucker (2012). In N. E. Suchman, M. Pajulo, & L. C. Mayes (eds). *Parenting and substance addiction: Developmental approaches to intervention*. New York: Oxford University Press.

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