

### WEEK 3: Childhood development

#### Protracted development of the frontal lobes

**Cerebral cortex:** takes more than two decades to mature – synaptogenesis: process of making billions of connections between neurons

**Frontal lobes:** responsible for thinking through actions – humans > big frontal lobes, early child: neurons in visual and motor cortices in pruning phase = rapid dev in sight and physical dev

- Frontal lobe, synaptic dev begins in toddler – 9y: pruning starts = pre-schoolers have more trouble controlling behaviour

Development in prefrontal lobes: non-linear, coincide with cognitive development

**CORPUS CALLOSUM:** white matter tract that connects the two hemispheres – helps coordinate brain functioning between the two hemispheres – becomes thicker with child dev

**LATERALISATION:** specific functions become more localised to one hemisphere – BOYS:

greater lateralisation of lang in left hemi – higher autism incidence – predisposition to functioning differences GIRLS: language is more evenly divided between two hemis – verbal abilities emerge earlier in girls because they receive greater verbal encouragement for verbal skills than boys

#### Growth and motor development

**GROWTH:** preschool years: pattern of steady increases in height and weight – individual diffs in preschool years: averages mask indiv diffs, sex diffs: boys start becoming more taller and heavier, on average, than girls, national and global economic diffs: developed vs. developing countries, middle childhood is only time when girls, on average, are taller than boys. Growth spurt in girls @ 10

**MOTOR DEV:** GROSS MOTOR SKILLS: large muscle movements, such as running, climbing and hopping FINE MOTOR SKILLS: small, coordinated movements, such as writing a name *Gender diffs:* small, boys better than girls at gross, girls better at fine

GROSS MOTOR DEV: girls: (3y) able to walk up stairs, alternating feet, unable to stop or turn suddenly, able to jump a length 15-24 inches (4y) able to walk down long staircases, alternating feet, with assistance, have some control in starting, stopping, and turning, length of jump: increases to 24-33 inches (5y): able to walk down a long staircase, alternating feet, capable of starting, stopping and turning in games, able to make a running jump of 28-36 inches

FINE MOTOR DEV: handedness: early preference for some young infants, preference shown by many by end of preschool years – necessary for school tasks – influenced by growth spurts in myelination – helps speeding up communication between neurons

#### Factors influencing physical development: nutrition

Sufficient or insufficient nutrition – disease: childhood obesity, BMI, rates lower in Scandinavia than Mediterranean and US, US: higher rates in rural areas, among poor, among Latino and African American children – genetic inheritance – familial stress – social factors: reduced time, increased portion sizes – technology, less exercise – bidirectional effects – epigenetics

#### Piaget's infant stages of cognitive development

**PIAGET: PRE-OPERATIONAL STAGE:** 2-7y, symbolic thinking grows, mental reasoning emerges, use of concept increases

- PEROPERATIONAL THINKING: defined by what children are missing – the ability to step back from their immediate perceptions
- SYMBOLIC THINKING: the ability to use symbols, words or objects to represent something that is not physically present
  - Important for increasingly sophisticate use of language – language allows pre-schoolers to: represent actions symbolically, think beyond present to future, consider several possibilities at a time
  - Not capable of OPERATIONS: organised, formal logical mental processes that characterise school-age

**CONSERVATION (N):** knowing that the amount of a given substance remains identical despite changes in its shape or form

- *Why can't children conserve?*

1. **REVERSIBILITY (N):** idea that an operation (or procedure) can be repeated in the opposite direction
  2. **CENTERING (Y):** tendency to fix on the most visually striking feature of a substance and not take other dimensions into account
- Centering impairs **CLASS INCLUSION (N):** understanding that a general category can encompass several subordinate elements > BIGGER = MORE

**TRANSFORMATION (N):** understanding is incomplete – one state is changed to another

**IDENTITY CONSISTENCY (N):** inability to grasp that a person's core "self" stays the same despite changes in external appearance

**ANIMISM (N):** refers to the difficulty young children have in sorting out what is really alive

- **ARTIFICIALISM:** belief that human beings make everything in nature – demonstrates assimilation

**EGOCENTRISM (Y):** inability to understand that other people have different points of view from their own

*Intuitive thought:* use of primitive reasoning – assertiveness regarding knowledge, but unable to support argument

- Slowing certain qualities prepare children for more sophisticated forms of reasoning
- Begin to understand the notion of **FUNCTIONALITY:** actions, events and outcomes are related to each other in fixed patterns
- Begin to show an awareness of the concept of **IDENTITY:** certain things stage the same, regardless of changes in shape, size and appearance

Cognitive growth here = FOUNDATIONS FOR LANG ABILITY.

