

Cognition and Body: A Perspective of Theoretical Psychology

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[Abstract] The article stands in the position of theoretical psychology, and explores the possible relationship between cognition and the body from the dimensions of the body. The article points out that, dualism has always dominated Western culture since ancient Greece. Plato is the earliest representative of the dualism thought. Descartes confirms the existence of the binary world of mind and matter from epistemology. Traditional cognitive psychology inherits the dualistic tradition of separation of mind and body, and regards the mind as the processing of abstract symbolic information independent of the body's sensory movement system. But the rise of personal cognition challenges the dualism. From the perspective of the body, cognition is the cognition of the body, and the body is the subject of cognition. Cognition shows dependence on the body in three ways: a. The body limits the characteristics and scope of cognition. The body structure of the organism and the ability of the body is limiting the nature and content of cognitive representation; b. The body not only limits cognitive processing, but also can be used as an integral part of cognitive processing to distribute cognitive tasks between the brain and the body, playing a role similar to a distributor; c. The body regulates cognition, affecting mental processes such as thinking, judgment, emotion, and motivation. The above facts show that mind and body are not binary, but one and the interaction between body and environment create mind and cognition. The mind, body, and environment are the process of integration.

[Keywords] Embodiment cognition; Mind; Physical and mental relationship; Body; Theoretical psychology

1. Introduction

Cognitive, or in a broader sense, what is the nature of the relationship between the mind and the physical attributes of the body? This problem has plagued humanity for thousands of years. Can cognition, mind, consciousness, or soul exist from the flesh? What are the two realities of cognition and body that are completely different in nature? Or two different aspects of the life process? Or is it just two perspectives on our life? If cognition is not a reality, but only a function of the brain that directs physical movement, then whether this cognitive function can be separated from the “hardware” of the physical structure of the brain, like the computing function of a computer, become a disembodied “software”? In recent years, discussions on this issue have evolved into a craze for cognitively-oriented research.^[1] In this paper, we stand on the position of theoretical psychology and explore the possible relationship between cognition and the body from the dimension of embody.

2. Separation of Mind and Body: Departure Cognition and Its Predicament

Scientific psychology is the product of Western cultural thought. However, in Western culture since ancient Greece, dualism has always dominated. In fact, scientific psychology itself is the embodiment of dualism. The basic feature of dualism is the dual opposition between the mind, the mind and the body, and the subject and the object. Psychology, consciousness, and subject constitute a party of binary opposition, and matter, body, and object constitute the other side of opposition. The study of matter, body, etc. has physics, chemistry and physiology. Then the study of psychology and consciousness also needs an independent discipline, which constitutes the independent scientific and cultural foundation of psychology. The direct result of the separation of cognition and body is that the focus of cognitive scientists is entirely directed at the central nervous system, trying to understand the inner workings of the mind. Behaviorism has abandoned the study of cognition and consciousness on the grounds that the internal psychological process lacks appropriate methods. The internal psychological process is regarded as a “black box.” Cognitive psychology reverses this trend and refocuses the psychologist’s eyes on the interior of the organism. However, in the process of turning to internal mechanism research, cognitive psychologists are overkill and completely abandon the environment of physical and physical activities. It seems that the mental process only occurs in the brain, so that cognitive scientists are concerned with the computational process between sensory input and motion output. This computational process occurs in the central nervous system and has little to do with the body and the environment. “Solipsism” constitutes the methodology of this research model.

Separating cognition from the body, and visual cognition is similar to computer program software. Such an idea supports the symbolic processing model of cognitive processes. Since cognition is a kind of calculation, and calculation is the manipulation of symbols, cognition becomes a kind of abstract symbol processing that deviates from the specific situation. But the computer manipulates words and numbers. These words and numbers are symbols not because of their physical characteristics. Rather, they have the function of characterization, that is, they represent some real things. The relationship between characterization and characterized things is often arbitrary. There is not an inevitable connection between the two. The meaning of these symbols processed by computers is artificial, and the rules for handling these symbols are also set by humans. However, if the central nervous system deals with abstract symbols, how are real events converted into abstract symbols? Does the nervous system have this conversion capability? The development of neuroscience shows that there is no evidence that the nervous system has this magical transformation ability. This is something that traditional cognitive science cannot explain.

3. The Blending of Mind and Body: the Dependence of Cognition on the Body

Due to the influence of dualism, we often have the illusion that when we concentrate on a complex mathematical problem, the body does not seem to work at all. It seems that “I” is solving problems, and the body is just a carrier that brings “I” to the classroom. When the teacher is giving lectures, is the disabled person around me who lost his legs in a car accident not listening, thinking and answering questions like me? Is the body really important? If it is important, why do people with disabilities think the same way as we do?

Such questions precisely reflect the impact of dualism on our subtle influences. Dualism has become so ingrained in human ideology that it has become a way of thinking for us. The reality is that although people with disabilities are different from our bodies, we enjoy the same body from the perspective of ethnic origin.

The world in the mind of mankind is very different from the world in the mind of bats, because humans and bats have different physiological structures. The reason why we never understand the subjective experience of bats (qualia) is because we don’t have the body structure of bats. Even from an individual perspective, different bodies can create different ways of thinking. Experiments with the left and right hands show that the two tend to have different meanings depending on the left and right. Changed the habit of the hand and changed the way of thinking.^[2] With this in mind, Gibbs points out: “The body is not just what we have, we are our bodies, and the habitual patterns of kinesthesia and touch not only form the core of the self-concept, but also form the basis of advanced cognitive processes”.^[3] The unique body structure of humans determines the unique brain and central nervous system of human beings. Just as the unique physiological structure of bats determines that it uses the sonar system to understand the world, it is because of the body that stands upright that people have a special style in which humans know the world. Without this specially constructed body, there is no human-specific perception and way of thinking.

