

## Unit 1 Development Knowledge Organiser

Key terms		Early Brain Development	Piaget's Theory (logical thinking occurs in stages)				
Key Term	Definition		Conservation	Egocentrism	Stages of cognitive development	Application in education	
Autonomic functions	Automatic, refers to functions in the body which we do not consciously control e.g. heartbeat, digestion and fear	<p><b>Brain stem</b> – highly developed at birth, connects brain to spinal cord, autonomic functions</p> <p><b>Cerebellum</b> – matures late, near top of spinal cord, coordinates sensory and motor</p> <p><b>Thalamus</b> – deep inside the brain in each hemisphere, info hub receives info and then sends signals around the brain</p> <p><b>Cortex</b> – very thin and folded cover, thinking and processing, frontal, visual, auditory, motor areas in each hemisphere</p> <p style="text-align: center;"><b>The roles of nature and nurture</b></p> <p>Nature is inherited Nurture is environmental influences</p> <p><b>Smoking</b> during pregnancy can lead to smaller brain</p> <p><b>Infection</b> – German measles in the womb can lead to hearing loss</p> <p><b>Voices</b> – babies learn to recognise mother's voice</p> <p><b>Interaction between nature and nurture</b> – brain forms due to nature but the environment has a major influence, even in the womb</p>	<p><b>Theory</b> – changes in thinking over time. Children think differently from adults</p> <p>Logical thinking develops in stages.</p> <p><b>Schemas</b> – mental structures containing knowledge, schemas become more complex through assimilation and accommodation</p> <p><b>Assimilation</b> – adding new info to an existing schema</p> <p><b>Accommodation</b> – receiving new info which changes our understanding so a new schema is formed</p> <p><b>Evaluation:</b></p> <p><b>Research evidence</b> - many studies have been conducted to test Piaget's theory, which has helped improve our understanding of how children's thinking develops</p> <p><b>Real-world application</b> – theory has helped change classroom teaching so it is now more activity based</p> <p><b>The sample</b> – Middle-class Swiss children were used so the theory may not be universal</p>	<p>Although appearance changes, quantity stays the same.</p> <p>Piaget showed that younger children cannot conserve using the naughty teddy study</p> <p><b>McGarrigle and Donaldson KEY STUDY</b></p> <p><b>Aim</b> – the 'naughty teddy' study aimed to see if a deliberate change in the row of counters would help younger children conserve</p> <p><b>Method</b> – children age 4-6year, two rows of counters, teddy messed up one row, then asked if the rows were the same</p> <p><b>Results</b> – deliberate change – 41% conserved, accidental change – 68% conserved. Older children did better than younger ones</p> <p><b>Conclusion</b> – Piaget's method doesn't show what children can do, this study does show there are still age-related changes</p> <p><b>Evaluation:</b></p> <p><b>The sample</b> – primary school sample from one school so comparison between groups may not be valid</p> <p><b>The change was not noticed</b> – children may appear to conserve because they simply didn't notice the change as they were distracted by the teddy</p> <p><b>Challenges Piaget</b> – study shows that Piaget confused young children with his style of questioning</p>	<p>Seeing the world from one's own point of view</p> <p>Three mountains task tested this and showed egocentrism up until the age of 7</p> <p><b>Hughes' Study KEY STUDY</b></p> <p><b>Aim:</b> policeman doll study aimed to create a test that would make more sense than Piaget's</p> <p><b>Method</b> – 3 ½ yr olds – 5yr olds were asked to hide a boy doll from two policemen</p> <p><b>Results</b> - 90% could hide the boy doll away from the two policemen</p> <p><b>Conclusion</b> – children age 4years are mostly not egocentric. Piaget underestimated abilities but was right that thinking changes with age</p> <p><b>Evaluation</b></p> <p><b>More realistic</b> – task made better sense to the children and they were given practice so they understood, more realistic test of abilities</p> <p><b>Effects of expectations</b> – unconscious cues from the researcher may have influenced the children's behaviour</p> <p><b>Challenges Piaget</b> – shows Piaget's task confused the children</p>	<p><b>Sensorimotor 0-2yrs</b> – learn to coordinate sensory and motor info, object permanence develops</p> <p><b>Pre-operational 2-7yrs</b> – can't think in a consistently logical way, egocentric and lack conservation</p> <p><b>Concrete operational 7-11yrs</b> – at age 7 most children can conserve and show less egocentrism, logical thinking applied to physical objects only</p> <p><b>Formal operational 11+yrs</b> children can draw conclusions about abstract concepts and form arguments</p> <p><b>Evaluation:</b></p> <p><b>Underestimated children's abilities</b> – some types of thinking develop earlier than Piaget proposed</p> <p><b>Overestimated children's abilities</b> – suggested that children age 11+ are capable of abstract reasoning but most can't cope with Watson's card sorting task in abstract thought</p> <p><b>Basic idea is correct</b> – does show children's thinking changes with age so theory is valid</p>	<p><b>Readiness</b> – only teach something when child is biologically ready</p> <p><b>Learning by discovery and the teacher's role</b> – children must play active role, not rote learn, teachers should challenge schemas</p> <p><b>Individual learning</b> – children go through same stages in same order but at different rates</p> <p><b>Application to stages</b></p> <p>Sensorimotor – stimulating sensory environment</p> <p>Pre-operational – discovery learning rather than written work</p> <p>Concrete operational – physical materials to manipulate</p> <p>Formal operational stage – scientific experiments to develop logical thinking</p> <p><b>Evaluation:</b></p> <p><b>Very influential</b> – positive impact on UK education</p> <p><b>Possible to improve with practice</b> – thinking can develop at an early stage if given enough practice</p> <p><b>Traditional methods may be good</b> – direct instruction is a better teaching method in some subjects</p>
Brain stem	Develops early because it controls vital autonomic functions, passes info from the brain to and from the body						
Cerebellum	The 'little brain' at the base of the brain above the spinal cord the coordinates movement with sensory input (sensorimotor) and also has a role in cognition						
Cognition	Refers to thinking and mental processes						
Cortex	It is the outer covering of the brain where mental processing takes place						
Nature	Refers to genetic influences						
Nurture	Refers to other influences, how you were raised, your experiences and the environment						
Thalamus	Key hub of info in the brain, relaying sensory and motor signals to the cortex						
Womb	Part of the woman's body where the baby develops						
Accommodation	Learning that takes place when we acquire new info that changes our understanding of a topic to the extent that we need to form one or more new schemas						
Assimilation	Learning that takes place when we acquire new info which does not radically change our understanding of the topic						
Schema	Mental framework of beliefs and expectations that influence cognitive processing, we are born with some schemas but the develop in complexity with experience of the world						
Conservation	The ability to realise that quantity remains the same even when the appearance changes						
Egocentricity (egocentrism)	The child's tendency to only be able to see the world from their own point of view						
Concrete operational stage	7-11years, Beginning to use adult logic but only when working with physical objects, logical thinking						
Formal operational	11+, Child now fully able to think logically and with abstract ideas,						
Pre-operational stage	2-7years, Child's thinking lacks internal consistency, they are not using adult logic, lack of conservation and egocentrism						
Sensorimotor	0-2 years, Child focused on learning coordination, object permanence						
Fixed mindset	Achievements are due to innate abilities						
Growth mindset	Basic abilities can be developed through effort, regard failure as a challenge						
Praise	To express approval of someone else and or what they have done						
Self-efficacy	A person's understanding of their own capabilities, high self-efficacy influences motivation						
Learning style	A person's relatively consistent method of processing and remembering info						
Verbaliser	A person who prefers to process info through words and sounds						
Visualiser	A person who prefers to process info in terms of pictures or diagrams						

