



# Concept and Evolution of Cognitive Psychology

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**Abstract:** Cognitive psychology is a branch of psychology whereby scientists are motivated to study the underlying mechanisms of the higher mental processes in human beings. Therefore, to other disciplines, cognitive scientists are interested in understanding human perception, decision-making, attention, problem-solving, thinking, and the development of speech among other mental processes. On the other hand, the term cognition is derived from 'cognosco', which in Latin translates to making decisions, discovering, learning, investigating, studying, or recognizing. However, cognition has been defined by most scientists as the processes involved in transforming, reducing, elaborating, storing, recovering, and using the sensory signal (input). Generally, cognitive psychology is focused on understanding the mental processes of acquiring, processing, and storing information in human beings (Ruisel, 2010, p.268). This research paper discusses the concept of cognitive psychology and its concept as it greatly affects the learning power of the human being and plays a vital role in educational institutions for the growth of students while effective learning processes.

**Keywords:** Cognitive psychology, human perception, decision-making, neuroscience, problem-solving, thinking, mental process

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## INTRODUCTION

As part of the highly integrative discipline of cognitive science, cognitive psychology is closely related and influenced by other disciplines such as neuroscience, computer science, linguistics, philosophy, artificial intelligence, anthropology, biology, and physics. For instance, cognitive psychology is very much related and influenced by physics in that they both use experiments and simulations as research tools in predicting or comparing human behaviors through different models (Goldstein, 2008, pp.13-15).

Moreover, with the advent of brain imaging techniques, cognitive psychology has found wide-spread applications in various aspects of neuroscience. There are three major approaches, which are widely in use in cognitive psychology to neuroscience: that is, neural, experimental, and computational approaches. In experimental cognitive psychology, innovative methods applicable to most natural sciences are used to study specific aspects of human cognition, including measurement of psychophysical responses, eye tracking, and response time.

Moreover, computational cognitive psychology employs computational models and formal mathematical methods in designing dynamical systems and symbolic representations of human cognition. Conversely, in neural, cognitive psychology, brain imaging, and neurobiological procedures are used to study different neural aspects of social cognition. The three approaches are, in most cases, interlinked and complementary in providing insights into the human mental processes (Goldstein, 2008, p. 15).

## The Emergence of Cognitive Psychology

The contemporary form of cognitive psychology is marked by the use of different new technologies in understanding human cognition. However, the study of social cognition can be traced back to the 1800s and 1900s as exemplified by the published accounts of Aristotle (De Memoria), William James, Wundt, and Cattell among other scientists.

These early scientists marked the foundation for the development of cognitive psychology because their investigations and intellectual inquiries entailed the use of cognitive approaches in solving various psychological problems.

However, in the early 20<sup>th</sup> century, the rise of behaviorism led to the decline of cognitive psychology. Here, the proponents of behaviorism including Watson, Boring, and Skinner attempted to investigate the link between the observable human behaviors and the visible stimulating conditions regardless of the underlying internal mental processes (Goldstein, 2008, p. 17).

However, in the 1950s and the early 1960s, several events including Skinner's account on verbal behavior (1957), Chomsky's review of Skinner's verbal behavior (1959), and Breland's report on "The Misbehavior of Organisms" led to the decline of behaviorism. Furthermore, behaviorism failed to provide an in-depth account as to how internal mental processes influence memory, performance, and complex learning in human beings. The failure of behaviorism to account for complex human behaviors such as language coupled with the introduction of the digital computer (1940s), Cherry's attention experiment (1953), the opening of the first commercially-available digital computer (1954), the M.I.T. and Dartmouth conferences (1956), and Broadbent's flow diagram led to the rise of what came to be known as the cognitive revolution (Goldstein, 2008, pp. 13-20). Throughout the cognitive revolution, most researchers were interested in using the information-processing approach as an alternative method for understanding behavior.

Here, the researchers focused their attention on the idea that the mind might be the central information processing device as opposed to the stimulus-response interactions proposed by the behaviorists. This approach was guided by the realization that the digital computer could process information in a step by step manner.

The study of the mind contributed to the publication of the first textbook in cognitive psychology (1967) by Ulric Neisser, and the emergence of a group of scientists interested in investigating human perception, thinking, attention, language, problem-solving, and memory relative to the mind (Goldstein, 2008, p. 15).

Nonetheless, most learning institutions in North America and Europe have incorporated cognitive psychology into their curricula since 1970, and besides, most American psychologists have moved from the behaviorist's approach to a cognitive one.

### **The decline of Behaviorism and the development of Cognitive Psychology**

As noted earlier, cognitive psychology is part of a more comprehensive and integrative discipline known as cognitive science. Therefore, cognitive psychology is closely related to other disciplines such as anthropology, neuro-anatomy, artificial intelligence, and philosophy, among other aspects, encompassed by cognitive science. Accordingly, the decline of behaviorism as the basis for studying behavior led to the integration of separate disciplines to form one primary subject, cognitive science, which provides the

theoretical foundation for investigating and understanding complex behaviors.

