

The CHC (Confucian Heritage Culture) learner's phenomenon: What lesson can mathematics education learn from it?¹

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The phenomenon

“For centuries, the Chinese have been fleeing from wars and famines, fighting for survival from North to South, and from East to West. Through it all, they have tried to build a brighter future for their *next generation* through *education*. This mentality has made the children of the CHC the hardest working learners on earth.”

(Wong, 2004; italics original)

In the past decades, the academic success of Asian students, especially in the subject of mathematics, had attracted the interests of sociologists, educationalists, and psychologists (Watkins and Biggs, 1996, 2001; Wong, 2004). “The New Whiz Kids,” the cover story appearing in *Time* magazine (Brand, 1987), may have been the first to bring this phenomenon to the notice of the public. The article also deliberately drew a distinction between the Confucian and the Buddhist traditions among various Asian cultures and argued that “immigrants from Asian countries with the strongest Confucian influence - Japan, Korea, China, and Vietnam - perform best. By comparison, Laotians and Cambodians, who do somewhat less well, have a gentler, Buddhist approach to life” (p. 45). Thereafter, the CHC learner's phenomenon has become one of the most researched areas worldwide. Such a phenomenon had been described as a “myth” or “paradox” by scholars since the learning environment of CHC regions is found to be in sharp contrast to what is found to be conducive to learning.

Looking for cultural explanations

With the brilliant performance of CHC learners, some researchers turned to more in-depth studies on approaches to learning, conceptions of mathematics, mathematics problem-solving, the roles of memorization and repetitive learning among CHC students, while others began to identify features particular to the CHC learning environment, including teacher-student relationships. Still some others search for explanations from Confucian culture at large. Achievement-orientation, collectivism, high expectations of the parents, and attribution of success to effort were used to explain the phenomenon. In particular, maxims like “Practice makes perfect” and “Diligence could remedy mediocrity” were often quoted.

¹ The author wishes to pay tribute to his Ph.D. thesis supervisor, Dr. David Watkins, for initiating the author into the fruitful research field of the CHC learner's phenomenon.

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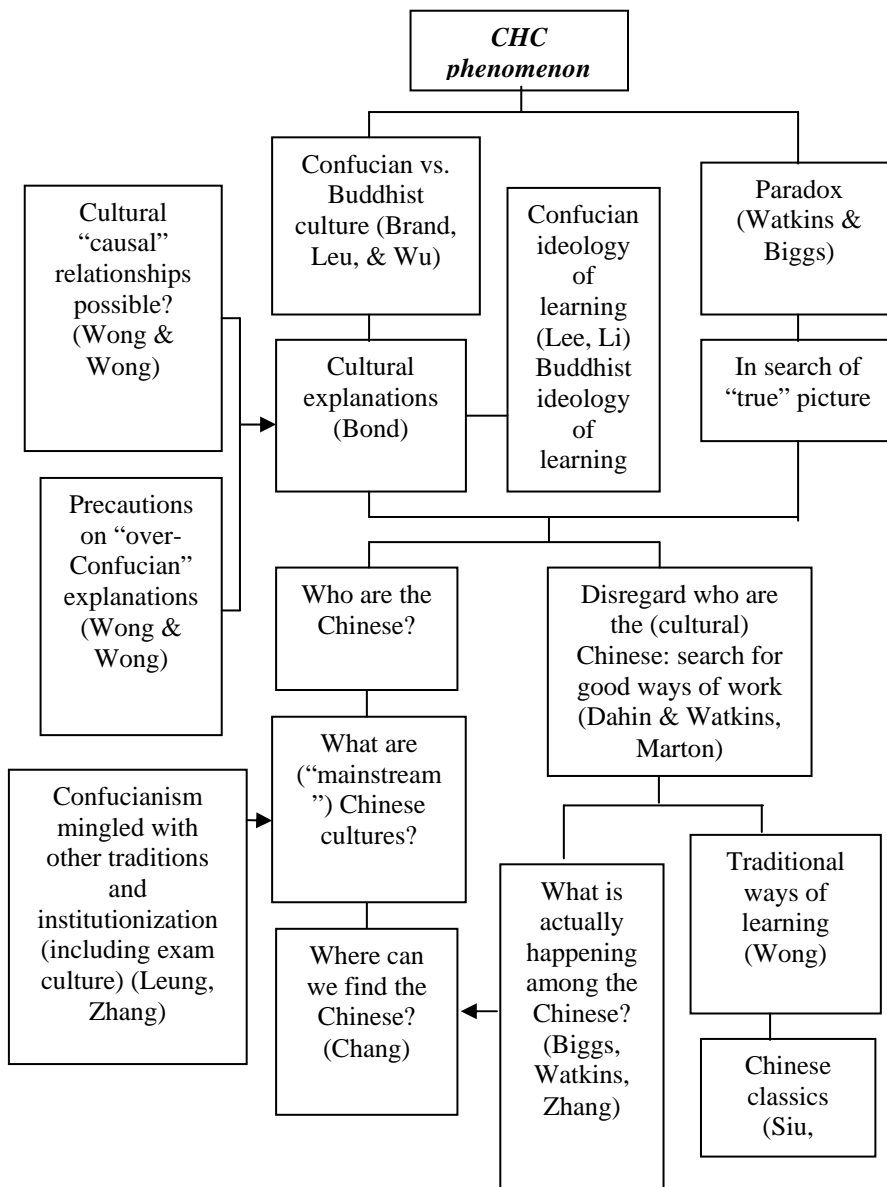


