

# Child Development and Early Learning: Early Learning & Development Theory & Philosophy

Initial Practice Based Professional Standards for Early  
Interventionists/Early Childhood Special Educators (EI/  
ECSE)

1.3

# Standard 1

Candidates understand the impact of different theories and philosophies of early learning and development on assessment, curriculum, instruction, and intervention decisions. Candidates apply knowledge of normative developmental sequences and variations, individual differences within and across the range of abilities, including developmental delays and disabilities, and other direct and indirect contextual features that support or constrain children's development and learning. These contextual factors as well as social, cultural, and linguistic diversity are considered when facilitating meaningful learning experiences and individualizing intervention and instruction across contexts.

# Component: 1.3

- Candidates demonstrate an understanding of characteristics, etiologies, and individual differences within and across the range of abilities, including developmental delays and disabilities, their potential impact on children's early development and learning, and implications for assessment, curriculum, instruction, and intervention.

# Objectives

- Describe the influence of biological factors on a child's development and learning
- Describe the influence of environmental factors on a child's development and learning
- Describe how biological and environmental factors influence the planning and delivery of early intervention and instruction for a child

# Development and Learning

- Biological and environmental factors synergistically influence child development
  - Genetic characteristics interact with the environment continually over time
  - Brain development is most active during the first three years after birth

# Brain Development

- An ongoing interaction between:
  - Genetics
  - Environment
  - Experience

# Development and Learning

- Research shows environmental factors in children's younger years play the largest role in negative outcomes (Nelson et al., 2020)
- Healthy development in the early years provides the building blocks for later years

# Adverse Childhood Experiences (ACES)

- Experience of violence, abuse, neglect
- Witnessing violence at home or in the community
- Loss of primary caregiver
- Caregiver lives with addiction/unaddressed mental health challenges
- Instability (e.g., caregiver hospitalized, incarcerated)



# Consequences of ACES

- Chronic health problems
- Mental health problems
- Negative impact on school success, job opportunities, relationships

# Protective Factors: Resilience



<https://youtu.be/HJvDrT6N-mw>



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# Genetic Factors Inform the Effects of Environment and Experience

- Traits
  - Temperament
  - Health-related traits
  - Neurodiversity
- Inherited conditions/disorders

# Genetic Foundations

- People are made up of trillions of units called **cells**
- Every cell has a control center called the **nucleus** that contains rod-like structures
  - The rod-like structures are called **chromosomes**
  - Chromosomes store and transmit genetic information

# Genetic Foundations

- Genes are a unit of heredity which is transferred from a parent to offspring:
  - Determine some characteristic of the offspring

# Genetic Traits

- Scientists estimate that 20 to 60 percent of temperament is determined by genetics
- Common characteristics:
  - Sociability
  - Emotionally
  - Activity level
  - Persistence

# Video: Temperament

Watch this video on the next slide before discussing

- Why is it important to remember that young children with disabilities/delays also have inborn temperamental characteristics?
- How do you think this knowledge might inform effective early intervention and instructional practices?

# Video: Temperament

## Magic of Everyday Moments: Temperament



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<https://vimeo.com/103169734>



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# Genetic Foundations

- Two forms of each gene occur at the same place on the chromosomes
  - One from the female and one from the male
  - Each gene is called an **allele**
  - Alleles from both parents are called a **homozygous**
  - Alleles that differ are called **heterozygous**

# Genetic Foundations

- Heterozygous pairings, dominant-recessive inheritance occurs when one allele affects the child's characteristics
  - Referred to as dominant
- The second allele, which has no effect, is called recessive

# Genetic Foundations

- Human characteristics and disorders follow the rules of dominant-recessive inheritance
- Gene expression: depends on genetic interaction and gene-environmental interactions

# Genetic Disorders

- Autosomal Dominant Diseases
  - Huntington disease
  - Marfan syndrome

# Genetic Disorders

- Recessive Diseases
  - Cooley's anemia
  - Cystic fibrosis
  - Phenylketonuria (PKU)
  - Sickle cell anemia
  - Tay-Sachs disease
  - Duchenne muscular dystrophy
  - Diabetes insipidus

