Introduction to Psychology Course Notes

Introduction to Psychology – Week 1 – Lecture and Tutorial Notes

Lecture Notes – Developmental Psychology – Biological Development

Outline

- Introduction to developmental psychology.
  - What is developmental psychology?
  - Why is it useful to health professionals?
- Factors related to human development.
  - Development as a life long process.
  - Influences on development.
  - How we change and stay the same over the lifespan.
  - Human development in a social context.

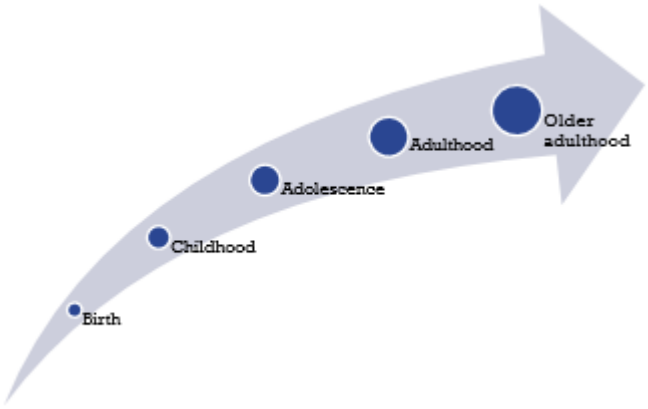
Why is Developmental Psychology Important?

- Understanding normal development.
  - So we can understand how we might work with someone of a particular developmental stage.
  - So we can understand when things go wrong with development.
- Understanding factors that affect development.
- Understanding continuity and change with development.

What is Developmental Psychology about?

- What kinds of development are we interested in?
  - Physical (including neural)
  - Cognitive (including intellectual)
  - Social (including emotional).
- These are interdependent domains.
  - Changes in one likely to cause change in others.

Lifelong Development



- Older theories ended at adolescence.
- Acquiring and losing skills and functions.

Where Do We All Start?

- Tabula Rasa? (Locke).
  - Blank slate.
  - Subject to environment.
  - Didn't recognise genetics.
- Small Adults (Rousseau).
  - Purely small versions of adult selves.

Influences by Birth

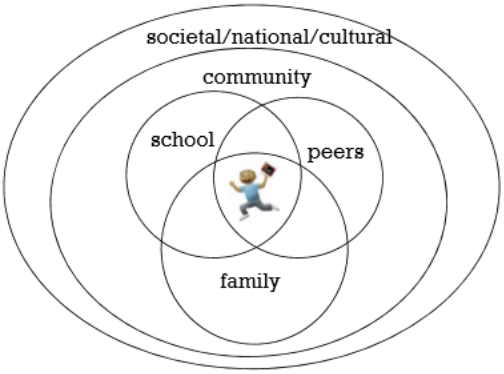
- Shared human genes.

- Unique genetic variation.
- Gene-environment interaction.
    - Epigenetic, gene witches.
- Prenatal environment.
    - What mother is exposed to; teratogens impact.
- Hormonal activity.

Nature vs Nurture
- Nature = genetics; nurture = environment.
- Nature contributes strongly to some characteristics; e.g. physical size, appearance.
- More complex traits are influenced by environmental factors as well as genes; e.g. intelligence, personality.

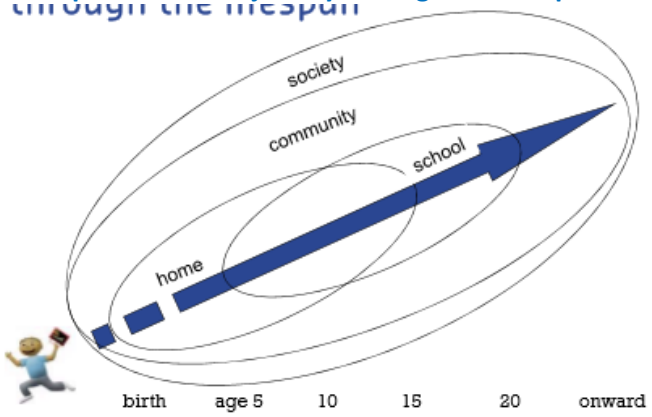
"Nature via Nurture" (Ridley, 2003)
- Hereditary creates predispositions.
- Environment influences how they develop.
- Can change genetic pattern through environment.
- No stimuli may mean individual does not reach intelligence predisposition.

The Social Ecology Model of Human Development



- We develop in different environments.
- All have different influences and all impacting on development.