According to Wilson and Foglia,^[4] cognitive dependence on the body can be understood in three ways:

3.1 Physical Restriction

Traditionally, under the influence of dualism, Western culture tends to separate the body from the external world. Cognitive scientists assume that individuals understand the world through the representation of the objective world, and the mind, like a mirror, reflects the external world, and this process of reflection is a function of representation. The characterization process takes place through sensory activities.

The human body has the existence of five senses, but the five senses are only a channel to represent the objective world, and only play a role. In this process, the body remains independent of the objective world through the boundaries of the skin. However, the cognitive scientists began to reject the dualism of separation between the body and the world. They advocated the idea of interaction between organisms and the environment in the study of cognitive processes, and understanding of cognition in the interaction between humans and the environment. Enactive cognition just reflects this concept.

The proponent of generating cognition^[5] argue that cognition is a process of generation, in which individuals participate in the world through physical activity in the process of development and maturity, coupling in the process of interacting with the world. Cognition is not the result of a rediscovery of an objective world, nor a projection of a priori thinking. From a generation perspective, cognition is the product of the interaction between the body and the world. The subjective world of an individual is determined by the individual's ability to act and feel athletic. What people perceive depends on his actions and behaviors. And the actions eventually change the things that are perceived. In this way, the individual and the world are coupled together, and the body and the cognition are coupled together. Cognition is the cognition of the body, and the body is the body of cognition. In this process, the structure of the body and the sensorimotor system limit the cognitive process.

3.2 The Distribution Function of the Body

The fact that the body plays a role in cognitive distribution suggests that cognition is not limited to the head. The cognitive process involves non-neural parts of the body, such as muscles and bones. These muscle and skeletal activities also play an active role in cognitive processing. Memory studies have shown that in the process of motion memory, if the action is performed, it is more effective than pure semantic memory^[6]. The action component becomes an integral part of the memory system. On the other hand, due to the coupling relationship between the body and the environment, through the role of the body, cognition also transcends the boundaries of the skin and is closely related to the environment. Cognition is not a hidden process in the skin and in the brain. Many of our cognitive processes are done using environmental factors. Mathematical thinking often uses paper and pen. Paper and pencil are not only tools of thinking, but also components of the thinking process. Memory is not only stored in the brain, but in addition to the body movements mentioned above to promote memory, memory is often stored in environmental things. When we go to a certain place, we think of someone. This means that the memory for that person is not stored in the brain, but stored in the environment. This is the issue of extended cognition.^[7]

3.3 The Regulation Function of the Body

The body regulates cognition and influences mental processes such as thinking, judgment, emotion, and motivation. For a long time, due to the influence of Descartes' dualism and rationalism, people have always regarded the body as an automatic machine, subject to the command of the mind or soul. This concept is reflected in psychology, which means that cognition directs the body, body movements are the result of cognition, the body is only the carrier of the mind, and its effect on cognition is basically negligible. But "a lot of evidence suggests that physical activity not only reflects the mental process, but also influences the mind... Behavioral actions not only lead to physical changes in the environment, but also change our way of thinking and speaking. Therefore, behavioral actions may play a key role in the development of human thinking and verbal ability."^[8]

4. Integration of Mind and Body: Enlightenment on the Relationship between Body and Mind

Since the introduction of Descartes' entity dualism, thinkers have been arguing over the relationship between matter and spirit, body and mind. How can a spirit of thinking but not occupying space arise from the physical reality of possessing space but not thinking? Are the two interactions, parallels, or has the same relationship? Around these issues, scholars have racked their brains and put forward a variety of viewpoints. In fact, the essence of the problem of physical and mental relations is the question of the nature of the mind or spirit, that is, what is the essence of the mind?

"Since the nature of embodiment is usually assumed to be uncontested, this question is primarily about the nature of the mind. In fact, the psychosomatic problem is manifested in how to understand the nature of the mind". The cognitive science of the body understands the nature of the mind from the perspective of the interaction between the body and the environment. Prior to this, the nature of the mind has the theory that the psychological phenomenon is the physical and mental theory of physical phenomena, the state of mind is the functional state of matter, and the deconstruction of the mind, that the state of mind is only a cancellation of natural phenomena. Essentially, these views are to abolish the physical nature of the mind, and believe that only the physical brain and its physical and chemical movements exist.

5. Conclusion

According to the traditional understanding, cognition involves the process of processing, extracting, matching and storing the sensory input information of the central nervous system. The body's motion system is only the instruction of the execution center, and the motion system has no direct influence on the central processing process itself. Symbolic Processing Cognitive Psychology proposes a

“sandwich model” for information processing, that is, the input of information provided by the sensory system, and the information instruction of the execution system of the motion system. The two “bread slices” sandwich a piece of “meat”, the central information processing system. In addition to extracting information from the sensory system and issuing motion commands to the motion system, the central processing system is not subject to any constraints of the sensory and motion systems. Understanding the cognitive process in such a way, as the understanding and judgment of the cognitive process has nothing to do with the motor system, the two should be controlled by different cerebral cortex regions in the neurophysiological mechanism.

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