Figure 1. Research on the CHC learner's phenomenon for more than a decade

Since the notion of “Confucian heritage” is repeatedly stressed, some scholars turned their attention to the ideology of Confucianism per se. In fact, Confucian ideology focuses more on non-mundane pursuits that one should concentrate one’s efforts in achieving secular goals of this life. Moreover, the degree of a person’s success in life is judged not only by whether his or her achievement is passed on to the next generation, but also by the “three imperishables”: namely, erecting an example of a moral life, contributing to the country or his/her fellow people (or to the welfare of

society), and establishing a school of thought. These factors are often seen as the origin of the achievement-orientation of CHC societies.

However, when we try to portray the CHC in this light, we may be subconsciously identifying Asian/Chinese culture with Confucianism and equating Confucianism with what was said by Confucius himself. One should note that the CHC was also affected by Mohism, Daoism, Buddhism, and other traditions, and the Confucian schools at different historical periods held very different ideologies. In some instances, Confucianism was modernized whereas in others, it was blended with other schools of thought such as *Yin-Yang*, the “Five Elements” school of thought, Legalism, Daoism, and Buddhism. In some cases, Confucianism was simply advocated by the ruling class for governing purposes. Furthermore, in talking about “China,” it has 28 provinces and 56 ethnic tribes. There have been misinterpretations of Confucius’ words too. The popular one “[I: Confucius] transmit [knowledge/the tradition] but do not create [my own stories]” (*The Analects*, 7:1) are taken as discouraging creative thinking, and another one “it is a pleasure to learn and practice [put into practice] frequently” (*The Analects*, 1:1) are taken as emphasizing practices without understanding? And the maxim “Practice makes perfect” comes from a story in the 11th century and has nothing to do with Confucianism per se. Thus, the warnings of “over-Confucianization” had been called for in such cultural explanations (Wong and Wong, 2002).

Scholars began to investigate the “examination culture” as a clue to explain the phenomenon. In the CHC, an individual is valued not as an individual but for his or her role in a vast network of kinship. As a result, one of the major functions of education is to cast youngsters into a certain role that they will take up in society, and act and behave accordingly in the light of their family background and socioeconomic status. This predisposition, however, can be reversed when the examination system comes into play — because this system could bring about social mobility. Social mobility, in turn, sets new rules for a new game. Thus, education, in conjunction with the examination system, has the function of enabling an individual to strive for the best role he or she could attain.

Regarding the excellent academic results of CHC students, the “examination culture” could have a far greater impact on achievement-orientation than Confucianism. The sole purpose of the examination system, as it was originally designed and used in later dynasty, could be a means of state control. In fact, when the second emperor in the Tang dynasty (618–907) commented with great joy that “now all the brilliants ‘under the sky’ have gone into my trap” and the third emperor in the Song dynasty (960–1279) encouraged reading of books (going to school and/or having education) by saying that “there are 1000 baskets of corns, golden houses and pretty ladies in books.” So that came the words “everything is low class, only reading books (education) is highest” in a poem composed in the Ming dynasty (1368–1644) which became a popular test book in the Qing dynasty (1644–1911) and onwards

Based on the above, we see that there are no grounds for believing that the examination culture, which is “spoon-feeding” education, is an integral part of Confucianism. Neither is there any reason to legitimize over-drilling by asserting that CHC learners excel only in rote-learning and do not aim for genuine understanding (see also Wong, 1998).

