

Chinese Self: Its Culture and Neuroscience

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Abstract: According to the principle of internal-external consonance (Wexler, 2006), an individual's internal neuropsychological structures match key features of his or her external culture. We propose that the Chinese self, which is rooted in a culture of human relatedness under the influence of Confucianism, is a good example of this principle because recent brain imaging studies have found neural evidence that mirrors its cultural root. We also discuss the future direction of research on the neural basis of Chinese self.

Key words: Chinese interdependent self; Neural basis of Chinese self; Cultural neuroscience

1. Introduction

In his book “Brain and Culture” Wexler (2006) proposed a principle of internal-external consonance to explain the relationships among culture, mind, and brain, according to which an individual's internal neuropsychological structures (neural and mental functions being as two sides of a coin) match key features of his or her external culture. More recently Kitayama and Uskul (2011) proposed a new model of neuro-culture interaction based on cultural neuroscience research findings. The model hypothesized that the brain serves as a crucial substrate accumulating effects of cultural experience, and at the same time neural connectivity is modified through cultural practices. According to this model, “as each individual gradually forms his or her own self-identity, the individual chooses from the pool of available practices the ones that suit his or her developing identity best and incorporates them as cultural tasks-tasks they perform repeatedly and earnestly to become a respectable member of the culture” (Kitayama & Uskul, 2011, p. 442). Drawing on cultural and brain research on the Chinese self, and comparing it with the Western self as represented by White Americans, we will

show here that the Chinese self is a good example of the internal-external consonance or the new model of neuro-cultural interaction.

For present purposes, firstly the cultural study of the Chinese self can be traced to James Legge's (1885) translation of the Li Ki (Li Ji) (礼记), which is one of the five Confucian classics. Secondly, we introduce more recent Xiaotong Fei's (1947/2009) social anthropological model of the Chinese self. Thirdly we review recent research on neural structures of Chinese self and argue that Chinese self is a good example of the internal-external consonance or the new model of neuro-cultural interaction. Finally We discuss the future direction of Chinese self research.

2.An Chinese Self structure of 1885 Based on Li Ki (礼记)

The Li Ki (Li Ji) is a collection of ancient Chinese rites and rules of propriety in particular situations and for particular social relationships. A vivid illustration of these Confucian rites and rules of propriety was the prescriptions governing family mourning ceremonies. Legge (1885) summarized these prescriptions in six Tables according to their particular familial relationships, of which the first Table will suffice for present purposes. This Table is reproduced here in simplified form (the original version can be found in the Appendix).

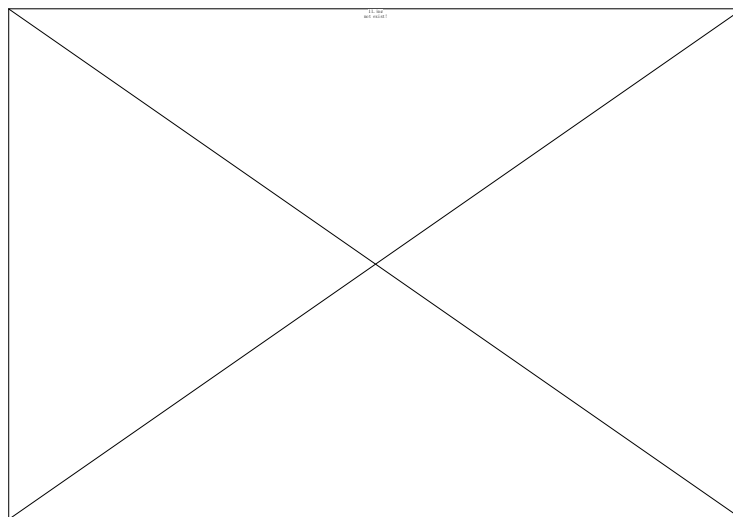


Table No1. Mourning worn by a man for his kinsmen and kinswomen

Three points we need to bear in mind to understand the Table. First, within the Chinese family there are two classes of relationships called Nei Khin (内亲) and Wai Yin (外姻), which are analogous to “consanguinity” (e.g., father-son) and “affinity” (e.g., mother-in-law), respectively. In general, Wai Yin relationships are

not as close as Nei Khin to self, and accordingly require a lower degree of mourning duties.

