

cognitive psychology

Cognition is the act of knowing, and cognitive psychology is the study of all human activities related to knowledge. These activities include attention, creativity, memory, perception, problem solving, thinking, and the use of language.

Until about 1970 the cognitive approach had little impact outside the experimental laboratory. In the years since then, however, various cognitive theories of personality have been developed, as well as information-processing analyses of intelligence tests and a number of cognitively oriented therapies (see cognitive therapy).

Cognitive psychology arose partly as a reaction to behaviorism. The behaviorist insistence that only stimuli and responses lay within the scope of science had long prevented the effective study of higher mental processes. The establishment of cognitive psychology broke this taboo.

Characteristic Methods

In cognitive psychology the human mind is conceived of as a structured system for handling information. According to most cognitive theories, information picked up by the senses is analyzed, stored, recoded, and subsequently used in various ways; these activities are called information processes. They need not be represented in consciousness; cognitive psychology relies very little on conscious introspection. Instead, experiments are designed to take advantage of various objective indicators of information processing: reaction-time measurement, response selection, performance in memory tests, and so on. Mathematical and logical analyses of such data are used to construct models of the underlying processes. These models are not intended to represent actual brain mechanisms. Although it is assumed that all mental activity has some physiological basis, that basis is of little concern to most cognitive psychologists. Just as the program of a computer can be described without knowledge of its physical construction, it is hoped that the program of mental information-processing can be understood without regard to the machinery of the brain.

The analogy between brain and computer, or mind and program, has influenced cognitive psychology in many ways. Concepts such as code, information storage and retrieval, buffer, and executive routine frequently appear in cognitive theories. Moreover, some cognitive psychologists regard their field and artificial intelligence as coordinate sciences that borrow concepts from one other (see cognitive science). Not all subscribe to this view, however. Some feel that the differences between human and artificial intelligence are so great that the analogy is misleading.

Topics of Investigation

Although the historical roots of cognitive psychology go back to introspective psychology and associationism, its modern form took shape in the 1950s. Donald Eric Broadbent's *Perception and Communication* (1958) was the first book entirely devoted to human information processing. It introduced the notion of several distinct kinds of storage systems (memories) of limited capacity and of attention as a mechanism for filtering incoming information. A wide range of new techniques for the study of information processing was soon devised and led to a number of important discoveries. Using brief visual presentations of letters and numbers, for example, George Sperling demonstrated the existence of a special visual information store (subsequently called iconic memory) with almost unlimited capacity but very short duration. It is now supposed that recoding from iconic memory to more lasting forms of storage takes place by both verbal and nonverbal means.

Subsequent research resulted in the further division of memory into various parts or types. A short-term memory of sharply limited capacity, which is primarily verbal and shows rapid forgetting, has been distinguished from a long-term memory that shows little evidence of any limitations at all. Special kinds of memory for visual material have also been postulated, and techniques now permit the objective study of visual imagery. Recent research has dealt not only with episodic memory for personal experiences but also with semantic memory, which is essentially one's store of knowledge. Reaction-time methods have been used to explore the structure of semantic memory, and there have been a number of attempts to model that structure with computer programs. The success of these attempts remains controversial.

Several other areas of interest have concerned cognitive psychologists from the first. One of these is pattern recognition: how does the information-processing system categorize and distinguish among objects? Another is attention: how and at what level does the individual select among the available alternative sources of information? There has also been continued work on the higher mental processes: decision making, problem solving, and thinking. Much of the work has involved computer simulation as well as experiment.

At first, cognitive psychologists were primarily concerned with explaining the phenomena uncovered in their own laboratories. Their work soon brought them into contact with other intellectual traditions, however, and these contacts have led to new theoretical initiatives. The field of psycholinguistics, for example, was created by applying experimental methods to the study of language. It has been heavily influenced by concurrent developments in linguistics itself, especially the work of Noam Chomsky.

The development of cognitive processes in the growing child has also become a subfield in its own right, strongly affected by the work of Jean Piaget and his students. The perceptual theories of Eleanor and James Gibson use a different definition of information and reject the concept of information processing entirely. Although these developments have given rise to new theoretical disagreements among cognitive psychologists, they have also given a renewed impetus to the field as a whole.

Ulric Neisser

Further Reading:

Altarriba, J., ed., *Cognition and Culture* (1993).

Galotti, K., *Cognitive Psychology In and Out of the Laboratory* (1994).

Honeck, R., ed., *Introductory Readings in Cognitive Psychology* (1994).

Neisser, U., *Cognition and Reality* (1976).

Sternberg, R., *The Nature of Cognition* (1999).

Strube, G., and Wonder, K., eds., *The Cognitive Psychology of Knowledge* (1993).

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