PSYC1020 MINDS, BRAINS AND BEHAVIOUR

WEEK 2

LECTURE NOTES A

Top Down Processing

- Already seeing something and being able to recognise it in the future
- Using existing knowledge to enhance perceptual processing – can lead to clearer and more accurate perception but can also distort perception

Is It Scientific?

- A discipline can be considered legitimately scientific if it relies upon the scientific method to acquire and evaluate its knowledge base (chemistry, biology) (not engineering, computer science, psychology in some sense)

Scientific Method

- Data → theory → hypothesis → observation (can start anywhere, observation also connects to data)
- Overtime understanding improves – as long as you change theory according to data, theory gets better overtime – self correcting knowledge generating system
- Observations should be unbiased, repeatable, controlled and quantitative
- Theories should be testable, general and parsimonious

Five Most Prominent Paradigms in Contemporary Psychology

- Behavioural
- Cognitive
- Biological
- Psychodynamic
- Humanistic

The Behavioural Paradigm

- Subject matter
    - General definition of the field: the scientific study of behaviour
    - Specific focal topics: learning
- Methods: experimental (mostly animals)
- Language and concepts: stimulus, response, conditioning, reinforcement, shaping
- Root metaphor: blank state, lump of clay

- Intellectual influences
    - Prior: mentalism
    - Contemporary: other sciences, especially Darwinian Biology

The Cognitive Paradigm

- Subject matter
    - General definition of the field: the scientific study of mental processes (as shown in behaviour)
    - Specific focal topics: perception, attention, memory, thinking
- Methods: experimental (mostly human)
- Language and concepts: input, output, codes, serial processing, memory stores
- Root metaphor: programmed computer
- Intellectual influences
    - Prior: mentalism, behaviourism
    - Contemporary: computer science, specifically artificial intelligence

LECTURE NOTES B

Major Parts of the Brain

- Cerebellum (hind brain) and brain stem discussed next week

Part	Notes

Cerebrum (cerebral hemispheres, forebrain)	• Two hemispheres divided by *longitudinal fissure* or *inter-hemispheric fissure*
	• Difference in animal brains, size (not everything and folding pattern (more folds = maximising surface area on brain)
	• Cerebral cortex: the outermost surface layer of the cerebrum (where cell bodies of neurons are located – greater surface area = more neurons)
	• Cortex = grey matter
	  ○ Contains the cell bodies of the brain's neurons
	  ○ Highly folded to maximise surface area (maximize amount of cortex that can fit inside scull)
	• White matter
	  ○ Underneath the grey matter is all the 'wiring'
	  ○ Axons of the neurons, connecting to the spinal cord and to other areas of the cortex

Anatomic Terminology

- Top = superior / dorsal
- Front = anterior
- Back = posterior
- Bottom = inferior / ventral
- Front = anterior / rostral