Second, Chinese descent is made only through the male line, and this is reflected in the use of terms that are highly specific rather than generic. For example, by “cousin” a father’s brother’s son alone is meant, and not a father’s sister’s son or daughter, whereas “cousin” can refer to both in the West.

The third point to note is that all family members are related in a hierarchical fashion: wives are subordinate to husbands, children to their parents, and younger siblings to elder siblings. These are typically expressed by what is known as the “mourning system” in the Li Ki (Li Ji). For example, a man, at the death of his parent, must wear mourning dress for three years which is called mourning of the first degree. However, at the death of his son, he must wear mourning dress for one year only, which is called mourning of the second degree, and so on until no wearing mourning dress is required for Wai Yin (外姻), for example, over the death of the wife a great-grand-son.

The five kinds of mourning to indicate the varying degrees of relationship are:

First degree of mourning: A son, at the death of his parents, must wear mourning dress for three years and a wife does the same, at the death of her husband.

Second degree of mourning: a father, at the death of his son, is to wear mourning dress for one year and a man, at the death of his brother, does the same.

Third degree of mourning: a man, at the death of his sister-in-law, is to wear mourning dress for nine months.

Fourth degree of mourning: a married woman, at the death of her first cousin, is to wear mourning dress for five months.

Fifth degree of mourning: a man, at the death of his mother’s sister’s son, is to wear mourning dress for three months.

In a discussion of the Chinese family system, philosopher Fung You-Land (1948/2007, p. 34) posited that “The farmers have to live on their land, which is immovable, and the same is true of the scholar landlords. Unless one has special talent, or is especially lucky, one has to live where one’s father or grandfather lived, and where one’s children will continue to live. That is to say, the family in wider sense must live together for economic reasons. Thus there developed the Chinese family system, which was no doubt one of the most complex and well-organized in the world. A great deal of Confucianism is the rational justification or theoretical expression of this social system.” Thus, the role of Confucianism as Chinese orthodox philosophy is to maintain and solidify the family system, in which people must be interdependent under the economic system.

The complex mourning rites prescribed in the Li Ki (Li Ji), referred to briefly above, offers a clear view of relational interdependence. Another Confucian classic, the Hsiao Ching (孝经 - Book of Filial Piety), provides an elaborate ideological basis and detailed familial obligations and duties to solidify the family system and justify the graded degree of mourning. It defines a person as only the son of his parents, but never himself. Whatever he was doing was whatever his parents' son was doing (Hu 1919, p. 119). A person becomes a member of society as a father, a son, a husband, or a wife, but not as an individual person. As King (1985, p. 59) has said, "Traditionally, a Chinese seldom thought of himself as an isolated entity. He was his father's son, his son's father, his elder brother's junior... in other words, an integral member of his family. He was a concrete individual person who moved, lived, and had his being in the natural milieu of the family... Each family had a head, to whom his wife, his children, his daughter-in-law, his grand-children, and the domestics owed unquestioning obedience. I know of no other system of law which is so meticulous in enforcing the duties of filial piety." In short, "the filial piety was pushed into the center of the Chinese ethical system. There was no recognition of the independent existence of the individual" (King, 1985, p. 58).

These five kinds of mourning, as illustrated by Table 1 in James Legge's translation of the Li Ki (Li Ji), help one understand why the Chinese self is a center from which relationships radiate in different directions: upward being his relationship with his father and ancestors, downward being that with his sons and descendants, to the right being that with his brothers and cousins, to the left being that with his sister and niece. "Within the radius there are different degrees of greater and lesser affections and responsibilities. Persons outside the limit of the radius are considered by the person at the center as 'affection ended' and are to be treated by him on the basis of the relationship of friends" (Fung, 1949, p. 21). This is just what a Chinese idiom means: "Blood is thicker than water". Thus the self is the center of a social circle which is constituted of various social relationships according to different degrees of greater and lesser affections and responsibilities. A Chinese self is not an isolated entity - he/she is part of a family and has melted into complex relationships.