- **CENTRATION:** concentrating on one limited aspect and ignoring others; superficial evaluation.

- **TRANSFORMATION:** unable to do this yet. **CONSERVATION:** can't do this yet either; knowledge that quantity is unrelated to physical appearance/arrangement – appearances are deceiving.

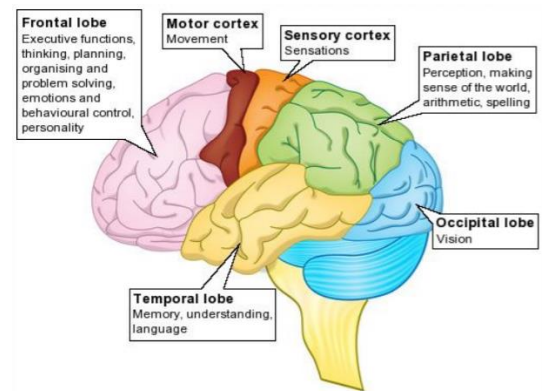


Table 5.1: Selected Motor Skill Milestones: Progression from Age 2 to Age 6

At age 2	At age 4
Picks up small objects with thumb and forefinger, feeds self with spoon	Cuts paper, approximates circle
Walks unassisted, usually by 12 months	Walks down stairs, alternating feet
Rolls a ball or flings it awkwardly	Catches and controls a large bounced ball across the body
At age 5	At age 6
Prints name	Copies two short words
Walks without holding on to railing	Hops on each foot for 1 meter but still holds railing
Tosses ball overhand with bent elbows	Catches and controls a 10-inch ball in both hands with arms in front of body

- **EGOCENTRIC THOUGHT:** doesn't consider other viewpoints, lack of concern for nonverbal behaviour and impacts on others. **INTUITIVE THOUGHT:** uses primitive reasoning, assertive but can't support claims, preparation for next stages. Begins to comprehend functionality and identity (things can stay the same regardless of size).

**PIAGET: CONCRETE OPERATIONAL STAGE:** 7-12y, characterised by active and appropriate use of logic (improvements, routes to conservation); **logical operations applied to concrete problems**

- **CONCRETE OPERATIONAL THINKING:** defined by what children possess: the ability to reason about the world in a more logical, adult way
- **CONSERVATION PROBLEMS:** time, speed and reversibility.
- **Decentering:** ability to comprehend multiple aspects of a situation. **Reversibility:** process transforming a stimulus can be reversed, return back to original form.
- Remains tied to physical concrete reality.

#### Vygotsky's sociocultural approach

**ZONE OF PROXIMAL DEVELOPMENT:** learning takes place – gap between a child's ability to solve a problem totally on his own and his potential knowledge if taught by a more accomplished person (capable but not confident)

**SCAFFOLDING:** the process of teaching new skills by entering a child's zone of proximal dev and tailoring one's efforts to that person's competence level – as child becomes more confident, teachers should back off slowly and allow the student more responsibility in their learning

- **Cultural diffs:** Collectivists: children learn by observation, Individualistic: enter child's zone, actively instruct but be sensitive to child's response
- **Effective scaffolders:** 1. Foster secure attachment, through nurturing, responsive interactions 2. Break larger cognitive challenge into manageable steps 3. Continue helping until the child has fully mastered the concept before moving on

Infants born with a few elementary functions (attention, sensation, perception, memory) transformed by culture into *higher mental functions*.

Cognition is the result of *social interactions*, guided participation (mentors used to solve problems, child as an apprentice), adults = agents of change (PIAGET SAW CHILDREN AS AGENTS OF CHANGE).

- **VYGOTSKY v PIAGET:** people propel mental growth v children naturally construct an adult view of the world, varies across cultures, social interactions, social processes become individual physiological processes, adults are important agents of change v universal across cultures, independent explorations, individual (egocentric) processes become more social, peers important.