# Genetic Disorders

- Chromosomal abnormalities can be a cause of developmental delays
- Examples
  - Fragile X
  - Down Syndrome

# Environmental Factors: Prenatal and Perinatal Influences on Development

- Preterm birth/Low birthweight
- Maternal health/pregnancy complications
- Infectious agents
- Environmental Toxins
- Maternal substance use
- Maternal depression

# Preterm Birth and Low Birthweight

- [Premature birth](#): Before 37 weeks gestation – 10.23% of all births
- Low birthweight: less than 2500 grams – 8.31% of all births
- Rates rising in the US
- Associated with increased mortality and developmental delays
- [Early intervention](#) important to scaffold developmentally appropriate planning using adjusted-age milestones



# Risk Factors for Prematurity and LBW

- Maternal Health
- Diet
- Environmental toxins
- Substance use during pregnancy
- Infectious agents
- Stress and depression
- Racial disparities

# Maternal health and pregnancy complications

Some health problems that occur before a woman is pregnant, or those that occur while she is pregnant, can have a negative effect on outcomes for both the mother and her baby. These include:

[Anemia](#)

[Diabetes](#)

[Hypertension](#)

[Infections](#)

[Obesity and weight gain](#)

# Maternal Diet

- [Adequate nutrition during pregnancy](#) is important to the healthy development of the growing fetus and to the health of the mother
- Some nutrients are particularly important during pregnancy, and are best provided in a prenatal supplement in addition to a healthy diet, including [folic acid](#), calcium, and [iron](#)

# Infectious Agents

HIV, CMV, Toxoplasmosis, Listeria, Rubella, and Zika are all known to pose serious threats to the healthy development of the fetus

# Environmental Toxins

- Environmental toxins in the air, water, and soil pass through the placenta and accumulate in the fetus
- Prenatal exposure linked to adverse outcomes
- In the US, minority populations are more likely to live in the counties with higher levels of outdoor air pollution, as well as indoor pollutants such as lead and pesticides
- Prevention starts when we [increase awareness about toxic environmental agents](#)

# Substance Use During Pregnancy

## Opioid use during pregnancy

- Increased exponentially over the past decade
- Infants chronically exposed to opioids in utero are often born with Neonatal Abstinence Syndrome (NAS)
- Long-term opioid use has also been linked to preterm birth, stillbirth, and specific birth defects

# Substance Use During Pregnancy: Alcohol

- [Fetal Alcohol Spectrum Disorders](#) (FASD): variety of disorders that can occur when a pregnant woman drinks alcohol.
- Fetal Alcohol Syndrome (FAS)
- Alcohol-Related Neurodevelopmental Disorder (ARND)
- Alcohol-Related Birth Defects (ARBD)

# Stress and Depression

- Depression occurs at around double the rate for a woman of childbearing age during pregnancy
- The effect of depression shares overlap with the impact of high levels of maternal stress.
- Associated with higher rates of prematurity



# Social Determinants of Health (SDOH)

- Conditions in the environments where people are born, live, learn, work, play, worship, and age affect a wide range of health, functioning, and quality-of-life outcomes and risks.

# Examples:

## Social Determinants of Health

- Safe housing, transportation, and neighborhoods
- [Racism](#), discrimination, and violence
- Education, job opportunities, and income
- Access to nutritious foods and physical activity
- Polluted air and water
- Language and literacy skills

# Social Determinants of Health: 5 Domains

1. Economic stability
2. Education access and quality
3. Health care access and quality
4. Neighborhood and built environment
5. Social and community context

# 1. Economic Stability

- Child health and development outcomes are directly impacted by conditions of economic instability
- Unemployment, underemployment
- Low income despite multiple jobs
- Limited access to food, healthcare, housing

## 2. Education Access and Quality

- Limited access to good schools
- Racial and disability bias in the educational environment
- Inadequate educational supports and accommodation for children with disabilities
- Vulnerability to social discrimination like bullying and exclusion