3. A Modern Chinese Structure Based on "Differential Mode of Association"

3.1 Social Anthropology

To explain the different relationships between China and the Western world, social

anthropologist Xiaotong Fei (1910-2005) proposed the concept of “Differential mode of association” (差序格局) in contradistinction to the concept of “Group-based association” (团体格局). What is meant by “Differential mode of association”(差序格局)is vividly illustrated by Fei (1992,p. 28): “What we see before our eyes is not like clearly separate bundles of firewood, but ripples extending outward in concentric circles after the splash of a stone in the quiet water. Each person stands at the center of these circles, which create personal linkages wherever they arrive. Not everybody makes use of the same circle at every moment and every place.” Group-based association, on the other hand, is more typical of the West and quite alien to the Chinese.

Fei Xiaotong said that “We have not groups but rather social nets, overlapping nets. Everything that is done is done through those nets. That comes from 1000 years of tradition built on the basis of small farming” (Pasternak, 1988). The farmers have to live together on land for economic reasons, and they were born in the village and died there generations after generations. Rural China was a familiar society in which everybody knew each other. In such village each man creates a unique “ego-centered” social space radiating from the center like ripples from a stone dropped in water. A man (the self) is the center surrounded closely by a circle of blood relations, then a circle of relations by marriage, and lastly an outer circle of friends, spreading outward from the center like ripples. This “differential order of associations” makes the boundary between self and significant others “ambiguous” (Fei Xiaotong, 1947/2009, p. 30). That is, the self-other boundary becomes elastic. Thus, we might say that the Chinese individual (the self) is a relational being who conceives of the “other man” in concrete and differentiated relational terms.

3.2 Social Psychology

Inspired by Fei’s concept of differential mode of association, social psychologist K. S. Yang divided the Chinese relationships into three categories according to relational proximity: 1st, relationships with family members; 2nd, relationships with familiar others such as relatives outside the family, people in the same village, neighbors, friends, colleagues, and classmates; and 3rd, relationships with strangers and other unacquainted individuals. (K. S. Yang, 1999 and 2005).

Another social psychologist, Y. Yang, considered that in a social structure based on Fei’s differential mode of association, interpersonal relations can never be equal, for everybody has his/her own personal status and therefore stands at a different psychological distance from other people. All interpersonal feelings, duties and responsibilities come from this. These distinctions of social status and social distance

reflect the fact that Chinese society strongly emphasizes hierarchy that embeds in the Chinese self-concept. Then she developed her Chinese self structure based on her own studies, “in terms of gradations of psychological distance, a psychological “us” pattern formed by a ‘self’ at the center surrounded by affective and instrumental elements at varying distances could be identified” (see Table 2 and Figure 1, Yang, Y. 2005, p.190; 2009, p.57).

Table 2. Analysis of results of interviewees’ classifications

Degree/character	Ascribed relationship	Interactive relationship
First degree	Family members	Very close friends
Second degree	Close relatives	Good friends
Third degree	Clan relatives	Close acquaintances (frequent contact)
Fourth degree	Distant relatives	Acquaintances (some contact)
Fifth degree	Non-relatives	Nodding acquaintances (little contact)

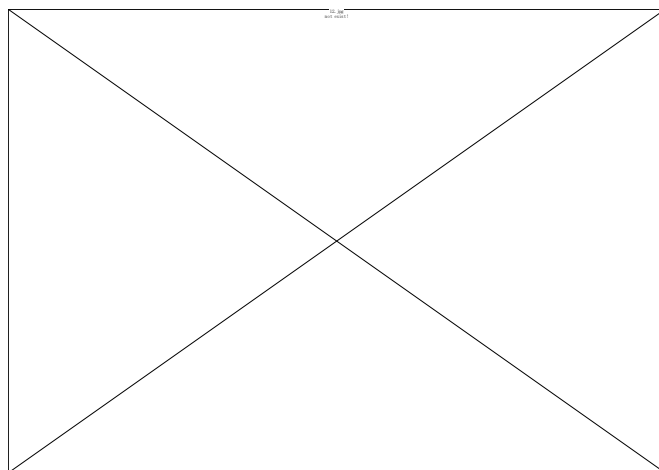


Figure1. Present Chinese self-schema. Figure from Y. Yang (2005; 2009)

