

Week 1 Attention notes:

Focused attention: we only attend to a small subset of the information that bombards our senses. Makes sure to select only one particular modality or characteristic.

Early Filter theory: Filter for attention is located early in the processing stream, so only physical properties are processed and it then determines what to process further. This is experimented by using dichotic listening task, in which participants are poor at retrieving information from the unattended ear. Broadbent in particular showed that there was an early attentional filter in which a single channel of information is selected on the basis of physical characteristics.

Problems with early filter theory: Highly salient information such as your own name is selected – i.e. the attention seems to depend on the content of the information and may be unconsciously analysing the words for meaning (as was shown in the conditioning experiment where electric shocks are given to city names).

Dichotic listening task: information given in an attended and an unattended ear and tested whether only one is processed or both is.

Late filter theory: All stimuli is fully analysed but most important stimulus determines response to further processing. There is little support for this idea.

Attenuation theory: Suggested by Treisman and is a more flexible model. Filter attenuates analysis of unattended information and does not block information completely as was proposed in the early filter theory.

Spotlight: A small region of enhanced visual processing occurs. BUT it was also shown that the time to make judgement on group of letters was not increased when letter is further away from spotlight. So maybe this idea is wrong.

Zoom-lens: Area of focal attention can be increased or decreased depending on task demands. Perhaps this is a better idea in line with previous concept of letter judgement. In other words the attentional spotlight can be broad or narrow! However there is still some problem with this idea too. This is because visual attention is often directed to objects not locations. This was shown with an fMRI study in which objects were superimposed and attention was built on the face building or movement. When the face is attended to, the building brain area does not light up at all – in other words the attention is selective.

Visual search;

Disjunctive search: Single features differentiate target from the distractors. It is easier, more efficient, and is testing parallel search.

Conjunctive search: Multiple features differentiates target from distractors and is more difficult, effortful and is comprised of serial search habit. The more items there are, the longer it takes to process unlike disjunctive search.

Feature integration theory;

Master map: Slow serial process integrates or binds features from different maps into coherent objects. This requires focal attention and this is why conjunctive search is slow. There is a red X in the top left!

Individual feature map: Features of objects are initially processed in parallel. Disjunctive search can be pre-attentive. There is something red in the top left!

Illusory conjunctions: The what is processed, but not in the correct order! This is evidence for feature integration.

Divided attention: When you try to do two things at once.

Central attentional capacity theories: One pool of attention and there is central capacity allocated flexibly across tasks – the resource is strictly limited. This explains why complex tasks often interfere with any other tasks – even dissimilar ones.

Multiple resource theories: Several independent pools of attention. Similarities between the two tasks leads to resource competition and thus results in interference. Explains why similar tasks interfere with each other

Dual-task paradigm: Performance decrements occur when two tasks are combined and this sheds light on nature of attentional limitations

Multi-tasking: Not easy, one example is in driving and talking to someone on the phone – it results in decreased awareness and recognition of traffic objects.

Cognitive bottleneck;

PRP; Psychological refractory period: Practice reduces or does not eliminate PRP. When two stimuli are presented in close succession, the response to the second stimuli is slowed. There's a hardwired cognitive bottleneck forcing at least some serial processing. Dual tasks require quick attention shifting rather than parallel distribution of attention.

Week 2 Working Memory I notes:

Memory: Means by which we retain and draw on our past experiences to use that information in the present. There are three common operations in memory: Encoding, storage and retrieval. Each operation represents a stage in memory processing.

Encoding: Transform data into mental representations.

Storage: Keep encoding information in memory.

Retrieval: Pull out or use information that is stored in memory.

Recall: Produce an item from memory. Three main types or recall tasks: serial recall, free recall and cued recall.

Recognition: Select an item seen previously and is usually better than recall. This is because retrieval is cue dependent.

Explicit: Participants engage in conscious recollection. Tests of explicit memory are often called direct tests. There are benefits from deep meaningful encoding and does not reliably benefit from study intention. There is both semantic and episodic memory sub categories.

Ribot gradient: Recent episodic memories are forgotten first. Reversed ribot gradient is thus when semantic knowledge and old episodic memories are forgotten first.

Proactive interference: Previous learning interferes with later learning.

Retroactive interference: Later learning interferes with earlier learning.