**COOPERATIVE LEARNING:** small groups of students, with diff lvls of ability, use learning activities to improve their understanding of a topic – each student is responsible for learning and helping other students to learn

**RECIPROCAL LEARNING:** instructional activity that takes place through dialogue between teachers and students about a topic – summarising, question generating, clarifying, predicting – teacher and student take turn being the "teacher" in leading discussion – **APPL:** children are seen as active participants in their education

**PROS:** increasingly influential in the last decade – growing body of research on the importance of social interaction in promoting cog dev – growing body of multicultural and cross-cultural research

**CONS:** lack of precision in conceptualisation of cog growth – lack of detail on how attention and memory develop and how children's natural cognitive capabilities unfold

#### Information processing approach

**IP:** break cognitive processes into components and divide thinking into steps – qualitative changes in child's abilities to organise and manipulate information are underpinned by gradual improvements of underlying systems

- Foundations of information processing – only when all three processes are operating can information be processed
1. Encode: taking in
  2. Store: maintain the information
  3. Retrieval: use information

Information passes through different stores/stages to form a memory

1. **Sensory store:** briefly hold information from outside world here – the features we attend to enter into working memory
  2. **WORKING MEMORY:** where "cognitive action" takes place – limited capacity gateway system, containing all the material that we can keep in awareness at a single time, the material in this system is either processed for more permanent storage or lost – once info has moved through WM, it enters a more long-lasting store for later retrieval
- Child diff in WM ability – diffs predict school readiness skills – WM operates 6y > enlarges during primary school, coincides with moving into concrete stage
3. **Long term store**

**EXECUTIVE FUNCTIONS:** any skill related to managing our memory, controlling our cognitions, planning our behaviour, and inhibiting our responses – depends on the **FRONTAL LOBES**

- Examples of executive functions (concrete ops)
1. **REHEARSAL:** learning strat in which people repeat information to embed it in memory
  2. **SELECTIVE ATTENTION:** learning strat in which people manage their awareness so as to attend only to what is relevant and to filter out unneeded information
  3. **INHIBITION:** being able to hold back in impulses
- **Measuring inhibition:** ask children to perform an action that contradicts immediate tendencies (e.g. Simon says) – greatly improves across childhood

**Social cognition:** autobiographical memories of the mind

**AUTOBIOGRAPHICAL MEMORIES:** recollection of events and experiences that make up our life history

**Table 5.5: Information-Processing Guidelines for Teachers and Parents**

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<b>Early childhood</b>	
1.	Don't expect a child to remember, without considerable prompting, regular chores such as feeding a pet, the details of a show, or the name of the person who telephoned.
2.	Expect the child to have a good deal of trouble with any situation that involves inhibiting a strong "prepotent impulse"—such as not touching toys, following unpleasant rules, or keeping a secret.
<b>Middle childhood</b>	
1.	Actively teach the child studying skills (such as rehearsing information) and selective attention strategies (such as underlining important points).
2.	Scaffold organizational strategies for school and life. For example, get the child to use a notebook for each class assignment and keep important objects, such as eyeglasses, in a specific place.
3.	Expect situations that involve multiple tasks, such as getting ready for school, to present problems. Also expect trouble with activities that involve <i>ongoing</i> inhibition, such as refraining from watching TV before finishing homework. Build in a clear structure for mastering these difficult executive-functioning tasks: "At 8 or 9 p.m., it's time to get everything ready for school." "Homework must be completed by dinnertime, or the first thing after you get home from school."
4.	To promote selective attention (and inhibition), have a child do homework, or any task that involves concentration, in a room away from tempting distractions such as the TV or Internet.

