

The Turn of Brain Science in the Development of Philosophy

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With the development of brain science, new breakthrough points have been discovered in more and more fields including philosophy. The philosophy is a mode of thinking and brain science explores the mystery of thinking by researching functions of human brain, which provides a broader vision for the study of the essential difference between the Chinese and western modes of thinking and philosophical thoughts. For better development of Chinese philosophy, the whole brain civilization must be founded, so that Chinese and western cultures should learn from each other to tackle further challenges.

Keywords: brain science, thinking, Chinese philosophy, western philosophy, difference, the whole brain civilization

Brain Science and the Ancient Chinese Philosophical Thinking

There are two inevitable directions for the study of philosophy, namely, the root of the matter and its characteristics transcending the times. The transcendence of philosophy depends on its “leading” epochal character. “Metaphysics refers to abstract concept and physics refers to specific object”. “Philosophy” is the existence of existing matters, which leads the times, but is not the footnote following the times. Thus, studies of philosophy and its transcendence cannot be separated. Philosophy is created by the times, and philosophical economy, politics, science, and other factors are cultural carriers of philosophy. So, it is also significant to explore the epochal character of philosophy. The study of Chinese philosophy having experienced the upsurge of “returning basis to open a new road” and the dilemma of “interpreting Chinese philosophy by western theory”, calls for deep thoughts on how to lead Chinese philosophy to the world and the future. Since the 20th century, series of achievements of brain science have mutually corroborated with philosophy, enabling the exploration of the physiological mechanism of philosophy and the in-depth understanding of the mode of philosophical thinking.

Since Dharma, the Zen Buddhism has always advocated that “There belief is passed on outside the religion; there is no reliance on written scripts; it goes straight into people’s minds; one becomes a Buddha when the moment who sees his own Buddha nature”. According to the Zen Buddhism, insight is the way to become Buddha, which means one may understand the essentials of Buddhism quickly through right practice methods rather than practice for a long term. That is “if one could understand and judge the significance and position of classics on Sakyamuni’s Buddhist doctrine instead of disturbance from his personal performance, with a thorough understanding of the truth of life, his worries and secular affairs will be in vain, namely, he eventually understand pure Buddhism”. The thoughts of Zhu Tao-sheng’s “insight into Buddhism” and “insight

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without distinction from each other in compliance with indistinguishable truth” were developed and leapt by the Sixth Patriarch of the Chinese Zen Buddhism, Master Huineng. According to Huineng’s thoughts, if one wants to become a Buddha, he must see his nature directly into his heart. For how to find one’s true self, Huineng also proposed the thought of “learning mediation and wisdom equally”, in which “mediation” is the body of “wisdom” and “wisdom” is the usage of “mediation”. “Mediation” is a practice method of pondering and being lost in deep thought, by which, one can be concentrated and then forget both things and him to realize the leap of intelligence and the burst of thoughts. Just like the sudden appearance of the sun and the moon after black clouds being swept away, and as the Buddhist chant goes “confusions are created through many calamities, but awakening can be realized after a moment”, this process allows people to understand their conscience and Buddhism. “Finding one’s true self” and “insight” was deemed as the idealistic, mystical, and irrational modes of thinking. However, in the modern psychology, imparting forms such as mediation, “keen words” and “Deshan Bang and Linji Bawl” are interpreted with the “sub-consciousness”, and with the development achievements of the modern brain science, thinking process of insight and the physiological mechanism of mediation may also be understood deeply.

Zen Buddhism asserts that “the article with no use of gorgeous words and rhetoric and deliberate embellishment is beyond our outstanding experience and wisdom”; according to Lao Zi’s thoughts, “Tao”, as the top origin and the first criterion in the universe, is unable to be said and named, that is, “I call it ‘Tao’ because I don’t know its real name”; Deng Xi asserts that “the same name has different natures”, which means that different “natures” may be covered by the same “name” and the meaning of “impatience” between a buyer and a seller is different, so “ambiguity” is different; Kung-sun Lung believes that the concepts of hardness and whiteness, separated from the substance of stone, are not the non-existed, but the hidden and the unobvious, so that “the hardness and whiteness are separated from each other” and the “name” is separated from objective things... In the above mentioned, concepts are separated from objective existence, which is similar to Plato’s Theory of Forms. But, how do abstract concepts produce and develop in human brain? From the habitual and life experience, what is the difference between thinking only from the surface of the entity and the mechanism of human brain activity which sublimates and condensates abstract concepts? With the help of brain science, perhaps we can further explore the origin of philosophy.