Y. Yang pointed out that “this self-construal has two main characteristics. The first is that the self has a structure of concentric circles, with the individual self located at the centre of the circles, and netted within layers of relationships. The second is the permeability of the boundary; ... In different situations, the individual can contain others, such as his/her family, friends, neighbors and, ultimately, the nation and even the world.” (Y. Yang, 2010, p.110). Y. Yang recognized the fact that although a majority of Chinese people are still farmers living out their lives in the shadow of the traditional Chinese family based on kins related by blood or marriage, urban Chinese people often mix with non-kin individuals forming a non-kin social network of differential mode of association, many of whom may later become “own people.” This non-kin social network is referred to in Table 2 as “inter-

active relationship, ” which captures modern life in China since 1978 when the policy of economic reform and opening of China to the world (改革开放) has led to massive migration of individuals from villages to cities. This non-kin social network of differential mode of association enables individuals to better survive socially in the absence of the kin-based social network.

4. Neural Structures of Chinese Self

Culture affects the psychological structure of the self and results in two distinct types of self structure: independent self emphasizing the separation between the self and others in Western culture and interdependent self emphasizing the connectedness between the self and others in East Asian cultures (Markus and Kitayama, 1991). Recently researchers of cultural neuroscience conducted a functional magnetic resonance imaging (fMRI) study to test this well-known theoretical assertion on culture and the self at the level of the brain (Zhu, Zhang, Fan, & Han, 2007). They used both Chinese and Westerners (Caucasians with their native language being English: English, American, Australian and Canadian) as subjects, and used a self-reference judgment paradigm for testing the difference between the two cultural systems of self structure. They found that for both Chinese and Westerners self-reference judgment, relative to the public figure control, resulted in activations in the medial prefrontal cortex (MPFC), which was consistent with previous research (Northoff, 2006). However, they discovered that mother-reference judgment activated the MPFC for Chinese only. This indicated that only for Chinese both self-reference and mother-reference judgment yielded overlapped activations in the MPFC, but not for Westerners (see Figure 2, the locus of MPFC marked with blue circle between Chinese and Westerners was compared).

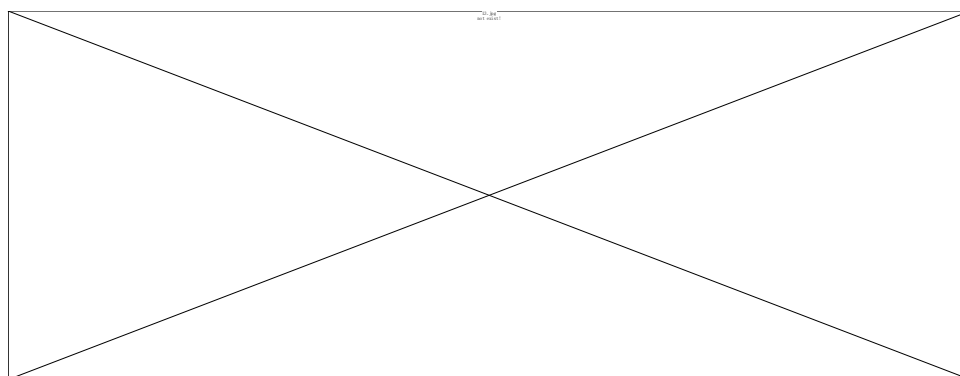


Fig.2 Zhu et al., 2007

Zhu et al. (2007) concluded that “the relative heavy emphasis on interpersonal connectedness in Chinese culture has led to the development of neural unification of the self and intimate persons such as mother, whereas the relative dominance of an independent self in Western cultures results in neural separation between the self and others (even close others such as mother)”. In other words, the Chinese self structure includes mother in it whereas for the Western self structure excludes mother from it. Figure 2 depicts a nice neuroscience embodiment of the interdependent/independent view of self in behavioral science by Markus & Kitayama (1991).