# 3. Health Care Access and Quality

- 1 in 10 people in US do not have health insurance
- Parents and caregivers lack access to care
- [The rate of uninsured children has increased rapidly since 2017](#)
- Developmental trajectories are impacted when children do not have access to health care

## 4. Neighborhood/Built Environment

- High rates of violence
- Unsafe air and water
- High levels of noise pollution
- Limited transportation to access health, food, education resources

# 5. Social and Community Context

- Unsafe neighborhoods
- Discrimination
- Low access to community support
- Positive relationships increase family capacity to care for their children



# Bringing It All Together To Support Healthy Development

- [Brain Wonders: Nurturing Healthy Brain Development from Birth](#)
- How do the concepts in this video inform the essential components of intervention for children with delays and disabilities as well as for typically-developing children?

# Brain Wonders: Nurturing Healthy Brain Development from Birth



<https://vimeo.com/103169425>



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# Group Activity

- Read [Maria's Story](#)
- Identify the genetic, prenatal, environmental, and experiential influences you see as important this case
- What social determinants of health may be active for this family? What strengths do you see? Needs?

# References and Resources

- Berk, L.E., (2019). Child Development, 10<sup>th</sup> Edition. Pearson.
- Centers for Disease Control and Prevention: [Preventing Adverse Childhood Experiences | Violence Prevention | Injury Center | CDC](#)
- Nelson, C.A., Bhutta, Z.A., Harris, N.B, Danese, A., & Samara, M., (2020). Adversity in childhood is linked to mental and physical health throughout life. *British Medical Journal*, 371:m3048; <http://dx.doi.org/10.1136/bmj.m3048>

# References and Resources

- Patrick, S.W., Barfield, W.D., & Poindexter, B.B., (2020). Neonatal Opioid Withdrawal Syndrome, *Pediatrics*; Vol. 146(5) e2020029074; [DOI: 10.1542/peds.2020-029074](https://doi.org/10.1542/peds.2020-029074)

# References and Resources

- March of Dimes: [Getting services for your baby after the NICU \(marchofdimes.org\)](http://marchofdimes.org)
- Zero to Three: Temperament  
<https://www.zerotothree.org/espanol/temperament>
- Office on Women's Health: [Iron-deficiency anemia | Office on Women's Health \(womenshealth.gov\)](http://womenshealth.gov)

# References and Resources

- [Diabetes During Pregnancy | Maternal Infant Health | Reproductive Health | CDC](#)
- [High Blood Pressure Symptoms and Causes | cdc.gov](#)
- [Pregnancy complications | Office on Women's Health \(womenshealth.gov\)](#)
- [Overweight & Obesity | CDC](#)

# References and Resources

- [Pregnant Women, Infants, and Children | Gender | HIV by Group | HIV/AIDS | CDC](#)
- [Cytomegalovirus \(CMV\) and Congenital CMV Infection | CDC](#)
- [People at Risk - Pregnant Women and Newborns | Listeria | CDC](#)
- [CDC - Toxoplasmosis - General Information - Pregnant Women](#)
- [Pregnancy and Rubella | CDC](#)
- [About Zika Virus Disease | Zika virus | CDC](#)



# References and Resources

- Office of Disease Prevention and Health Promotion: [Eat Healthy During Pregnancy: Quick tips - MyHealthfinder | health.gov](#)
- University of California San Francisco, Pediatric Environment Health Toolkit: [Pediatric Environmental Health - the Toolkit \(ucsf.edu\)](#)
- [Opioid Use During Pregnancy | CDC](#)

# References and Resources

- [Basics about FASDs | CDC](#)
- Healthy People 2030, U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Retrieved [date graphic was accessed], from <https://health.gov/healthypeople/objectives-and-data/social-determinants-health>

# References and Resources

- [Brain Wonders: Nurturing Healthy Brain Development from Birth • ZERO TO THREE](#)
- Early Childhood Personnel Center Website: Cross disciplinary case studies, Maria's story [Case-Study-Maria-Professionalism.pdf \(ecpcta.org\)](#)

# Disclaimer

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