

DEVELOPMENT



KEY DEBATES

- NATURE (innate development) vs. NURTURE (learned/society)
- REDUCTIONISM (Piaget - all stages universal & invariant)
- FIELD EXPERIMENT (Blackwell) & NATURAL EXPERIMENT (Piaget)



PIAGET'S THEORY OF COGNITIVE DEVELOPMENT

The theory suggests that children progress through universal (same for all across the world) and invariant (occur in the same order) stages of cognitive development.

SENSORI-MOTOR STAGE (0-2 YEARS)

Explore the environment using senses, develop motor movement.

Towards the end of this stage they develop object permanence (the ability to understand that objects exist even when not visually present).

PRE-OPERATIONAL STAGE (2-7 YEARS)

Develop language skills & mental representation of objects & events. Is egocentric (only see the world from their point of view). Also show animism (treating inanimate objects as if they too are alive) & lack of reversibility (unable to work backwards in their thinking).

CONCRETE-OPERATIONAL STAGE (7-11 YEARS)

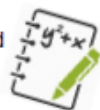
Develop the ability to decentrate (multiple aspects, e.g. looking at multiple letters to read a word) and conserve (the ability to understand that properties of objects remain the same even when changed in appearance), develop linguistic humour but cannot imagine the world abstractly.

FORMAL OPERATIONAL STAGE (11+ YEARS)

Children are capable of forming and testing hypothesis, understand rules of formal logic and can solve abstract problems.

LIMITATIONS

- Too reductionist - all children go through the same stages based on maturation (ignores role of environment - parents, teachers, peers etc.)
- Saying stages are universal & invariant is over simplistic (e.g. in some countries children learn to conserve much earlier due to survival).



NATURE

PIAGET'S (1952) STUDY INTO THE CONSERVATION OF NUMBER

AIM To see the stage of development when children are able to conserve.

SAMPLE

Swiss children in the pre-operational & concrete operational stages.

RESEARCH METHOD

Natural experiment and cross-sectional study

PROCEDURE

- Each child was presented with two identical, parallel lines of counter.
- Was asked "Is there the same number of counters in each row?"
- Then watched as one of the lines was spread out (no more counters were added).
- Was then asked for 2nd time "Is there the same number of counters in each row?"



FINDINGS & CONCLUSION

- Children at the beginning of the pre-operational stage (3-4 years) = more in stretched row.
- Children at the end of the pre-operational stage (5-6 years) = both the same, couldn't say why.
- Children in the concrete operational stage (7+) = both rows the same & could explain why.

Children in the concrete operational stage were able to conserve.

LIMITATIONS OF STUDY

- Sample too small & culturally biased (Swiss, own children) - cannot be generalised.
- Design is invalid - asked same question twice so some answered based on thinking it was wrong the 1st time.

DWECK & WILLINGHAM'S LEARNING THEORIES

Dweck's learning theory states that mindset relates to the way that we think in relation to where our talents come from and whether these are changeable.

GROWTH & FIXED MINDSET

Growth mindset - believe intelligence can be developed through experiences and if we work hard and learn skills then our abilities and therefore our intelligence will improve.

Fixed mindset - believe that intelligence is predefined and we are born with certain abilities. Fear failure as it reflects badly on their innate talents.

PRAISE FOR EFFORT

Teachers & parents play an important part in the development of different mindsets through giving praise for the amount of effort made.

Willingham's learning theory states that there is no evidence to support the view that individuals have preferences about how to learn - learning styles don't exist.

LEARNING OCCURS THROUGH MEANING, NOT STYLES

Students are different in their abilities, interests and prior knowledge, but not in their learning styles. He argues for the importance of meaning for learning. When in class, most of the information that you are required to learn is not visual or auditory, it is meaning based - most learning takes place through understanding the meaning.

LIMITATIONS

- Dweck's theory can be criticised for focusing too much on the importance of nurture in that achievement is dependent on effort praise (ignores biological learning difficulties & disabilities).
- Willingham ignores innate factors in development (e.g. hearing or sight loss).



NURTURE

BLACKWELL ET AL.'s (2007) STUDY INTO FIXED & GROWTH MINDSET

AIM

To see impact of growth mindset on maths ability, achievement and motivation.

Investigation 1

SAMPLE

373 NY students

RESEARCH METHOD/ DESIGN

Correlation study Field experiment

PROCEDURE

Students in 7th grade were given a maths test & a motivation questionnaire (measuring fixed and growth mindset).

- 7th grade students given motivation questionnaire
- Students had either 8-week growth mindset intervention or control.
- 3 weeks after intervention - given questionnaire again. Teacher reports & maths grades also used.



Investigation 2

FINDINGS & CONCLUSION

Start of 7th grade = no correlation between mindset & maths. End of 7th grade = fixed/ growth mindset a predictor of maths results.

Growth mindset (GM) is related to maths ability & teaching GM has a positive impact on maths achievement.

LIMITATIONS OF STUDY

- Sample culturally biased (can't be generalised).
- Study too reductionist - only focuses on student mindset not influence of others.



KEY CONCEPTS

DEVELOPMENT

How we change & mature across our lifetime.

STAGES OF BRAIN DEVELOPMENT

Pre-natal (from conception to birth) -

develop neural tube, cerebral cortex, neurons and simple synapses.

Childhood (from birth to 12) - develop more neural connections, more dense synapses in the prefrontal cortex, understand cause & effect as connections strengthen.

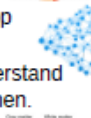
Adolescence (from 13-19) -

grey matter reaches maximum density, maturation of limbic system, pre-frontal cortex and frontal lobes.

Adulthood (20+) - fully matured pre-frontal cortex. Neurodegenerative diseases can be developed.

INTELLIGENCE QUOTIENT TESTS (IQ)

Measuring how we learn, think & problem-solve.



APPLICATIONS OF RESEARCH

READINESS FOR QUESTIONING

How? Ensuring that teachers ask students questions in a way that mirrors their development stages. Why? Piaget claimed that children need to have learning experiences based on their developmental stage (i.e. sensori motor, pre-operational, concrete operational, formal operational) in order to confidently tackle & learn from the question.

READINESS FOR KEY STAGES

How? Key stages are age related stages of development used to organise the education of children. Why? Piaget's stages are linked to the different key stages in education. For example, when children are developing through the concrete operational stage, children may learn to cook to help develop skills such as measurements and pouring ingredients into containers.

GROWTH MINDSET- PRAISE FOR EFFORT

Teachers set small but doable tasks to make progress & praise for effort rather than attainment/intelligence so they develop a love of learning & seek to improve & try new things.

MEANING NOT LEARNING STYLES

Teachers support students to think about meaning of information and linking to prior experiences etc.