Kitayama and Park (2010) further analyzed the results of Zhu et al. (2007). They claimed that “the theoretical meaning of the Zhu et al. finding may deserve a careful analysis. This finding might suggest that the way in which social relations are constructed vary across cultures. In particular, relations that emphasize ‘relational unity’ (supposedly more typical in cultures that emphasize familiar unity) and relations that are grounded in unique intentions, preference, and individual choices of participating parties (supposedly more typical in cultures that emphasize individual freedom and autonomy) may cause very different patterns of brain activation such that people committed to the unity view of relations show a merger of representation of mother with the self; whereas those who are committed to the choice-based view of relations may show a quite prominent activation of the self (vis-à-vis mother)” (Kitayama and Park, 2010).

The relatively strong emphasis on interpersonal connectedness in Chinese culture firstly is an emphasis to the familial unity. Thus, Zhu et al.’s (2007) neuroimaging finding nicely fit with longstanding view about the Chinese self structure, from point of view of filial piety in 1885 that the relationships between parents and son is most important (first degree of mourning worn, see Table 1), to more modern Chinese self structures where family member is in first degree relationship with the self (see Figure 1).

Results similar to Zhu et al. (2007) have also been reported by others. Zhang et al. (2006) showed that when Chinese participants think of themselves relative to another, the MPFC is more active for self when the other is not close, but equally active for self and mother, suggesting that Chinese thinking of mother also engages the MPFC. Wang et al. (2012) repeated the finding of Zhu et al. (2007). They found that mother-reference judgment by Chinese participants yielded activations in MPFC as self-reference judgment; but father-reference judgment or best friend-reference judgment did not yield activation in MPFC. Ng, Han, Mao, and Lai (2010) replicated Zhu et al.’s (2007) results in a bicultural context using a sample of ethnic Chinese who have acquired a Western self (in addition to their Chinese self). When

primed by Chinese culture cues to call out their Chinese self, the same MPFC area was activated for both self- and mother-reference. When the same participants were primed by Western culture self cues to call out their Western self, different MPFC areas were activated for self- and mother-reference. Overall, these results all support the notion that Chinese self includes stronger kinship in the brain.

4.1 Chinese Self is a Good Example of the Internal-external Consonance

So far we have summed a body of social anthropologic research on Chinese self structures from 1885 to present and on the neural structure of Chinese self more recently. We conclude that Chinese self is a good example of the internal-external consonance. On the one hand, with the great influence of Confucianism in China it seems that the Chinese self is not an independent person per se, rather it includes significant others such as parents and children. On the other hand, generations after generations the influence of Confucianism has been embodied in the brain: the MPFC not only represents the self but also significant others like the mother. As mentioned by Zhu and his colleagues, “the relatively heavy emphasis on interpersonal connectedness in Chinese culture has led to the development of neural unification of the self and intimate persons such as mother” (Zhu et. al, 2007). The two sides, behavioral and neural, are in nice resonance. Kitayama and Park (2010) pointed out that “people committed to the unity view of relations show a merger of representation of mother with the self.” The internal neuropsychological structures of Chinese self that emphasizes the connectedness of self and kinship as well as the external influence of human relationships with Confucianism is shown in Figure 3.