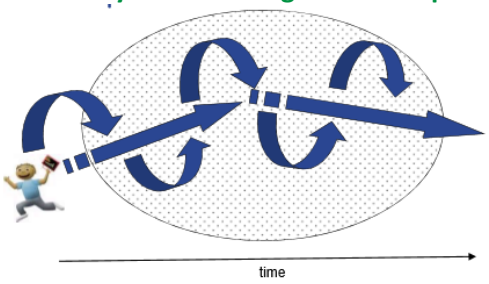
Development as a Trajectory Through the Lifespan



- Environments all influencing at different times.
- As we get older different things influence development.

Developmental Psychology Research
- Cross-sectional research: different participants of various ages are compared at one point in time to determine age related differences; open to cohort effect.
- Longitudinal research: the same participants are studied at various ages to determine age-related changes; long, slow, expensive process.

Continuity versus Change in Development



Continuity in Development
- Strong consistencies over time in
  - Intelligence
  - Personality
  - Social skills.
- Why?
  - Effect of biological characteristics.
  - Individual shaping their environment and experiences.
  - Cumulative effects of positive (or negative) experiences.

Differences in Developmental Trajectories
- Quantitative differences
  - e.g. Individuals with a developmental delay or intellectual disability usually go through same stages of development, but at a slower pace.
- Qualitative differences
  - e.g. Individuals with autism spectrum disorders develop social and emotional skills quite differently than normally-developing peers

Growth and Decline with Development
- Many areas of human ability functioning continue to increase with age, or are resistant to decline in normal aging.
- e.g. Crystallise intelligence, vocabulary.

Developmental as an Active Process
- Reciprocal influences: individuals continuously interact with an ever-changing set of contexts.
- Active agency: the individual can change the context as much as the context can change the individual.
- Adaptiveness: individuals operate in ways that make sense given their (perception) of their environment.
- Modifying environment = active process.

Constructivism
- Through engaging with the world and things in it, children come to construct schema – mental representations that help us understand how the world works (Jean Piaget).

Active Thinking (Jean Piaget)
- **Assimilation**: taking in new information and incorporating it into existing schemas.
  - e.g. cats can be ginger, adding white and black into colour of cat schemas.
- **Accommodation**: adjusting current schemas to account for new information that does not fit old representation.
  - e.g. modifying schemas because not all cats are fluffy.

Development through Social Interaction (Vygotsky)
- Importance of social interaction in development.
  - Importance of learning from contact with others.
  - Learning 'scripts' for activities in the world.

Summary of Main Points
- Humans are actively involved in their own developmental process, which involves the interaction of inherited biological characteristics, and the physical, psychosocial, and sociocultural environment.

- Human development involves both continuity and change, and growth and decline over the lifespan.
- Taking a developmental perspective is important for all areas of psychology.

Tutorial Notes – Developmental Psychology – Biological Development

What is Psychology?

- "…the study of the mind, behaviour, and the relationship between them…" (Sternberg, 1988, p. 6).
- Key characteristics:
  - Scientific study of behaviour.
  - Strong theoretical underpinnings.
  - Strong research basis.
  - Emphasis on empirical evidence.

Goals of Psychology

- Describe behaviour: what, where, when it happens.
- Explain behaviour: why it happens.
- Predict behaviour: what will happen next.
- Change behaviour: individuals, groups, society.

Domains of Human Development

- Physical development (including neural development).
- Cognitive development (including intellectual development).
- Social development (including emotional development).

Cognitive Development

- **Cognition** refers to mental activities associated with thinking, knowing, remembering and communicating.
- Cognitive development – Swiss Developmental Psychologist.

Piaget's Theory of Cognitive Development

Typical Age Range	Description of Stage	Developmental Phenomena
0 – 2	Sensorimotor - Experiencing the world through senses and actions (looking, touching, mouthing)	- Object permanence - Stranger anxiety
2 – 7	Preoperational - Representing things with words and images but lacking logical reasoning	- Pretend play - Egocentrism - Language developmental
7 – 11	Concrete operational - Thinking logically about concrete events; grasping concrete analogies and preforming arithmetical operations	- Conservation - Mathematical transformations
12 through to adulthood	Formal operational - Abstract reasoning	- Abstract logic - Potential for moral reasoning

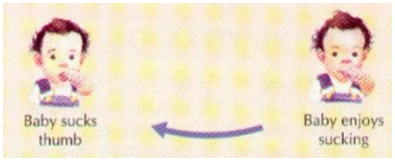
Stage 1 – Sensorimotor

- Birth to 2 years.
- Infant schemas are simple reflexes (e.g. sucking, grasping) and interactions with people and objects.
- Circular reactions.
-Object permanence.
- Stranger anxiety.