Looking for good ways of work

Despite the argument of “where is CHC,” some turned their attention to the identification of good ways of work in various regions irrespective of their cultural



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origins (whether it is “Confucian” or “Daoist,” “Eastern” or “Western”). By “good ways of work,” we only refer to cultural potentials rather than to what is actually practiced currently in CHC regions. In this regard, by inspecting the training of various Chinese traditions like calligraphy, martial arts, and seal carving, the author proposed the route of “entering and transcending the Way” in Chinese learning. In fact, it is often believed that there is always a right way to do anything. So the acquisition of that right way constitutes the first phrase “entering the Way” of learning.

In the example of calligraphy, the conventional way of learning is to start working with “copy books.” Various basic skills are also performed during the teaching lesson. Then, the master will choose for the disciple an exemplary calligrapher, say Yan Zhenqing, so that the disciple may imitate the calligraphy of Yan to a state that one cannot easily distinguish the calligraphy of Yan from that of the disciple. When this is performed with fluency, ultimately, a “personalized Yan-style” should emerge so that people well-versed in calligraphy can see the character of the calligrapher in his or her calligraphy and identify clearly the calligrapher’s style originating from the Yan style. This “looking similar but being different” phenomenon shall be called “transcending the Way” (Figure 2).

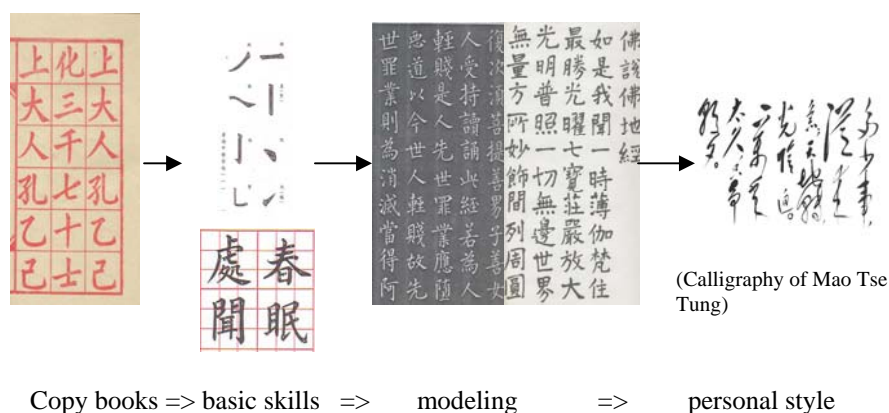
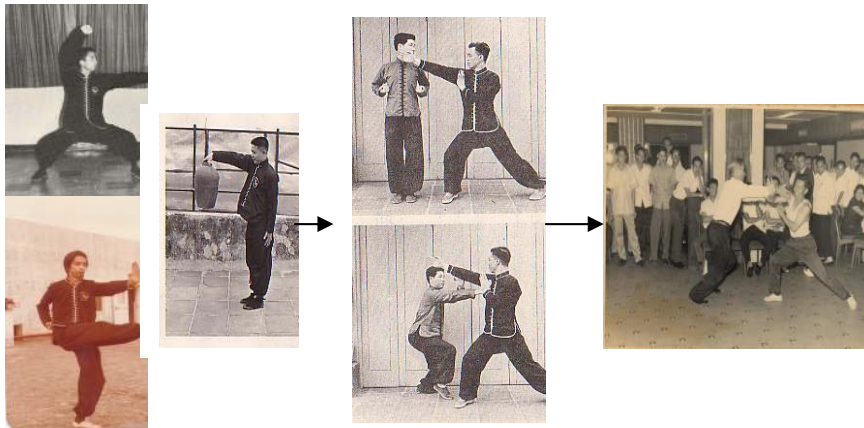


Figure 2. Entering and transcending the way: Calligraphy

Chinese martial art (Kung Fu) shares the same approach. Practicing of footwork as well as other kinds of basic physical training like sandbag punching comprise the basics of Chinese martial art. Then there are standard sequences for one to practice. In simple terms, these sequences are “fictitious” courses of fighting. The sequence “standing postures – force training – paired practices – actual fighting” (Figure 3) was actually laid down in classics of the discipline (Wong, 2002).