The Relationship Between Brain Science and Philosophical Thinking

With the development of human civilization, people have an increasingly profound understanding of the function of the brain. From the proposing of “brain as the center of human behavior” by Hippocrates in the earliest to the proposing of the “animal spirit” mode, the establishment of phrenology, and the proposing of Brodmann subdivision, etc., people have a specific understanding of the functional structure of the brain and also recognized the relationship among brain science and pedagogy, psychology, philosophy, and other different fields.

The relationship between brain science and philosophy reflects on the myriad of relationships between brain science and thinking. Thinking is affected by a number of factors such as cognition, experience, values, sleep, and mood, and most of which have inner relationship with brain science.

Emotion and thinking are inseparable. Prejudice, self-esteem, political emotion and stereotype, and so on will affect people’s thinking. Emotion is divided into feeling and mood. Feeling is a kind of temporary and strong emotional experience, which is caused by specific reasons, while mood is a long and weaker emotional

experience with no definite reason. Cognitive process and judgment are disturbed and affected by feeling. When feelings are very low or strong, thinking is often in an extreme state. Values may be deemed as the combination of cognition and feeling in nature. It is a cognition, understanding, judgment, or choice which is made on the basis of certain thinking and sense of human being, i.e., a kind of thinking or orientation in which one identifies things and distinguishes the right from the wrong, reflecting certain values or functions of human being and things and matters. Values are often deemed to be constructed by social interactions and cultural history. But, some scholars believe that values have their own biological premise, which is the biological basis for the formation of values. Social feeling is an inherent pattern of biological response that embodies values. When people are stimulated by a certain event, their social feelings will be touched to produce the corresponding emotion. Based on social emotion, moral or aesthetic intuition is produced and socialized with the passage of time. And finally, it is passed on in form of social tradition, moral concept, and so on. Some evidences in neural entity for stable emotional responses have been found in current studies, including the ventromedial prefrontal lobe, amygdala and forebrain islands triggering social feelings, the sub-cortical nucleus like the parabrachial nucleus and the somatosensory cortex needed to experience emotion, the dorsolateral and endpoint parts of the prefrontal lobe which guide the activation of social feeling scripts. It can be seen that values are closely related to the structure of the brain.

In addition to affect cognition and thinking activities by eliminating physical and psychological fatigue, sleep may also make influence by maintaining attention, consolidating memory, and promoting insights. Many anecdotes show that sleep sparks inspiration and promotes thinking. During sleep, some writers occasionally got beautiful lines and some scientists made new scientific discoveries. Incubation effect is one of reasons that sleep promotes thinking. When one explores an issue constantly, but cannot find the answer, he puts the issue down and turns to other activities. Then, when he faces the issue again, he can get a satisfactory answer; this process is hence called incubation. Everyone should experience more or less, bigger or smaller incubation in the life. Why are such surprising results produced after the interruption of thinking? There is no unified explanation to this problem, except for several main interpretation mechanisms such as forgetting wrong clues, changing stereotypes, conscious processing and unconscious processing. With the development of brain science, people have much more knowledge on sleep. Sleep is not a single process, but is alternately transformed by non-REM sleep and REM sleep. EEG signals are complicate bioelectrical, which contain rich information on nervous system state. It has shown that people's sleep status may be understood through the study of EEG signals during sleep. The combination of sleep and brain research is relatively new. With more and more in-depth researches, we will be better aware of their intimate relationship.

The development of brain science not only plays an important role in our further exploration of the mystery of thinking, but also gives us new understandings on the origin and development of philosophy. With the deep exploration into brain science, new ways of the development of Chinese and western philosophies will also be explored.

Brain Science and Western Philosophical Thinking

Left brain thinking is the emphasis of western thoughts, while rational and micro thinking is the focus of the western philosophy produced and developed under the whole western civilization system. "Subdivision" is the main thinking characteristics of western philosophy throughout the early western debate, mathematics, logic, and other research and development. Before Socrates, Ancient Greek philosophy was mainly dedicated to the

research of natural problems, for example, “What is the world?” and “What did the world evolve from and what will it finally return to?” Some naive theories about the nature were produced from these researches, including the thought of “number as a principle” proposed by the Pythagorean School, the argument of negative movement proposed by Zeno by using absurdity method, etc. From Pythagoras to Aristotle, the development of western natural science (particularly reflected in early mathematics and physics) was closely related to the development of philosophy and also laid the foundations for the development path and direction of western philosophy later. Since then, the modern scientific system has been established by scientists based on this completely abstract, rational, and subdivided thinking. Western philosophy is closely related to natural science, for instance, in the 17th century, Descartes, a French philosopher, who founded the Analytic Geometry and deduced the logical rules through the thinking training of logic, geometry, and algebra. He also used the logical rule on philosophical thinking. After that, rationalism continued to be developed, and accordingly, analytical philosophy came into being at the end of the 19th century. At this time, the application of logical thinking in western philosophy has reached a peak.

