

## **HPS121 Psychology B: Individual and Social Development Exam Notes**

### **Topic 1: Human Development**

#### **1. Guiding Developmental Research:**

Broad issues guide much developmental research:

- Nature vs nurture: how much of development is due to genetics and how much is due to the environment, how do they interact?
- Sensitive and critical periods:
  - Sensitive periods: optimal age range for certain experiences, but if those experiences occur at another time normal development is still possible.
  - Critical periods: age range during which certain experiences must occur for development to proceed normally or along a certain path.
- Continuity vs discontinuity: is development continuous and gradual, or is it discontinuous and progresses through qualitatively distinct stages, or is it both?
- Stability vs change: how consistent are characteristics through aging?

Designs used to conduct developmental research:

- Cross-sectional design: compares data of people from a population at a specific point in time.
- Longitudinal design: repeatedly tests the same participants through a period.
- Sequential design: combines cross-sectional and longitudinal design.

#### **2. The effect of genes and the environment on prenatal development:**

Development begins in the womb:

- Germinal stage: the first two weeks, fertilised ovum is called a zygote.
- Embryonic stage: week 2-8, cell mass called an embryo. The beginning of this stage is when the umbilical cord and the placenta develop, by the eighth week the heart beats, the brain is developing, and facial features like eyes can be recognised.
- Foetal stage: week 9-birth, called a foetus, the muscles strengthen, bodily systems continue to develop, at 24 weeks the eyes open, at 27 weeks the foetus reaches the age of viability (likely to survive outside the womb).

Sex determination:

- Sex cells (ova and sperm) have 23 chromosomes, these pairs unite at conception. In the 23<sup>rd</sup> pair females carry two X chromosomes so the baby gets one X chromosome from the mother, males have one X and one Y chromosome so the baby will either get an X from the father and therefore be female or get a Y and therefore be a male.
- At 6-8 weeks after conception the TDF gene in the Y chromosome initiates development of testes, the testes then secrete the sex hormones androgens, the absence of androgen during this critical period results in the development of female organs.

Teratogens:

- Teratogens: external agents that cause abnormal prenatal development.
  - Rubella (German measles): mother contracting rubella, especially in early pregnancy can cause blindness, deafness, heart defects, and mental retardation.
  - Sexually Transmitted Diseases (STDs): can pass from mother to child and depending on the disease may cause brain damage, blindness, deafness, or stillbirths.
  - Foetal Alcohol Spectrum Disorder (FASD): a range of mild to severe cognitive, behavioural, and/or physical deficits caused by prenatal exposure to alcohol.
    - Foetal Alcohol Syndrome (FAS): a cluster of severe developmental abnormalities like facial abnormalities, small, malformed brains and psychological impairments.

- Drugs and environmental toxins like mercury, lead, and radiation also cause birth defects.

### **3. How infants and children develop physically, cognitively, socially, and emotionally:**

How perception introduces the world:

- Newborns can see objects that are approximately 30cm away most clearly, but do have poor vision that slowly develops.
  - Robert Fantz (1961) used the preferential looking procedure to determine that newborns prefer complex patterns to look at.
- Newborns have a reasonably well-developed sense of taste, can distinguish different odours, can hear quite well and prefer sounds that are familiar to them.

How physical development is influenced by biological, environmental, and cultural influences:

- Maturation: the genetically programmed biological processes that govern growth.
- Physical and motor development follow several principles:
  - Cephalocaudal principle: the tendency for development to proceed in a head-to-foot direction.
  - Proximodistal principle: development begins among the innermost parts of the body and continues towards the outermost parts.
- Environment and culture influence development:
  - Epigenetics: changes in gene expression that are independent of DNA and instead are caused by environmental factors.
  - Studies with newborn puppies show those that grow up in enriched environments develop a thicker cortex, more synaptic connections, more complex dendritic arbours, and more neurotransmitters that enhance learning.

Piaget stages of development:

- Sensorimotor: birth-2 years, understand world primarily through sensory experiences and physical (motor) interactions with objects.
  - Begin to think symbolically.
  - Achieve object permanence: the understanding that an object exists even when it can no longer be seen.
- Preoperational: 2-7 years, represent the world symbolically through words and mental images but do not yet understand basic mental operations or rules
  - Don't understand conservation: that basic properties of objects such as volume or mass stay the same even when outside appearance changes.
  - Exhibit centration: focussing on one aspect of the situation.
  - Thinking displays irreversibility: difficult to mentally reverse an action.
  - Exhibit egocentrism: difficulty viewing the world from someone else's perspective.
- Concrete operational stage: 7-12 years, can think logically about concrete events.
  - Understands conservation and display reversibility.
- Formal operational stage: 12+ years, can think more logically, abstractly, and flexibly, they can also for hypotheses and systematically test them.

Information-processing approaches to development:

- Information-search strategies: older children can systematically search for information.
- Processing speed, attention, and response inhibition: the speed children process information at increases with age.
- Working memory and long-term memory: Older children can retain and manipulate information better, also more likely to use strategies that improve memory, and have more information stored in long-term memory.