Debate on Processing Mechanisms

Perspective

In psychology and cognitive neuroscience, we speak of processes to designate the mechanisms that are supposed to process information in the brain. Mental processes are not limited to the field of reasoning but are proposed to explain the whole of cognition, (thought, reasoning, language, perception, memory, emotions, motor skills...). Sometimes we distinguish between the so-called elementary processes that are supposed to provide the minimal “bricks” of cognitive architecture (for example, the detection of contours by the visual cortex) and the higher-level or integrated processes that are formed by more or less complex combinations of the former and that perform a given cognitive function such as reading. The idea of dealing with the functioning of thought in terms of process can be traced to medieval writings that differentiated, for example, memory from reasoning [1,4]. The notion of process is central in the theories of psychology, this term generally refers to the fundamental mechanisms that operate in the mind or psyche of the individual. Depending on the approaches (cognitive, social, psychodynamic...), the term process therefore refers to relatively different theoretical entities [5-9]. Psychophysics explores the relationship between measurable physical quantities and human perceptions, through the reaction of subjects obeying instructions under controlled conditions. Experiments repeated a sufficient number of times and with a sufficient number of subjects yield perception rules that are statistically valid for the entire population. Behaviorism defines conditioning as the fundamental mechanism of learning by which one stimulus (called conditioned) becomes associated with another stimulus (unconditioned) as a result of repeated associations between the presentation of one and the other stimulus. This learning is observed by the fact that the subject reacts to the stimulus conditioned by a behavioral response normally associated with the unconditioned stimulus, it is the “stimulus-response scheme”[10]. Recent papers showed that for example feelings are a mixture of several biochemical, sociocultural and neurological responses to environmental stimuli [11,12]. They are manifestations of stimulus-responses endured by motor system or behavioural mechanisms [2,13-18]. Psychophysical studies seek to quantify and define thresholds of perception of elementary stimuli, which avoid as much as possible association with meaning. In addition to elementary stimuli, psychological research can refer to complex events, such as words or images, that evoke knowledge or feelings as stimuli. A subliminal or preconscious stimulus is an event capable of provoking a response, but which the person to whom it is subjected does not identify as an event. In physiology, the stimulus can be external (those studied by experimental psychology) or internal. This is the elevation of the level of a substance in the organ or organism. In pharmacology, the effect of active substances on stimulus perceptions is studied [16,18-22].

References


