

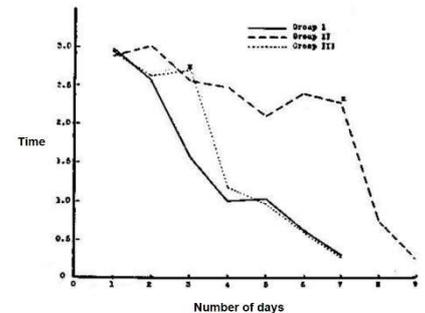
COGNITIVE PSYCHOLOGY: Lecture 1 (31/07) – The history of cognitive psychology

Cognitive psychology – the study of mental processes

Behaviourism – rejected internal mental structures, describing all behaviours as complex stimulus-response associations, based on observations, learning will only occur when rewarded

Tolman

- Studied rats in mazes
- Rats will only learn when given a reward
- Group 1 – control – run in maze once per day, found food in goal box
- Group 2 – experimental – not fed while in maze for 7 days, rewarded in maze after 7 days
- Group 3 – experimental – not fed while in maze for 3 days, rewarded in maze after 3 days
- End of behaviourism since Tolman showed animals learn without rewards – once rewards were offered time ↓ rapidly but had already learnt maze
 - Rats were learning during non-rewarded trials
 - Learning was only shown when the motivation of food was introduced



Mental chronometry – measuring mental processes with the use of reaction time (RT)

- Timing how long thoughts take
 - Compare behaviour in 2 tasks that differ in only 1 mental process e.g. simple vs. choice reaction time
 - Simple RT – press button to any light
 - Choice RT – press different buttons for different coloured lights
 - Includes time to discriminate between stimuli (discrimination time) and the time to select one of the several motor responses (motor choice time)
 - *estimate of stimulus evaluation time = choice RT – simple RT*
- Infer the nature of processes e.g. memory scanning
 - Memory scanning paradigm – subjects memorise a short list of items and are later asked to identify if a given number (probe) was part of the list
 - Pattern of results → make inferences of how people search through memory
 - 2 dimensions – people may...
 - Search for items parallel (at the same time) or serially (one by one)
 - Stop searching once the item is found (self-terminating) or keep searching through the whole set regardless (exhaustive)
 - Research has shown that humans perform a serial exhaustive search

Technology

Computers take in and manipulate info

- Investigate mental processes scientifically
- Use computers as a *model* for human info-processing systems
- Construct a model of cognitive processes and test the model by measuring human behaviour

The need to investigate cognitive processes indirectly

- Introspective data doesn't provide valid insight into determinants of cognition
- Some cognitive processes occur without any conscious awareness or control and ∴ aren't available for introspection
- Even consciously controlled cognitive processes are subject to a variety of *cognitive biases* and reasoning errors that influence our interpretation of events without our awareness

Lecture 2 (1/08) – Attention

Key processes in memory

- How does encoding – forming a memory code
- **Storage** – maintaining encoded info in memory over time
- **Retrieval** – recovering info from memory stores
- Forgetting may be due to deficiencies in any of the 3 key processes

Attention – focusing awareness on a narrowed range of stimuli or events

- Selective attention is critical to everyday functioning

Divided attention – Becklen and Cervone

- Having divided attention has a negative impact on performance on a range of tasks especially when the tasks are complex or unfamiliar
- When people multitask they are switching their attention back and forth not processing them simultaneously
- Interested in how much information people processed when they weren't paying attention
- A group of people wearing white or black shirts throwing a ball
- Tell observers to count how many times white shirt people throw the ball
- Observers didn't notice a woman walking through the group or a gorilla walking through (they wore black clothing)

Attentional limits

- You need to pay attention for info to be processed in your mind
- Dividing attention ↓ amount of info processed
- When you aren't paying attention to something at all *inattention blindness* may result
- Why is attention limited?