

## LECTURE WEEK 1

PSYCHOLOGY OF MATHEMATICS LEARNING

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## SYLLABUS

- Requirement
- Purpose of the lecture
- References
- Learning strategies
- Evaluation
- Communication

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### “WILD BOY”

Suppose that a child grew up from birth to age twelve in a forest without any human contact. What do you think that the child would be like at age twelve?

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Physically weak and unhealthy	Unattentive to stimuli
Attentive to stimuli	Unresponsive to pain
Responsive to pain	Unresponsive to temperature
Responsive to temperature	Uninterested to other people
Interested to other people	Restricted to a very few food tastes
Enjoyed a broad variety of food tastes	Hadn't developed a form of oral language
Had developed a form of oral language	Hadn't developed a form of gesturing language
Had developed a form of gesturing language	Hadn't developed a form of written language
Had developed a form of written language	Hadn't developed basic arithmetic skills
Had developed basic arithmetic skills	Hadn't developed invented many useful tools
Had developed invented many useful tools	Wouldn't be able to learn basic language skills swiftly

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### History of educational psychology

- The boy was named Victor who was living in the forest of Aveyron, France
- Physician: Dr Jean Marc Itard
- A student and an adolescent
- In 1800s in Paris
- Five years

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### The promise of educational psychology for meaningful learning

- Learner-centered
- Readiness skills – natural social interactions
- Motivated to learn
- Developed instructions

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### Initial questions

- How do we know if we have learnt something?
- Is there a best way to learn?
  - How are you going to learn the contents of today's lesson?
- To learn something new there has to be a change somewhere.....where?

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### Memory Test

- Hvbrkltwgd
- ABCDEFGHIJKL....Z
- XDE, KMW, HKS
- RAT, BAT, HAT
- 2000, 1980, 1945, 1990
- 55465371
- 17081945

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### What is Educational Psychology?

- It is a science, a branch of psychology that connects to education
- Investigates the instructors manipulation of the environment – changes in the learner's knowledge that arise from an experience
- The main goal is understanding and improvement of education

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### Scope of educational psychology

- Cognitive development
- Physical development
- Social and moral development
- Motivations
- Intelligence
- Cognitive processes
- Learning theories
- Individual differences
- Culture
- Testing, measurement, assessment
- Classroom teaching

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### Development of Edc Psychology

- Associationist era (rote learning)
  - Stimulus and respond (Trial and error)
    - (Search: Ebbinghaus, Pavlov)
  - Rewards or punishment (Law of effect)
    - (Search: Thorndyke, Skinner)
- Cognitive era (meaningful learning)
  - Constructing knowledge
  - Social influence into cognition growth

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### What is cognitive psychology?

- It is a narrower field
- The study of how people perceive, learn, remember and think about information
- Is the general dissatisfaction with behaviorism

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## Cognitive Psych – Psych of learning

- In the 1960's it was argued that behaviorism was flawed because it ignored internal mental processes (i.e. how people think) (See: Bruner's constructivism, John Dewey, Piaget)
- Chomsky's attack on Skinner where he argued that the mind guides the development of language, rather than environment stimuli. Children were capable of forming novel sentences that could not have been previously reinforced
- The raise of information processing as models of human thinking & problem solving (Newell & Simon, 1972)

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## Behaviorist approach on learning process



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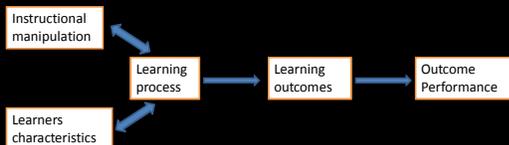
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## Cognitive approach on learning process



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For you to do:

- Summarise the difference between associationism & cognitivism
- Explain the meaning and significance of cognitive psychology for mathematics learning

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Please STUDY HARD

NOT hardly study

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