

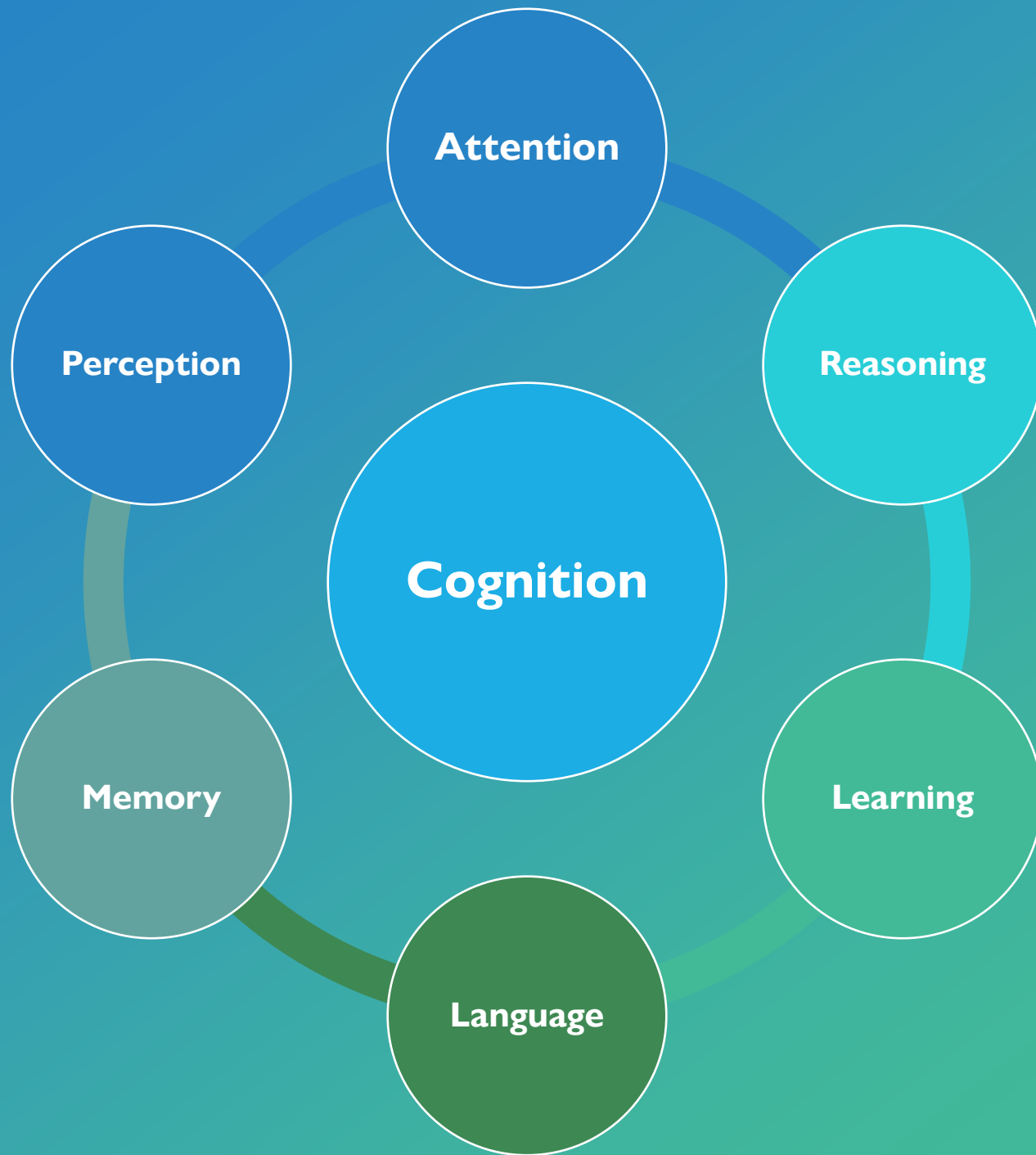
COGNITION IN ACTION

Background and Historical
Overview



Brief Recap

- Cognitive Psychology:
 - Scientific study of mind (and brain)
 - Mind = workings of living brain
 - Determines and controls behaviour
 - Allows us to make sense of the world
 - Helps us decide what actions to take



Cognitive processing typically studied in lab setting – Basic Research

- Theoretical
 - Practical applications are incidental
- To gain understanding of cognition
- Highly controlled experiments
 - Clear cause and effect
- Only IV(s) allowed to vary
- Interpreted in line with theory
- More predictions from outcomes = more experiments



DISCUSSION TASK

What are the criticisms of
Basic (lab) work?