As a result, cognitive psychologists employ theories and research from other disciplines to study and understand different aspects of complex behaviors including measuring the duration of time that actions, organization, or planning take to occur in mind. Most importantly, the decline of behaviorism enabled cognitive psychologists to investigate the cognitive aspects involved in stimulus-response relationships (Goldstein, 2008, pp. 17-19).

Therefore, the answers to the researchers' questions regarding complex behavior have been drawn from many disciplines. For instance, it is well documented that philosophers have tried to account for cognition from different observable perspectives, and thus, it is evident that most cognitive psychology models have been developed around the 'philosophy of mind'. Furthermore, the use of computers has been widely accepted into the field of cognitive psychology to develop computer symbols of mind and different models for studying information-processing relative to human cognition.

Equally, most cognitive psychologists have adopted the same approach used in building logic circuits in computers to study the functions of biological neurons in transmitting, storing, and processing information (Goldstein, 2008).

Furthermore, the clinical insights into various disorders such as dyslexia, which have long been studied by linguists, have also found their way into the development of multiple models used to study the same diseases in cognitive psychology today.

Therefore, it is notable that the impact of the decline of behaviorism on the development of cognitive psychology has been positive considering that it has allowed most scientists to tie the knowledge derived from several disciplines to various questions in cognitive psychology. Overall, the present-day approach to studying cognition is not only informed by behavioral characteristics, but also by the physiological procedures involving the study of the mind.

This is a branch of psychology that deals with the mental processes of human beings. This includes the way human beings think, recall, and learn things. It further looks at how human beings perceive things (Goldstein, 2008). This branch of psychology mainly deals with how human beings acquire and process information (Goldstein, 2008). It further looks at how information is stored in the human brain.

This term was first used in the year 1967 by an American psychologist by the name Ulric Neisser (Willingham 2007). This was when he wrote a book about cognitive psychology. He further elaborated the meaning of cognitive psychology. Till the 1950s, behaviorism had been used by psychologists to study the human mind. Behaviorism had been mainly concerned with studying the behavior of human beings. Cognitive psychology attempted to scientifically study the human mind and the mental process behind it. Cognitive psychology emerged as the favorite among many psychologists due to the massive flaws exhibited by behaviorist psychology. This is believed to be one of the main reasons behind the shift from behaviorism psychology to cognitive psychology.

### **Milestones in the development of Cognitive Psychology**

There are some factors that are believed to have been behind the development of cognitive psychology. Some of the factors include;

### **Criticism of Behaviorism**

Behaviorism psychology, which had been used for some time, had massive flaws. The behaviorist school of thought had been unable to account for some of the issues raised by psychologists. This was because it had relied on only behavior to make assumptions about how the human mind functioned (Willingham 2007). Many psychologists believe the use of cognitive psychology developed because behaviorism had been unable to help psychologists to effectively study the human mind. It also had been unable to explain the internal processes of the human brain.

### **Neuroscience**

This is one of the major factors believed to have aided the development of cognitive psychology. Neuroscientists study how the human brain and nervous system work together to determine human behavior (Goldstein 2008). Through these studies, neuroscientists have been able to explain behavior that has been observed in human beings. These scientists use abstract constructs and hypothetical representation to account for intelligent human behavior. These methods have been used by psychologists to determine the functionality of the human brain and account for some of the mental processes behind human behavior (Willingham 2007).

### **Information Processing Model**

This one of the many methods used to study the human brain. Psychologists have gone ahead and used this model to account for, and get a deeper understanding of the human mind. The information processing model compares the human mind with a computer (Willingham 2007).

According to the model, the human mind works almost the same as a computer. The model suggests that the same process through which a computer acquires information, stores the information and systematically arranges how this information would be retrieved is almost is the same with how the human mind works (Quinlan & Dyson 2008). The only difference is that human beings use sensory organs to acquire information. The human body has two main sensory organs the eyes and the ears.

### **Artificial Intelligence**

This is the logic behind how various computer programs have been designed. This has been useful in studying the science behind how the human mind works. This is because computer programs are designed to work almost in the same way the human mind works. This has helped the psychologist to be able to study the human mind and how it works. This has been one of the major factors behind the development of cognitive psychology (Quinlan & Dyson, 2008).

### **Importance of behavioral observation in Cognitive Psychology**

This serves as one of the key components in the development of cognitive psychology. It is through studying behavior that psychologists have been able to evaluate and test the human mind. It is also through

studying behavior that psychologists have been able to give meaning to the behavior exhibited by humans (Quinlan & Dyson 2008). This further aids psychologists in deriving conclusions after carefully evaluating human behavior. Observing behavior will enable psychologists to use some of the testing theories used in cognitive psychology. These include experimental, descriptive, and rational testing theories. Observing behavior will also aid cognitive psychologists to come up with precise conclusions that are error free. Observation is the only way through which psychologists can account for mental processes that lead to a certain behavior.

## CONCLUSION

Cognitive psychology strives to understand the human mind using observable human behavior. It is through cognitive psychology that the mystery behind human behavior is understood. It employs various scientific methods that help in studying human behavior. Cognitive psychology has helped expand psychology as a discipline because of its unique way of studying the human mind. Some of the factors that have helped cognitive psychology develop include neuroscience, criticism of behaviorism, information processing model, and artificial intelligence. These factors have helped psychologists study the human mind effectively.

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