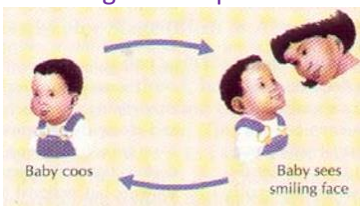
<u>Newborn Primitive Reflexes</u>

- Critical to survival in the outside world.
- Not all are completely understood – evolution.

Primary Circular Reactions
- Action and response both involve infant's own body (1 to 4 months).



Secondary Circular Reactions
- Action gets a response from another person or object, leading to baby repeating original action (4 to 8 months).



Tertiary Circular Reactions
- Action gets one pleasing result, leading baby to perform similar actions to get similar results (12 to 18 months).

Object Permanence
- The awareness that things continue to exist even when not perceived.

Stage 2: Preoperational
- Age 2 to 7 years.
- Child begins to use mental representations but problem solving is limited.
- Child can employ mental symbols (e.g. symbolic/fantasy play, deferred imitation, drawing).
- Language development.
- Egocentrism.

Egocentrism
- The inability of the preoperational child to take another's point of view.
- The pre-school child cannot assume the role of another person or recognise that other viewpoints exist.

Theory of Mind
- People's ideas about their own and others' mental states.
    - About their feelings, perceptions, and thoughts and the behaviour these might predict.
    - Usually develops around age 4-5 years.
- Autism – a disorder marked by impaired theory of mind. Individuals with autism have difficulty understanding other people's emotions, motives, desires, etc.

Stage 3: Concrete Operations
- Age 7 to 11 years.
- Child performs mental operations (e.g. conservation).
- Logical thinking.

Conservation Test
- **Conservation** is the ability to recognise that a given quantity, weight or volume remains the same despite changes in shape, length, or position.

Stage 4: Formal Operations
- From 12 years on.
- Abstract thinking
    - Imagined realities and images.
- Child can use formal problem solving.

Assessing Piaget's Theory
- Piaget is identified as one of the century's most influential scientists and thinkers as he identified significant cognitive milestones.
- Key criticisms:
    - Development thought to be more continuous than stage-like.
    - Abilities were underestimated.
    - Did not explain cultural differences in abilities.
    - Neglected the role of emotion.

Alternative Approach
- Information Processing Approach
    - Assumes gradual changes in mental capacity rather than stages.
- Has provided insight into two major areas of cognition
    - Attention
    - Memory.

Introduction to Psychology – Week 1 – Reading Notes

Chapter 12 – Physical and Cognitive Development – Concept Map

Issues in Developmental Psychology

- Nature and nurture both contribute to development, and their roles are not easily separated because environmental events often turn genes on and off.
- Human development is characterised by **critical periods** – central to specific types of learning that modify future development.
- A contentious issue is whether development occurs in **stages** (relatively discrete steps through which everyone progresses in the same sequence) or is continuous (involving steady and gradual changes).

Studying Development

- Cross sectional studies compare groups of participants of different ages at a single time to provide a picture of age differences.
- Longitudinal studies assess the same individuals over time, providing the opportunities to assess age changes.
- Sequential studies minimise cohort effects by studying multiple cohorts longitudinally.

Physical Development and Its Psychological Consequences

- The prenatal period is divided into three stages: germinal period, embryonic period and foetal period.
- At birth, infants possess many adaptive **reflexes**, such as rooting and sucking, which help ensure that the infant will get nourishment; motor development follows a universal sequence.
- Growth rates for girls and boys are roughly equal until age 10. At that point, girls begin a growth spurt that usually peaks at age 12, and boys typically follow suit about two or three years later. Physical growth is virtually complete by the end of adolescence.
- Gradual and less dramatic growth changes occur during adulthood. A gradual decline in physical abilities, including muscular strength and sensory functioning, occurs with ageing.

