

Brain development in the womb

Week 3 – neural plate becomes tube
 Week 4 – neural tubes begin to divide
 Week 15 – cerebellum has formed
 6 months – brain is fully formed

Role of nature vs nurture

Nature characteristics and behaviour is are inherited.

Nurture our characteristics and behaviour is influenced by environment.

Brain forms due to nature but environment has big influence on its development.

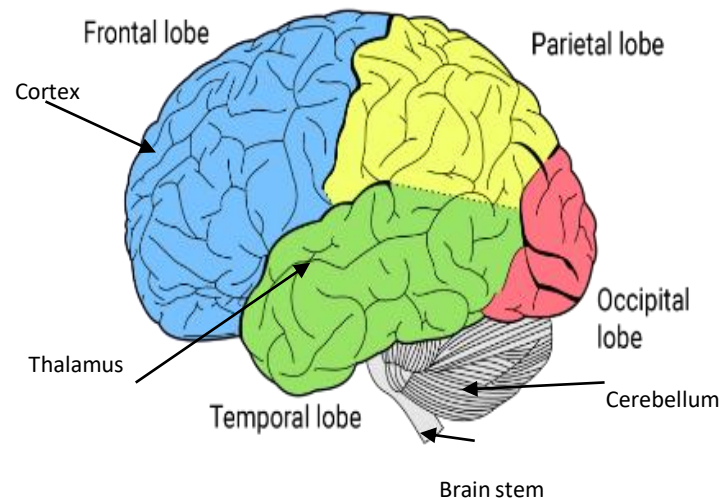
Smoking during pregnancy can decrease size of babies brain.
 Infections in the womb can lead to hearing loss.
 Babies in womb learn to recognise mother voice.

Twin studies used to provide evidence for both sides of debate – identical twins share same DNA, similarities will be down to nature, differences nurture. E.g IQ study.

Nature evidence
 – babies can recognise faces and cry from birth implies nature.

Nurture evidence
 – baby rats kept alone and with no toys developed slower and had smaller brains that rats kept with toys and in a group.

Brain stem: (B=BASIC AUTONOMIC FUNCTIONS) connects brain to spinal cord eg. Breathing
Cerebellum: (BELL= MOVEMENT) one of the last parts of brain to reach maturity.
Thalamus: (SIZE OF A WALNUT) located deep inside brain. Acts as information hub, receives and sends signals around brain.
Cortex: (TEA COSY) outer layer of brain divided into 4 lobes, thinking and processing happens here.



Key studies testing Piaget

McGarrigle and Donaldson – Naughty teddy (TESTING CONSERVATION)

Aim: To see if children can conserve at an earlier stage than Piaget found if change is accidental.

Method: Children aged 4- 6 years shown two rows of counters. Teddy messes up one row of them. Child asked if the rows were the same.

Results: 62% of children stated the rows were the same. Only 16% did in Piaget's experiment

Conclusion: if the change to materials seems accidental children under the age of 7 can conserve.

+ other researchers findings also supports
 + shows that children can conserve earlier than piaget said
 -- sample only used children from one primary school
 - Results in other research not as high as they found

Hughes – Policeman Doll study (TESTING EGOCENTRISM)

Aim: To see if children are egocentric earlier than Piaget suggested.

Method: 3½ - 5 year old children asked to hide a boy doll from two policeman dolls using partition walls. Practiced with one doll first. Results: 90% were able to hide the doll away.

Conclusion: Children can conserve earlier than the age of 7. Piaget underestimated the abilities of children.

+ Three mountains task research supports their findings
 -Task involved hiding from policeman lacks ecological validity
 -Children in unfamiliar setting and with unfamiliar adults

Dweck's mindset theory- KEY THEORY

Growth mindset: belief that ability comes from hardwork and can increase.

Fixed mindset: belief that ability is genetic and unchanging.

Our assumptions affect our success. Success is due to effort not talent. When faced with a challenge fixed mindset give up quickly, growth mindset keep trying. Fixed mindset see failure as lack of talent, growth mindset see failure as a opportunity to learn.

Role of praise: **Person** focuses on the ability. **Process** focuses on effort. Students who get person praise feel that success is beyond their control.

Role of self-efficacy: understanding your own abilities. Higher self efficacy results in greater effort, performance and resilience. Self efficacy increases or decreases future success.

Evaluation: + Research support for her theory
 + Real world application e.g. in sports seeing failure as a lack of effort rather than talent motivates future effort
 - Praising effort can still lead to completing task for approval, and discourages independent behaviour.

Piaget Theory- KEY

Changes in thinking over time. Children think differently to adults. Different kinds of logical thinking occur at over time.

Sensorimotor stage: 0-2 years. learn to co-ordinate sensory and motor skills. Object permanence develops

Pre-operational stage: 2-7 years. Can't think in a consistently logical way. Egocentric and lack conservation.

Concrete operational: 7-11 years. Most children can conserve at 7 and show less egocentrism.

Formal operational: 11+ years. Children can draw conclusions about abstract concepts and form arguments.

Learning styles

Verbaliser: focus on words. Processing by hearing or reading words and talking about it.

Visualiser: focus on pictures. Processing by seeing, use of diagrams, maps and think using pictures.

Application to education

Individual learning children go through stages at different rates allow child to discover the answers themselves

Readiness can only teach something when child biologically ready

Real world objects Children must be given actual objects to allow discovery

Willingham's learning theory- KEY THEORY

Criticises learning styles theories as they aren't evidence based. Teaching and learning can be improved through the following ways

Praise: praising effort should be unexpected. Praise before a task led to less motivation.

Memory and forgetting: forgetting happens because of lack of cues, practicing retrieving information from memory

Self-regulation: self control (delay gratification)

Neuroscience: brainwaves in dyslexia are different. Earlier intervention would increase progress.

- Too many learning styles

- No supporting evidence

+ Allowed teaching methods to develop

Key Terms

Schema	Mental structures containing knowledge, schemas develop further through accommodation and assimilation.
Assimilation	Add new information to an existing schema.
Accommodation	Receiving new information that changes our understanding so a new schema is formed.
Conservation	The ability to understand that although appearance of material changes the quantity stays the same.
Egocentrism	Seeing the world from one's own point of view and not being able to see it from others.