In the field of natural science, brain science is closely related to philosophical research. Promoting the research of brain science and the combination of researches of brain science and philosophy are significant for some important propositions on “the nature and rules of conscious activities” in the development of philosophy. In addition, it is valuable for researches on the differences between Chinese and western philosophy and culture as well as the further development of philosophy under the whole brain civilization.

The brain has been researched by the west for thousands of years. Hippocrates, as an early Greek medical scientist, proposed that “the brain is an organ of mental activities”, after that, Aristotle also speculated about the functions of brain, but there was a deviation. Then around the A.D., an Ancient Roman medical scientist, Galen, based on brain anatomy, believed that the brain was an organ for thinking, with functions including sensation, memory, thinking, imagination, judgment, and so on, which resulted in a further understanding of brain functions; however, in general, people’s knowledge on the structure and functions of the brain were confined by limited medical techniques, tools, and other conditions. It was just a preliminary understanding about the significance of the brain to thinking and life from a macro point of view.

Later, with the further development of natural science, some empirical researches on the brain were carried out by thinkers in both 17th and 18th centuries. During this period, Descartes established important theories in the fields of philosophy, physics, astronomy, and so on. He explained neural flex with the concept of physical reflex and put forward the hypothesis of response-stimulation, but did not apply the hypothesis to the further study of brain science and the mechanism of consciousness, which echoed the thought of dualism and rationalism in his philosophical theory and reflected the close relationship between philosophy and the research on the brain.

Without scientific tools and positivism research paradigms, preliminary explorations into the brain were made by early philosophers, doctors, and anatomists. By the 19th century, the positivism of brain science was further developed and the emergence of phrenology as well as the theory of brain function localization further promoted people’s understanding of the brain. At the same time, the task of philosophy was summed up as the study of phenomenon by positivism. The law of science could be obtained through the induction of phenomena, which regarded the relationship dealing between philosophy and science as the central issue of its theory and tried to dissolve philosophy in science.

After the 20th century, with the rapid development of scientific research on the brain, brain science has been paid more and more attentions in combination with other professional research fields. “Split Brain Studies” proposed the functional localization theory of brain science, the hierarchical structure hypothesis of brain science, the whole brain model theory, and so on, which greatly promoted the contrastive study of Chinese and western cultures and the study of medical diseases, so that it can be gradually applied to aspects such as education and psychology, etc.

When reviewing the histories of Chinese and western philosophy and brain science, we have found that their developments are closely related, especially for consciousness, language, and so on. For the thinking of all metaphysical philosophical problems, the activity of consciousness ran through the discussion of related issues in form of black box in the past, which was obviously limited and not conducive to the further development of philosophical theory. For example, for the issue of consciousness related to brain science, from modern empiricism to Kant’s transcendental induction theory and then to the theory of psychoanalysis created by Freud, brain science researches had certain evaluation and reference value for these theories and the issue of consciousness may be further studied through the combination of these theories and brain science.

In the 21st century, researches on all fields of natural science have greatly developed. By applying sophisticated mathematical and medical tools, the study of brain science is more mature systematic than that of the past. We hope to apply the scientific theories of brain science to the study of philosophy and that interpretation of philosophy from the perspective of brain science will become an important tool for the development of philosophy. Such a role has appeared when we roughly reviewed the history of philosophy. On the one hand, the relevant researches on the nature of learning and thinking can be used as a tool to explore philosophers’ way of thinking and their function of the brain; on the other hand, researches on evolution in brain science can provide an objective basis for social contracts, civilized criticism, and ethics-related issues.

Philosophy keeps pace with the times. Nowadays, scientific and cultural philosophies, etc., have become very valuable research theories; meanwhile, the influence of western Marxism, Existentialism, and Psychoanalysis are also continuing, in other words, the combination of philosophy and natural science is an ongoing proposition. With the further integration of Chinese and western cultures, some people have proposed to create the whole brain civilization based on the difference of left and right brain functions and the self-reinforcement of half-brain civilization and expect the whole brain thinking to make a further qualitative breakthrough for the overall civilization of human beings. Chinese and western philosophy is seeking common development. Ancient Chinese philosophy has completely different thinking characteristics from western philosophy, but they still have something in common in many aspects and pay common attention to some important philosophical propositions. In the history of Chinese and western philosophy, although the relationship between Chinese philosophy and natural science is not so close, Chinese philosophy may be further developed with scientific reference and tools provided by the study of brain science.

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