Developmental Psychology 2017

Table of Contents

Lecture Notes

Intro to Development

Development → systematic changes and continuities in individuals that occurs between conception and death.

Types of Changes
Positive – growth in competence / capacity
Negative – loss of competence / capacity
Quantitative – more or less of something
Qualitative – appearance of something new
Normative – universal, shared changes, across all ages
Idiosyncratic – variability in developmental milestones are achieved

The developmental process involves
Maturation – the biological unfolding of the individual, according to a plan contained in the genes
Learning - the process through which experience brings about relatively permanent changes in thoughts, feelings, or behaviour
Epigenetics – the process through which experience and environment can influence gene expression

What causes developmental change?
Nature – child centred, guided by child readiness
Nurture – directive approach, adult led
Eclectic Position – interactions b/w the two
Social / Context Focus – do the various cultures the child experiences match; what do people need to know to flourish in a particular culture?

Baltes: Integrative Lifespan Perspective

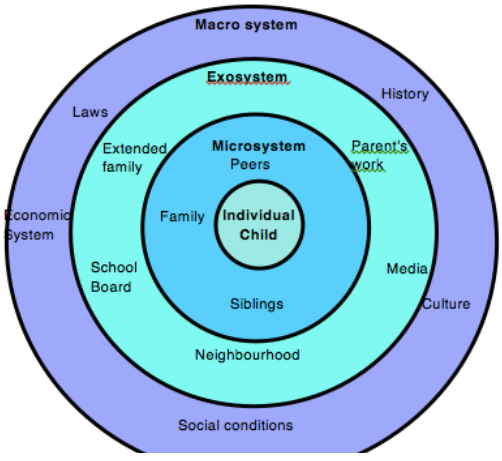
Assumptions about development

(1) Lifelong process
(2) Multi-directional
(3) Gains + losses @ every age
(4) Lifelong plasticity
(5) Historically embedded
(6) Contextualism is a paradigm
(7) Understanding development requires multiple disciplines

Development in Context
Normative Age-Graded Influences – People moving towards socially defined age related expectations. They can be biologically / socially determined.

Normative History-Graded Influences – Common to people of a particular generation of the historical circumstances they experienced (e.g. post 9/11, Millennials)

Non-Normative Life Events – Unusual occurrences that affect an individual but do not have a broader influence (e.g. major accident, death of a parent).



Brofenbrenner's Ecological Model

Microsystem – for example, marital conflict & discord parents, negative child interaction, negative child behaviour, marital discord

Mesosystem / Exosystem – Neighbourhood (quality of local playgroup)

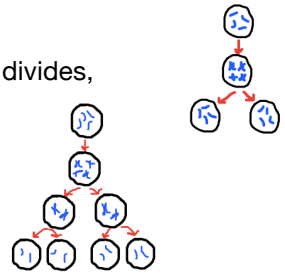
Macrosystem – Societal constructs at large

Genetics

Genes and Environment

Genes – units of hereditary information, like the 'blueprint' for a structure, comprised of short segments of DNA. We all have *23 pairs of genes,* or *46 chromosomes* (22 autosome pairs, and 1 pair of sex chromosomes).

Mitosis & Meiosis



Mitosis – a normal type of reproduction for replicating body tissue. A single cell divides, producing 2 cells, each containing 2 sets of chromosomes.
Meiosis – special processes of sexual reproduction, where the chromosome pairs come together, come over, and genetic information mixes from 2 chromosome pairs from 2 parents. Then, 4 cells, each with ½ the number of chromosomes from the original cells.
Mutations – errors in the process of meiosis or mitosis mean that chromosomal mutations occur, can happen to about 1 in 200 foetuses. The error types are – inversions, deletions, duplications, translocations.

Basic Genetic Principles

Dominant-recessive

For a single gene-pair inheritance, there are 2 hereditary elements for each trait. These 2 alternative forms of the same gene are called *alleles*. One dominant allele overrides the effect of the recessive allele. Recessive genes are only expressed if *both* parents carry the recessive gene. For example, brown eyes/ blue eyes (Bb). BB or bb = homozygous; Bb or bB = heterozygous.