Horse-riding postures/basics => sequences/paired practices => free fight

Figure 3. Entering and transcending the way: Martial art

Now it is clear from these analyses that, to these ancient Chinese traditions, creativity and higher-order thinking abilities can only be grounded on the basics and the remaining question is how to bridge the two together. Leading disciples entering the Way and helping them transcend the Way at precisely the right time are the sole missions of the master. Inevitably, there is no “royal road” to this. Some believe that through incessant practices and a long period of “indulgence” and “hatching,” then, mystical though it may sound, insight could be obtained at a certain point (“familiarity breeds sophistication”). Skilful teachers are able to grasp the right moment to trigger students’ “sudden enlightenment” with appropriate means when they know that the disciple is ready. In brief, reflection forms the core of the Confucian and the Chanian way of “pedagogy” (bringing about realization). Thus the major task of the master is to arouse a disciple’s reflection by generating a state of discomfort and perplexity. “Great faith, great doubt and great diligence” are also identified as the “three pillars of Zen (Chan) Buddhism” (Kapleau, 1980). It seems that “doubt – reflection – realization” is a formula for “transcending the Way.” This formula or principle can clearly be seen from the words of the Sixth Patriarch of Chan Buddhism, Hui-Neng, who teaches his disciples how to transmit the doctrine: “Suppose someone asks, ‘What is darkness?’ ... We use brightness to illustrate darkness and use darkness to show brightness. Our minds go to and fro between these two notions, and the middle way will emerge” (see Wong, 2004).

Zhang and Dai (2004) proposed in the regular lecture at ICME-IO that “teaching with variation” could serve as a bridge between the “basics” and the development of higher-order thinking abilities. In fact, reinterpreting earlier findings in

phenomenography (e.g., Bowden and Marton, 1998; Marton and Booth, 1997) leads to the conclusion that since discernment is an essential element in learning, and variation is crucial in bringing about discernment, repetition by systematically introducing variations could be the key to bringing about learning and understanding. Gu, Huang, and Marton (2004) made further analyses of teaching with variation in the East and the pedagogy of variation in the West. Repetitive learning is also a common strategy employed in ancient China and this justifies the importance of meaningful practices.

One should note that there are other goals of repetition too. Automation, which is necessary in some disciplines (e.g., martial art), is one. In mathematics, we often solve problems by applying the “fastest strategies” before going for “backup strategies” (Kerkman and Siegel, 1997). When the author learned acupuncture, he was required by his master to memorize major acupunctural points by reciting rhymes. The master said, “A physician should not always ask the patient to wait for him to consult books before prescribing!” There is yet another purpose of memorization, especially in the case of proverbs, in which it supposes to unfold more and more profound meanings as one moves in the course of life. Thus there is a need to ask the students, when they are still young, to recite them (and have their meanings just explained briefly) as they are not yet ready to comprehend the deeper meanings.

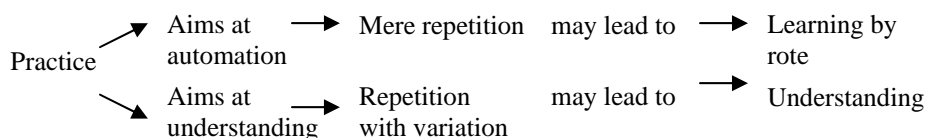


Figure 4. The role of practices (Wong, 2004)

In search of the CHC script and its cultural assumptions

Obviously the CHC learner’s phenomenon, like most other phenomena, rests on “cultural” assumptions. Huang (2002) tried to portray a scene of a Chinese mathematics lesson as follows:

“There are teacher, students and mathematics. The teacher presents mathematics and help students engage in the process of exploring the mathematics by providing proper scaffoldings and asking a series of heuristic questions. The students are eager to listen and engage themselves in the process of learning.” (p. 237)

Huang (2002) continued to comment that “according to Western concepts such as teacher-centered or student-centered, this description is difficult to understand. However, it seems to be quite understandable and practical in the Chinese cultural setting, which may be due to cultural differences” (p. 237).