- Constructed through past talk conversations (reminiscing), child starts to become aware that they have a past and a future, and a sense of self, used by adolescents to reflect on their enduring personality

**THEORY OF MIND:** cognitive capacity to understand that others have different perspectives and beliefs from theirs (4y) **FALSE BELIEF TASKS:** have been used to plot the developmental trajectory of theory of mind

- Individ diffs: siblings, collectivist v individualistic cultures, bilingual children, atypical dev

**PSYCH DISORDERS IN CHILD:** symptoms inconsistent from those of adults – **SPECIFIC LEARNING DISABILITY:** type of neurodevelopmental disorder that impedes the ability to learn or use specific academic skills, which serve as the foundation for other academic learning – causes and underlying mechanisms unknown – run in families (heritable) – gen and environ abnorms

### Language development

**SYNTAX:** ways in which children combine words and phrases to form sentences

**PRAGMATICS:** aspect of lang relating to communicating effectively and appropriately

**PRIVATE SPEECH:** speech that is spoken and directed to self

**SOCIAL SPEECH:** speech directed to others and meant to be understood by that person

*Fast mapping words in pre-schoolers:* connecting new words to referents so rapidly that all possible meaning for the new word could not have been considered – parents pay attention to what children are attracted to and provide guidance, which is called **JOINT ATTENTION** – children seem to understand constraints on word names that help to infer meaning

*Meta-linguistic awareness:* one of most significant developments in middle childhood is children’s increasing understanding of their own use of language – (5-6y): understand language is governed by set of rules (7-8y): realise that miscommunication may be due to factors attributable not only to themselves, but to person communication with them

*Language promotes self-control:* helps school-aged children control and regulate behaviour – **self-talk:** used to help regulate behaviour – effectiveness of self-control grows as linguistic capabilities increase

### Personality and the emerging self

**EMOTION REGULATION:** the capacity to manage one’s emotional state – **EXTERNALISING TENDENCIES:** children with this find diff to emotional reg, a personality style that involves acting on one’s immediate impulses and behaving disruptively and aggressively – timid, self-conscious, frightened and depressed – cultural diffs. Collectivist (shy) v individualistic (agro)

**SELF-AWARENESS:** ability to observe our abilities and actions from an outside frame of reference and to reflect on our inner state

**SELF-ESTEEM:** tendency to feel good or bad about ourselves – maj issue during primary

- **ERIKSON SELF DEV: initiative vs, guilt (3 – 6y):** children’s mission is to courageously test their abilities in the wider world **industry v inferiority (6-12/pub):** the need to manage our emotions and work for what we want to achieve (industry) – vulnerable to self-esteem (inferiority)

- Self-esteem depends on: 1. Scholastic competence 2. Athletic skills 3. Behavioural conduct 4. Peer likability 5. Physical appearance

*Self-esteem distortions:* 1. **EXTERNALISING PROBLEMS:** ignore real problems, blame others and have unrealistically high self-esteem – act out “emotions” are impulsive and often aggressive 2. **INTERNALISING PROBLEM:** hypersensitive to environmental cues, read failure into everything and have super low self-esteem – are intensely fearful – at risk of developing **LEARNED HELPLESSNESS:** state that develops when a person feels incapable of affecting the outcomes of events, and so gives up without even trying

**PROSOCIAL BEHAVIOUR:** doing good

- Sharing, caring and helping
- Naturally occurs in early life
- Early prosocial behaviours can predict later behaviours

*Indiv diffs:* similar across cultures

**AGGRESSION:** refers to acts designed to cause harm – peaks around 2/2.5y

- **PROACTIVE AGG:** hostile or destructive act initiated to achieve a goal – calculated, cooler emotional tone – plan behaviour
- **REACTIVE AGG:** carried out in response to being frustrated or hurt, *frustration-aggression hypothesis:* when human beings are thwarted, we are biologically primed to retaliate – white-hot, disorganised rage
- **RELATIONAL AGG:** designed to cause harm to a person’s relationships – more harmful, attacks self-esteem
- **DIRECT AGG:** everyone can see – hitting

As children grow older, they typically become less openly aggressive – percentage of children remain usually aggressive – labelled with externalising disorders defined by high rates of aggression > defiant, antisocial kids

- *Pathway to producing problematic aggression:* 1. The toddler’s exuberant or difficult temperament evokes harsh discipline 2. The child is rejected by teachers and peers in school **HOSTILE ATTRIBUTION BIAS:** tendency of highly aggressive children to see motives and actions as threatening when they are actually benign

### Parenting styles

**PARENTING STYLE:** (Diana Baumrind): framework, how parents align on two dimensions of child-rearing: nurture (child-centeredness) and discipline (structure and rules)