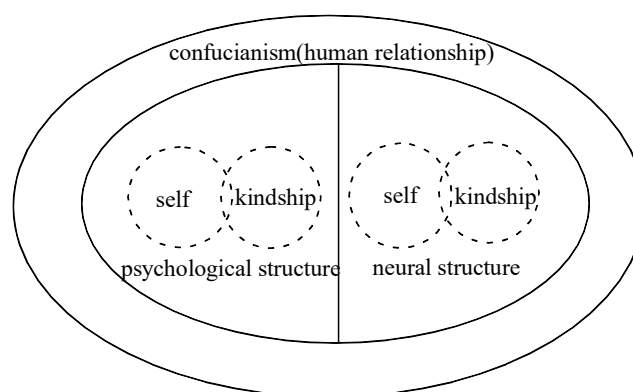


Figure 3 Chinese self is a good example of internal-external consonance

5. Future Directions

What we have discussed so far is about Chinese self's cultural and neuroscience foundations based on a East-West paradigm. That is, we have treated the Chinese culture as a single culture—Confucianism as a Chinese orthodox philosophy— and compared it with the West culture. It is important to note that there are not only multiple ethnic groups but also multiple cultures in China, such as, the China Central Plain Culture (中原文化), Jing-Chu Culture(荆楚文化), the WuYue Culture(吴越文化), Ba-Shu Culture(巴蜀文化), and the Lingnan culture(岭南文化). Recent research based on subsistence style and irrigation (Talhelm et al. 2014) even distinguishes between rice culture (southern China) and wheat culture (northern China). So we need to study the influences of the different sub-cultures on Chinese self in order to obtain a more complete understanding. As Kitayama & Uskul(2011) pointed out, “future research should go beyond the East-West paradigm by expanding research populations. This effort will enable us to identify cultural dimensions that have so far been largely ignored, such as religiosity, tightness, honor, and hierarchy, thereby affording excellent opportunities for further theory building”. In this regard, we are glad to see some recent work by Chinese researchers that recruits Chinese Christians, Chinese Buddhists and Tibetans in order to learn finer structures of Chinese self.

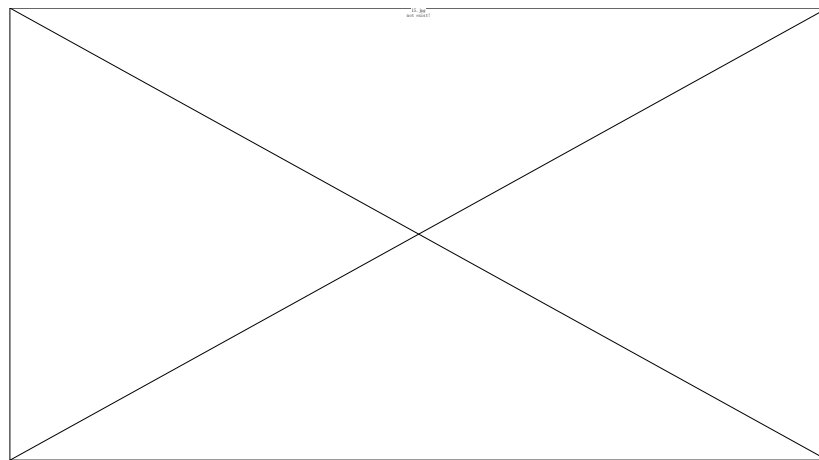
Data from a neuroimaging study using Christians suggested that self-referential processing induced increased acting in the ventral medial prefrontal cortex (MPFC) for non-religious participants but in the dorsal MPFC for Christian participants. In addition, the dorsal MPFC activation was positively correlated with the rating scores of the importance of Jesus' judgment in subjective evaluation of a person's personality. Because the ventral and dorsal MPFC are respectively engaged in representation of stimulus self-relevance and evaluation of self-referential stimuli, the finding suggests that Christian beliefs result in weakened neural coding of stimulus self-relatedness but enhanced neural activity underlying evaluative processes applied to self-referential stimuli. This may due to the fact that Christianity strongly encourages its believers to surrender to God and to judge the self from God's perspective (Han et al. 2008). Results from studies using Chinese Buddhists were similar in that Buddhist doctrine of no-self result in weakened neural coding of stimulus self-relatedness in the VMPFC, and enhanced evaluation processes of self-referential stimuli in DMPFC (Han et al. 2010). The data using Tibetans were puzzling, because researchers could not cleanly identify the relative brain activity when Tibetan participants made judgment about himself/herself (Wu et al. 2010).

Then, is the self-reference effect paradigm not suitable for studying Tibetans? Or, is there anything special for Tibetan self? These questions are waiting for future research. One thing is clear though - the Chinese who are Christians, or Buddhists, or Tibetans manifest different self in its culture and neural underpinnings from those who are under the great influence of Confucianism. One common feature of Christianity, Buddhism and Tibetan belief is that they all emphasize heaven or no-self, while Confucianism believes in hierarchical orders in the secular world.

So if we want to build a more complete self theory we need to know more about Chinese self from different region cultures. When we learn more about Chinese self we will learn more about the self from East.

Acknowledgments

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Appendix: The original table in Legge (1885)

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