How do humans develop concepts?

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Concept

• Mental representations
  • entities that exist in the brain

• Abilities
  • peculiar to cognitive agents

• Abstract objects
  • Objects that immediate between thought, language, and referents
Piaget Theory and Learning

- Developmental Stages in children
Piaget Theory and Learning

- Preoperational Stage (2-7 years)
  - Have memory
  - Lacks abstract concepts
EXP 1 (Transitivity)

Which is longer? RED or YELLOW
EXP 2 (Conservation)

Which group has more coins?
Quick Learning Versus Long Term Learning

Quick Learning
• Understand concepts on-the-fly - SUPERVISED

Long-Term Learning
• UNSUPERVISED learning of concepts

• Apply concepts
  • same experiment
  • different experiment – but same abstract concept
Experimental Steps

1. EXP 1 on Sticks with length as measure
   - Needs explanation of transitivity
   - Explain the transitivity concept (Quick Learning)
     - understands transitivity without explanation

2. EXP 2 with coins (diversion to another problem)

3. EXP 1 with clay cubes with weights as measure (check understanding in other scenarios)
   - Note Responses

4. EXP 1 with Sticks to check quick learning
   - Note responses
Educational Implications

• Content up to speed with the learning capabilities

• Can a 2-7 year old child apply abstract concepts to similar problems?

• Familiar concepts to relate to newer concepts
References