Stage	Age	Positive Outcomes	Negative Outcomes
1. Trust-versus-mistrust	Birth to 1.5 yr	Feelings of trust from others' support	Fear and concern regarding others
2. Autonomy-versus-shame and-doubt	1.5 to 3 yr	Self-sufficiency of exploration is encouraged	Doubts about self; lack of independence
3. Initiative-versus-guilt	3 to 6 yr	Discovery of ways to initiate actions	Guilt from actions and thoughts
4. Industry-versus-inferiority	6 to 12 yr	Development of sense of competence	Feelings of inferiority; little sense of mastery
5. Identity-versus-identity confusion	Adolescence	Awareness of uniqueness of self; knowledge of roles	Inability to identify appropriate roles in life
7. Generativity-versus stagnation	Middle adulthood	Sense of contribution to continuity of life	Trivialization of one's activities
8. Ego-integrity-versus-despair	Late adulthood	Sense of unity in life's accomplishments	Regret over lost opportunities of life

**Table 6.5: Aggression: A Summary of the Types**

#### What Motivated the Behavior?

**Proactive aggression:** Acts that are actively instigated to achieve a goal.

**Examples:** "I'll hit Tommy so I can get his toys." "I'll cut off that car so I can get ahead of him." "I want my boss's job, so I'll spread a rumor that he is having an affair."

**Characteristics:** Emotionally cool and more carefully planned.

**Reactive aggression:** Acts that occur in response to being frustrated or hurt.

**Examples:** "Jimmy took my toy, so I'm going to hit him." "That guy shoved me to take my place in line, so I'm going to punch him out." "Joe took my girlfriend, so I'm gonna get a gun and shoot him."

**Characteristics:** Furious, disorganized, impulsive response.

#### What Was Its Form?

**Direct aggression:** Everyone can see it.

**Examples:** Telling your boyfriend you hate his guts. Beating up someone. Screaming at your mother. Having a tantrum. Bopping a playmate over the head with a toy.

**Characteristics:** At its peak at about age 2 or 3; declines as children get older. More common in boys than in girls, especially physical aggression.

**Relational aggression:** Carried out indirectly, through damaging or destroying the victim's relationships.

**Examples:** "Sara got a better grade than me, so I'm going to tell the teacher that she cheated." "Let's tell everyone not to let Sara play in our group." "I want Sara's job, so I'll spread a rumor that she is stealing money from the company." "I'm going to tell my best friend that her husband is cheating on her because I want to break up their marriage."

**Characteristics:** Occurs mainly during elementary school and may be at its peak during adolescence, although—as we all know—it's common throughout adult life.

**AUTHORITATIVE PARENTS:** best possible parenting style – parents rank high on both nurturance and discipline, providing both low and clear family rules

**AUTHORITARIAN PARENTS:** parents provide plenty of rules but rank low on child-centeredness, stressing unquestioning obedience

**PERMISSIVE PARENTS:** parents provide few rules but rank high on child centeredness, being extremely loving but providing little discipline

**REJECTING-NEGLECTING PARENTS:** worst parenting style – parents provide little discipline and little nurturing or love

- Inconsistent rules = worst teenaged mental health, parents should be consistent in their style

*Critiques:* 1. Parenting styles vary from child to child and may shift at different life stages 2. Parenting styles can vary depending on one's society

#### Intelligence and IQ tests

Conceptions of what it means to be intelligent differ from society to society and among ethnic groups

- Latino parents: focus more on social groups

**ACHIEVEMENT TESTS:** measures that evaluate a child's knowledge in specific school-related areas

**WISC (WECHSLER INTELLIGENCE SCALE FOR CHILDREN):** the standard intelligence test used in childhood, consisting of different scales composing a variety of subtests – the higher the score, the more intelligent the child is - often administered during primary school

- **INTELLECTUAL DISABILITY:** (IQ <70): significantly impaired cognitive functioning, measured by deficits in behaviour

- **SPECIFIC LEARNING DISORDER:** (IQ sign higher than achievement test scores): umbrella term for any impairment in language or any deficit related to listening, thinking, speaking, reading, writing, spelling or understanding mathematics

- **DYSLEXIA:** (avg IQ score but poor schoolwork perf) a learning disorder that is characterised by reading difficulties, lack of fluency, and poor word recognition that is often genetic in origin

- **GIFTED:** (IQ >130) superior intellectual functioning, child ranks in the top 2 percent of their age group