Cognitive Development in Infancy, Childhood and Adolescence

- Infants can perceive subtle differences, such as the sound of their mother's and another women's voice, from birth.
- Piaget argued that children develop knowledge by constructing reality out of their own experience, mixing what they observe with their own ideas about how the world works. There are four stages of cognitive development.
    - **Sensorimotor**: thought and actions are virtually identical, as the infant explores the world with its senses and behaviours; child is **egocentric**.
    - **Preoperational**: symbolic thought develops; objects permanence is fully established; the child cannot coordinate different physical attributes of objects or consider different perspectives.
    - **Concrete operational**: the child is able to perform reversible mental operations on representations of objects; understanding of conservation develops; the child can apply logic to concrete situations.
    - **Formal operational**: the adolescent (or adult) can apply logic more abstractly; hypothetical thinking develops.
- Vygotsky developed a **zone of proximal development (ZPD)** that reflects a continuum of cognitive development, ranging from the child's individual capacity for problem solving to a more advanced and collaboratively based level of cognitive development.
- According to the information-processing approach to cognitive development, changes in processing speed, knowledge based, automatisation and metacognition occur with age.
- **Neo-Piagetian theorists** attempt to integrate an understanding of the broad stages of Piaget's theory with an information-processing approach; an important factor in qualitative changes in development is an increasing capacity for **working memory**.

Cognitive Development and Change in Adulthood

- In later life, cognitive declines are shown in the following facilities: processing speed, working memory capacity, explicit memory retrieval, problem-solving strategies and fluid intelligence. Other functions show little or no noticeable decline, including many encoding processes, implicit memory, aspects of everyday memory and crystallised intelligence.
- A small proportion of the population suffers incurable progressive **dementia** (e.g., **Alzheimer's disease**).
- The majority of people maintain sharp mental functioning even through old age.

Chapter 12 – Physical and Cognitive Development

- Changes in the way people understand reality and cultural beliefs are a central focus of **developmental psychology**, which studies the way humans develop and change over time.
- Psychologists now tend to adopt a life-span developmental perspective that considers both constancy and change, and gains and losses in functioning, that occur at different points over the entire human life cycle.

Chapter 12 – Physical and Cognitive Development – Issues in Developmental Psychology

Nature and Nurture

- For many years psychologists have argued as to the extent to which changes in individuals over time reflect the influence of genetically programmed maturation (nature) or of learning and experience (nurture).
- **Maturation** refers to biologically based changes that follow an orderly sequence, each step setting the stage of the next step according to an age-related timetable. Unless reared in a profoundly deprived environment or physically impaired, virtually all human infants follow these developmental patterns in the same sequences and at roughly the same age, give or take a few months.
- Most psychologists believe that development reflects the action and mutual influence of genes and environment.
- Genetic blueprints do not express themselves without environmental input. Environmental events turn genes on and off. Thus, sensory stimulation is necessary for some genes to become activated.

The Importance of Early Experience

- **Critical periods** are periods of special sensitivity to specific types of learning and sensory stimulation that shape the capacity for future development.

Evidence for Critical Periods

- The concept of critical periods initially came from embryology, as researchers discovered that toxic substances could affect the developing foetus but only if the foetus were exposed at very specific points in development.
- The concept of critical periods in humans is more controversial.
- Human development is more flexible than development in other animals, but the brain is, in fact, particularly sensitive to certain kinds of environmental input at certain times.
- During some periods, the nervous system is most sensitive to forming new synapses between neurons, given the right environmental stimulus.

The Impact of Early Abuse or Deprivation

- Factors affecting the impact of recurrent neglect/abuse include the child's age and stage of development; the type, severity, frequency and duration of abuse/neglect; and the relationship between child and abuser.
- Not all children are affected in the same way or in the long-term, with some children being adaptive or resilient to the situation.

- The most appropriate conclusion to be reached at present is that humans have **sensitive periods** – times that are more important to subsequent development than others.

Stages or Continuous Change?

- According to one view, development occurs in **stages**, relatively discrete steps through which everyone progresses in the same sequence.
    - A stage theorist might suggest that the ability to engage in abstract thinking is a novel development in adolescence – not just a gradual refinement of the way younger children think – and that this qualitative difference may reflect maturation of the frontal cortex.
- An alternative perspective sees development as continuous, characterised less by major transformations than by steady and gradual change.
    - Although the behavioural change may appear to be a new stage, in fact, it may have been practised, and be making an appearance only when 'practice has made perfect'.

Chapter 12 – Physical and Cognitive Development – Studying Development

Cross-Sectional Studies

- **Cross-sectional studies** compare groups of participants of different ages at a single time to see whether differences exist among them.
- Major limitation is that they do not directly assess age changes.