Basic (Lab) Research - Critique

- Lacks ecological validity
- Results do not translate to real-world
- Ethical Issues
- Not possible to study all behaviour
- Typically involves UG Psychology students

Embodied Cognition

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Importance of recognising brain, body, & environment in cognition

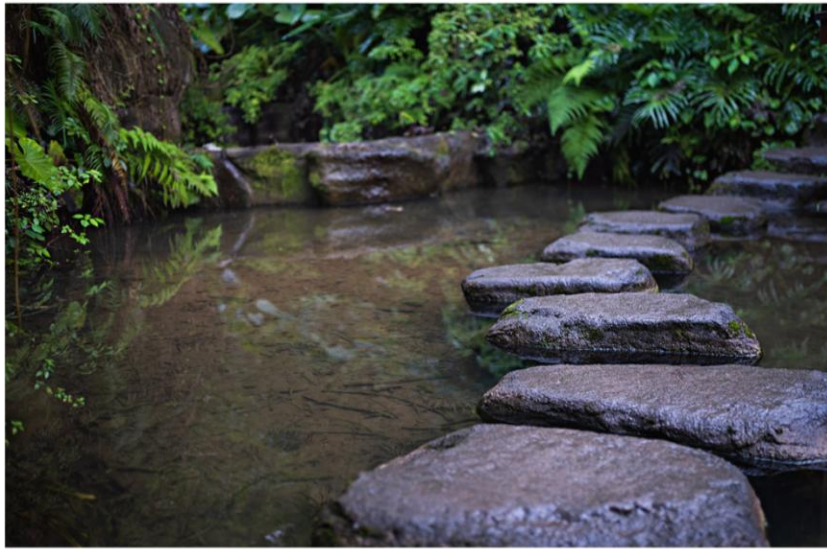


Cognition is for control of action, not just gaining knowledge



Cognition is a form of action itself

Gibson: Affordance of Action



- We do not only perceive objects in abstract mathematical or geometric terms but in actions they support (afford)....
- Instead of thinking:
 - “that stream is about a half a meter wide”...
 - You may judge whether you could jump over it

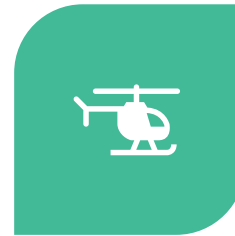
Historical Overview – Impact of WW2



**PRODUCED
TECHNOLOGICAL
ADVANCEMENTS**



**OPERATORS HAD
TO LEARN NEW
SKILLS**



**E.G., RADAR/HIGH
SPEED AIRCRAFT
COMBAT**



**OUTCOME = NEED
TO UNDERSTAND
COGNITIVE
CAPABILITIES AND
LIMITATIONS IN
USING NEW
TECHNOLOGY**

Cognitive Psychologists

- We need you!

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- Cognitive Experimental Psychologists called in to understand:

- Why pilots crash good aircrafts (Fitts & Jones, 1947)
- Why poor vigilance for enemy planes over English channel (Mackworth, 1948)
- If Learning Theory could be used to better train military personnel (Melton, 1947)

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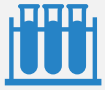
Impact of WW2



- Broadbent – trained as a pilot
 - Experienced 1st-hand cognitive issues when dealing with two competing inputs
- Work on information-processing using dichotic listening task established limitations of attention
- Helped make improvements to equipment design to maximise operator performance

Applied Research

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Take results from lab studies to see if same results found in real-life situations



Conducted out of the lab

Field or observational



Mainly goal-driven



Not concerned with understanding basic cognitive processes



Road test theories in practical situations

DISCUSSION TASK

What are the criticisms of
Applied work?

Applied Research Critique + .



Lack of Control

Over external variables influencing DV

Challenging to draw meaningful conclusions



Theoretical underpinnings not considered to the extent they should



HOWEVER –

Until applied work is conducted, difficult to know what factors to test

- I.e., how would lab work know what to control?

Something in the middle: Applied Lab work

- Looks at everyday cognition in lab setting
- Stricter control than applied but less than basic
- Importance:
 - Need to understand mechanisms underlying cognition while aware of changes and influences from real-life

Applied Cognition Psychology

– Aims:

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Produce solutions to real-world cognitive problems



By providing knowledge and insights to use in everyday practical terms



Help inform/improve theoretical approaches to cognition



Links back to guide future applied work

Cognition in Action



Cognition in Action