Genetic Disorders of Dominant-Recessive Relationships

Dominant gene – expressed in *every individual* carrying the allele. 1 in 2 chance of inheritance (e.g. Huntingdon's disease)
Recessive gene – *both parents* have to carry the gene to inherit the disorder. 1 in 4 chance of inheritance (e.g. Cystic Fibrosis)
Co-Dominance – effect of recessive gene is not fully masked – the phenotype is a compromise (black skin + white skin = light brown skin)

Sex-Linked Inheritance

Some of the recessive traits are carried on a sex chromosome. If the *r* gene is linked with the X chromosome the disorder will only be expressed in males. For example – r/g colour blindness, Duchenne Muscular Dystrophy.

Chromosome Abnormalities

Too many, or too little chromosomes can result in abnormalities such as:

- Down Syndrome (3 chromosomes instead of 2)
- Edward's Syndrome (only 18 chromosomes)
- Turner Syndrome (XO)
- Klinefelter Syndrome (XXX)

Prenatal Diagnosis

- Ultrasound
- Nuchal Translucency Scan – fluid at the back of the neck is predictive of the higher relative risk of Down Syndrome (11 – 13 weeks along)
- Amniocentesis/ Chronic Vilius Sampling – can definitely diagnose the foetus by needing the chromosome or taking tissue sample.
- Pre-implantation genetic diagnosis (IVF) → they can remove, test and select embyros that do not have disorders & also select gender of child

Polygenic Inheritance

Many genes contribute to a particular characteristic. The *reaction range* is a range of possible phenotypes for each genotype. E.g. someone who inherited the genetic potential for high IQ, their reaction range from a restricted to an enriched environment is 80 – 150, whereas someone who inherited the potential for low IQ would have a restricted range to 108 even in an enriched environment.

Studying Gene/ Environment Contributions

Experimental breeding – animal models where they increase the likelihood of animals inheriting a certain trait
Selective Breeding – selective mating of animals exhibiting a certain trait
Genetic Manipulation – inserting a particular variant of a regular gene or deleting a normal gene.

Kinship Studies

Looks at aspects of genealogy as well as comparing related versus unrelated people in terms of the % of genes shared (on average), or risk for certain aspects. For example – risks of schizophrenia

Twin Study Methodologies

Same Environment – how are identical twins more similar than fraternal, etc…
Different Environment – identical twins separated near birth
Fraternal Twins – two ova released @ same time, each is fertilised by a different sperm, but are gestated together
Monozygotic Twins (MZ) – share 100% of genes
Dizygotic Twins (DZ) – share 50% of genes

Limitations of Twin Studies

- Naturalistic experiments → we cannot systematically vary the environment, and we can't randomly allocate to different environment
- The assumption that diversifying influences of environment are no greater for fraternal than identical twins is questionable
- Some parents think their twins are MZ, or vice versa.

Adoption Studies

Shared Heredity – genetically related individuals are separated & reared in diff environments
Shared Environments – genetically unrelated individuals reared in same environment

Limitations of Adoption Studies

- Adoption research relies on pre-existing social practices
- Children are not randomly allocated
    - Biases in placement w/ similar parents
    - Meeting criteria for eligibility screening
    - Disclosure (knowledge; timing; emotions)

Epigenetics

Changes in phenotype (the appearance/ gene expression) can be caused by *non-genetic factors*. Genes & environment do not make separate contributions to the outcome/ behaviour but do influence each other in a reciprocal manner. Normally occurring environmental effects can influence gene activity, and turn genes 'on'. E.g. if you are vulnerable to breast cancer, environmental triggers could determine the expression of that gene.

Timing of genetic influence
The works of genes are not completed before birth, but provide potentials. For example, you are more vulnerable to depression for a combination of two factors: genes (high risk / protective), and stressful life events.

Gene-Environment Correlations

Passive – a child receives correlated genes and environment. For example, sporty parents provide both genes, and a sport-filled environment
Evocative – a child incites a response from parents that lead them to provide environments, correlated with the child's genes. For example, parents notice a sporty ability in a child and respond by providing input to foster that ability.
Active – the genes lead the child to actively seek out correlated environmental experiences. For example, sporty child seeks to attend a selective sport school.