

The cognitive approach: the basics

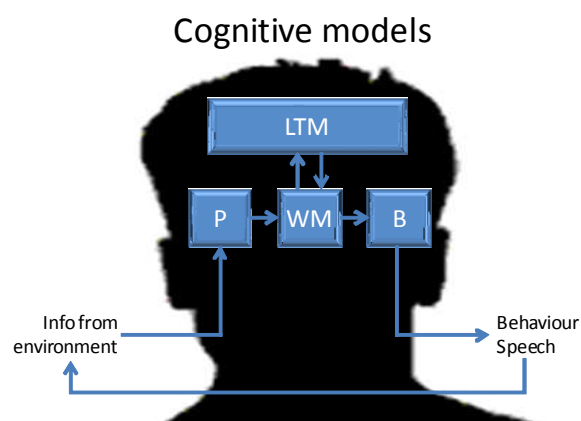
What assumptions do cognitive psychologists make?

Cognitive psychologists assume that behaviour is the result of **information processing**. By describing thinking as information processing, cognitive psychologists are making a comparison between minds and computers (i.e. they are adopting a **computer metaphor** for the mind). This is useful because minds and computers have some attractive similarities: both have inputs, outputs, memory stores and a **limited capacity** for how much information they can process at any one time. Just as a computer's behaviour is determined by what information it is given and how it has been programmed, so a person's behaviour is determined by (1) the information available in their **environment**; (2) the ways they have **learned** to manipulate (process) information; and (3) the capacities for information processing inherent in the types of **brain** people have.

How do cognitive psychologists explain human behaviour?

Central to the cognitive view of people is the idea that they actively try to make sense of their environment by imposing order and **meaning** on the things they encounter. Cognitive explanations of behaviour are based around the ways in which people organise and process information relevant to particular ways of acting. For example, in attempting to explain atypical behaviours like phobias, a cognitive psychologist would start from the assumption that the atypical feelings (anxiety) and behaviour (avoidance) reflect atypical or **faulty processing** of information about threats. A person with arachnophobia, in this view, processes information about spiders as threatening even when they pose no threat. A cognitive psychologist might explain this in terms of schema driven processing. **Schemas** are ways of organizing knowledge and experience of the world into generic 'templates' that are used to make sense of objects, situations and people we encounter. It might be that an arachnophobe's schema for spiders contains the information that they are dangerous and to be avoided. As a result, whenever they encounter a stimulus that looks like a spider, they will react with alarm.

Cognitive psychologists try to build up **cognitive models** of the information processing that goes on inside people's minds. Here, too, they are guided by the computer metaphor such that the mind is assumed to be organised into **modules**, each of which has a particular function and its own ways of processing information. A cognitive model of the memory system would suggest that it has two main components, one for dealing with the information that we need to process now (**working memory**), and another for storing all the information we have acquired in the past and might need again in the future (**long term memory**). These components are assumed to be interconnected, because current information processing may need to draw on past experience and because the outcome of current information processing might need to be stored for future reference. The memory system would be connected to other information processing systems, for example those for making sense of incoming information and planning speech and behaviour. One of the aims of cognitive psychology is to clearly specify all the different information processing modules in the human mind in terms of their features and relationships with each other.



How do cognitive psychologists study human behaviour?

Cognitive psychologists follow the example of the behaviourists in preferring objective, controlled, **scientific** methods for investigating behaviour. They use the results of their investigations as the basis for making **inferences** about mental processes. One strand of cognitive research involves conducting **case studies** of people with brain damage. Comparing their performance on mental tasks with that of uninjured people can help psychologists understand which parts of the brain are used to process which sorts of information. Other cognitive research may involve manipulating either the information available to people (inputs) or the ways they process it (processes) and seeing what effect this has on some aspect of behaviour (outputs). **Laboratory experiments** are often used for this as the laboratory situation gives better opportunities than field settings for careful manipulation and **control** of information processing and precise **measurement** of cognitive performance.

An example of this type of research is the experiment into levels of processing carried out by **Craik and Tulving (1975)**. They presented participants with a series of words on a screen and manipulated the way the words were processed by asking questions about their appearance, sound or meaning. They found that PPs recognized more of the words they had processed the meaning of than those they had processed the appearance of, suggesting that deeper processing of information leads to more durable memory traces than shallow processing does.

Evaluation of the cognitive approach

Cognitive psychologists' emphasis on scientific methods is a strength of their approach, although some would question the value of their experimental research, which often makes use of very contrived and **unrealistic** tasks and measures which may not adequately reflect real-world psychological and behavioural processes. The approach addresses some of the shortcomings of the behaviourist and social learning approaches by offering a much better developed account of the **internal processes** that shape behaviour, thanks to the use of the computer metaphor. However, some critics would argue that over-reliance on the computer metaphor has led cognitive psychologists to neglect the influence of **emotions**, which computers lack, on thinking and behaviour. It could also be suggested that the idealized descriptions of information processing produced by cognitive psychologists ignore the huge **variations** between people in how they think and act, as well as often failing to reflect things we know about brain functioning and the influence of **genes** on behaviour. However, on a practical level the cognitive approach has led to the development of useful ways of understanding and treating psychological disorders. **Cognitive therapies** are amongst the most effective ways of treating problems like depression and avoid many drawbacks of other therapies, being relatively fast acting and free from side effects.

The cognitive approach and key debates

Cognitive psychologists are divided on the issue of **free will**. Some believe people can choose their actions, others are more **deterministic** and suggest that we can no more decide on our own behaviour than a computer can. In the nature-nurture debate, cognitive psychologists take an **interactionist** position, believing that our behaviour is influenced by learning and experience (nurture) but also by our brains' innate capacities as information processors (nature). The approach is basically **nomological** in outlook, as its focus is on establishing the information processes that are common to all people. Cognitive psychologists are generally **reductionist** although they vary about how far psychological processes should be broken down when explaining them. Some suggest that cognitive processes can be broken down ultimately into biological processes, whereas others believe there is a level beyond which it makes no sense to reduce cognitive processes to a more fundamental level.