

# Paradigms in the field of cognitive psychology



## **Cognition**

Cognition refers to the mental processes that are involved in the acquisition of knowledge and how it is used. This includes aspects such as sensation, perception, judging, learning, attention, memory, thinking, and problem solving. It is thus involved with how people acquire knowledge, use it in their lives, and change their preferences accordingly with the passage of time. Cognition has been closely associated with the mind which has the capabilities of carrying out the processing of information and its use. It has been categorized as being natural or artificial and as conscious or unconscious. It has been considered an abstract characteristic of living organisms and over the years been studied as a property of the brain.

In the field of psychology, it has been used to refer to the mental functions and the state of the entities that have intelligence as a characteristic such as human beings. It is also used in the field of artificial intelligence which is involved with the use of highly autonomous machines that are able to make decisions on their own using predetermined or set conditions. Studies are thus directed towards knowing how mental processes take place in the brain, and factors that affect the mental process. Recent research has been directed towards understanding concepts such as meta reasoning, abstraction, and concretization.

## **Emergence of cognitive psychology as a discipline**

Cognitive psychology, a discipline of psychology, is involved with the examination of mental processes (Costall & Still, 1987). This discipline has its basis in the works of Wolfgang Kohler, Jean Piaget, William James, and Wilhelm Wundt (Boring, 1950). Cognitivism is the school of thought that is

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involved in how people are able to represent information mentally. The term cognitive psychology came in to being in 1939 in a publication by Thomas Verne Moore, and later in a book by Ulric Neisser, in 1967. It developed as a separate discipline in the late 1950's and early 60's following a cognitive revolution that was began after the critique by Noam Chomsky on behaviorism and empiricism in 1959.

The cognitive revolution was as a result of researcher attempts to develop theories pertaining to the mind on the foundations provided by computational representations and procedures. The cognitive approach came in to being following the book Perception and Communication by Donald Broadbent which led to the dominant paradigm in cognitive psychology engaged in information processing. The major premise behind the cognitive revolution was the inability of the theory of behaviorism to make a distinction between performance and memory and also its failure in being able to explain complex learning (Chomsky, 1959).

### **The interdisciplinary perspective in cognitive psychology**

There has been an interdisciplinary approach to cognitive psychology (Medlin & Ross, 1992). The disciplines that it has combined with include artificial intelligence, neuroscience, computer science, philosophy, and cognitive science. Due to the experimental nature of cognitive psychology, there has been the reliance on these other disciplines to provide for experiments and simulations that are necessary. The results from these experiments are then directly compared to the behavior studied in human beings. This has led to three main divisions within cognitive psychology: neural, experimental, and computational cognitive psychology.

Computational cognitive psychology involves the development of computational and mathematical representations of human cognition through the use of symbolic and dynamic systems developed through the use of computer science methods and techniques. Experimental cognitive psychology is considered as a natural science using the experimental methods that are used in the natural sciences to explore human cognition. Neural cognitive psychology relies in neuroscience methods to come up with models that help in comprehending the neural foundations of human cognition (Thompson, 1986).

### **The impact of the decline of behaviorism on the discipline of cognitive psychology**

Behaviorism is involved with the study of the theory that attempts to relate noticeable behavior to observable and objective stimulus conditioning without the recourse towards the use of internal mental processes (Watson, 1913). According to behaviorism, it is possible to study behavior through observation without necessarily using any mental processes. Behaviorism led to the decline of cognitive psychology but was discredited due to the last part in its definition that points to the lack of using a mental processing foundation which is critical in cognitive psychology. The decline of behaviorism has led to an integrated approach in the study of cognitive psychology that helps in creating experimental models for studying as it is important to recognize the use of mental processes as opposed to behaviorism which was only using observation.

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