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Effects of learning on development			
Dweck's mindset theory	The role of praise and self-efficacy	Learning styles	Willingham's learning theory
<p>The set of assumptions we have (mindset) affects success Success is due to effort not talent</p> <p><b>Fixed mindset</b> – effort won't help because talent is fixed in the genes, focused on performance</p> <p><b>Growth mindset</b> – can improve with effort, enjoy challenge, focused on learning goals</p> <p><b>Dealing with failure</b> – Fixed mindset – give up As failure indicates lack of talent Growth mindset – opportunity to learn more and put in more effort A Continuum – not simply one or the other, depends on the situation</p> <p><b>Evaluation:</b> <b>Research support</b> – Dweck found that children taught growth mindset had better grades and motivation <b>Both mindsets involve praise</b> – praising effort still leads to doing things for approval so can discourage independent behaviour <b>Real-world application</b> – in business, sport, relationships, seeing failure as a lack of effort rather than talent motivates future effort</p>	<p><b>Positive effect of praise</b> – it's a reward, makes people feel good so the behaviour is repeated</p> <p><b>Praise effort rather than performance</b> – praising effort enables control, praising performance is demotivating</p> <p><b>Self-efficacy</b> – understanding your own abilities, increases of decreases future success</p> <p><b>Effect of self-efficacy on motivation</b> – greater effort, persist longer, greater task performance and more resilience if high self-efficacy</p> <p><b>Evaluation:</b> <b>Praise destroys internal motivation</b> – praise can have the opposite effect, less interested if previously rewarded <b>Low self-efficacy lowers performance</b> – research into the stereotype effect shows performance on an IQ test is lowered if reminded of race <b>Practical applications</b> – students criticised for effort performed better on a test than those previously praised</p>	<p>How people differ in the way that they learn. Matching teaching to learning should improve learning</p> <p><b>Verbaliser</b> – focus on words, processing by hearing info and talking about it</p> <p><b>Visualiser</b> – processing info by seeing spatial relationships using diagrams, mind maps, graphs</p> <p><b>Kinaesthetic learners</b> – learning by active exploration, making things, physical activities</p> <p><b>Evaluation:</b> <b>Change from traditional methods</b> – teachers have adopted a varied approach benefitting their students learning <b>No supporting evidence</b> – no good quality studies which challenges the claim that learning styles improve performance <b>Too many different styles</b> – Coffield identified 71 different types so it's difficult to work out preferred type of learning style</p>	<p>Educational ideas should be evidenced based Cognitive psychology and neuroscience can be used to improve learning</p> <p><b>Praise</b> – praising effort should be unexpected, praise before a task let to less motivation</p> <p><b>Memory and forgetting</b> – forgetting occurs due to a lack of cues, practise retrieving information from memory</p> <p><b>Self-regulation</b> – self-control (delay gratification marshmallow test) linked to high academic performance</p> <p><b>Neuroscience</b> – brain waves in dyslexics are different, this could benefit progress by receiving help earlier</p> <p><b>Evaluation:</b> <b>Evidence-based theory</b> – based on scientific evidence giving the theory greater validity <b>Real-world application</b> – positive impact on education as an alternative to learning styles <b>Application of neuroscience</b> – dyslexia cannot be diagnosed by brain waves as it is not just linked to one thing</p>