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TOPIC 2

Cognitive Development between 12 and 18 years

Do we talk the same way with a 10 years old child than with a 14 years old?

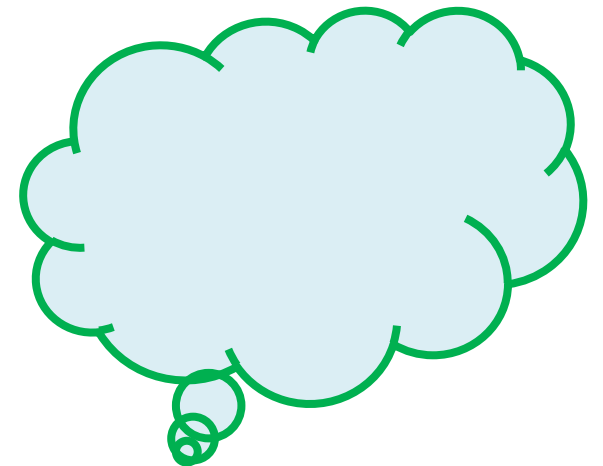
What about politics?

And what about the meaning of life?

Some examples... ?? Brothers, cousins ...

Age	Stages	Characteristics
0 to 2 years	Sensorimotor	<ul style="list-style-type: none"> -Innate reflexes -Coordination of sensory and motor skills -Basic understanding of the environment: object permanence developed -LANGUAGE
2 to 7 years	Preoperational	<ul style="list-style-type: none"> -LANGUAGE -Symbolic thinking (images and language to represent and understand) -Egocentric thinking -Conservation developed
7 to 11 years	Concrete operational period	<ul style="list-style-type: none"> -Logical and systematic thinking -Only in relation to specific objects -Concept of number developed -Reversibility -Sociocentric thought
11 years...	Formal operational period	<ul style="list-style-type: none"> -Abstract, hypothetical-deductive and scientific thought

- **Eg.** An animal with a fin living in the water can only be a fish, never a mammal.
- **Eg.** Realize that a dolphin needs to surface to breathe, or feed its young, and deduce therefore that it is a mammal



Formal Operational Period

J. Piaget

- MADURATION + EXPERIENCE
- **A Distintive feature:** thinking in terms of possibility and reality
- Ability to work with **hypotheses**, abstract assumptions that are not in the **concrete reality**
- It allows teens:
 - Fantasize
 - Speculate
 - Hypothetical thinking
 - Deductive reasoning
 - Construct their own theories

Formal Operational Period

J. Piaget

- It may appear late
- It may not appear. It is not present in every adolescent, not even in all adults (Cook & Cook, 2010; 25% Feldman, 2009; 40-50% Santrock, 2011)
- The new generations acquire formal skills earlier, why could that be?



Functional features of the **formal** intelligence

- THE REAL AS A SUBSET OF THE POSSIBLE
 - Speculations on all possible results of apparently simple actions. Eg. plane crash
- REASONING hypothetical-deductive
 - Tendency to consider the concept of thinking (metacognition). Eg. Why do I think what I think? Why am I thinking about why I think what I am thinking?



Functional features of the **formal** intelligence

- The propositional language: ability to operate on verbal propositions and not only on real objects
 - **PROPOSITION**: statements about what "might be possible"
- **COMBINATORY NATURE**: formulate and analyze all possibilities of problem solving affected by more than one variable.
 - Eg. Choose I wear today

Post formal thought

- Less importance of interactions with the environment
- Metacognition and cognitive self-regulation

Formal Operational Period

J. Piaget

- If elephants are larger than dogs and dogs are larger than mice, then elephants are larger than mice
- **In conflict with reality:** If mice are larger than dogs and dogs are larger than elephants, then mice are larger than elephants

Formal Operational Period

J. Piaget



They offered \$ 50 to a student with money problems for being in favor in a debate that the government should never give or lend money to students in financial difficulties.

Would a primary school student be able to renounce from his own beliefs?