Watkins and Biggs (2001) also noted the components of “concentrated learning,” “vicarious learning,” “careful planning, timed questioning, and associated activity,” and “learner-trained learning” in a “good” “CHC learning environment” which is seen

to be repetitive, teacher-dominated in the “Western eye” (p. 285). From the above discussions, we may identify general descriptions of the CHC classroom such as:

- obedient and attentive students sitting properly, listening to the teacher
- teachers with their lessons well-prepared and structured
- students seldom interrupting the flow of the teaching by asking questions
- teachers checking whether students follow through by asking questions
- teachers not attempting to cater for individual differences in class yet students having a lot of guided after-class learning (including homework and tutorial classes)
- teachers giving individual guidance after class
- teachers seeing the moral responsibility of providing individual care, including those not directly related to learning (e.g., personal growth and transmission of cultural values)

The above picture of the CHC classroom may be in accordance with the learning environment that is “both teacher led and student centered” as advocated by Ausubel (1963) (or “learning centred” as pointed out in Watkins and Biggs, 2001). Leung (2004) came to similar observation through the analysis of Hong Kong mathematics classrooms in the TIMSS Video study. In such kind of learning environment, the basics of knowledge are transmitted with high efficiency and in large scale in class, so that students are led to “enter the Way.” Individual guidance is provided after class, hoping that “transcending the Way” could happen (that may only need to happen occasionally). In order to actualize such a scenario, one can envisage that attention and discipline (in class) is of first priority. By “discipline,” what is meant is much more than obedience. Besides as an ends in itself, students should be acquired and accustomed to the various routines in the flow of classroom teaching: when to talk, when to do seat work, when to open one’s book, when to look at the chalk-board (or computer projection), and so on. Without such a cultural assumption (that students know what should be done in every moment of the class), the above “teacher led and student centered” script cannot be put onto show. These “trainings” are developed through reinforcement, social contracts, conformities, and social negotiations which are so common in the CHC classroom and CHC teacher education programs (e.g., students at a very young age have already known that one should put up one’s hand and be called by the name before one can stand up and speak).



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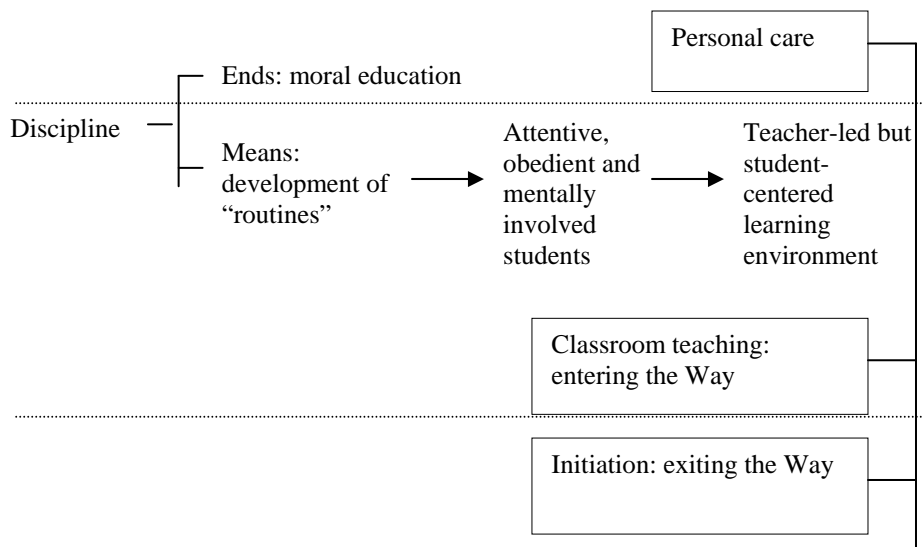


Figure 5. A Possible “CHC script”

As remarked by Watkins and Biggs (2001), the West should find their own script, and the CHC regions should find their script too. One should not be satisfied merely with the superficial success in international comparisons since good achievements in international studies should not be the central aim of mathematics education (Wong, Han and Lee, 2004). Siu & Volkov (1999) remind us that placing too much focus on practical aspect of (mathematics) education may hamper the development of those talented in mathematics. Likewise, letting high-stake assessments remain the driving force of learning may result in rote-memorization. While there is a general misconception that examination is the built-in component of the CHC, the above analyses precisely show the opposite. The CHC contains full cultural potential for deep understanding. Ideologies of Confucianism and other Chinese philosophies possess nurturing goals far beyond crossing examination hurdles and getting a place in the official hierarchy. In many points in history, it was precisely the aim of those who advocated these philosophies to counteract governments’ educational control mechanism. The “soul” of CHC education can never be retrieved if one only searches for scores, achievements, and performances instead of self-actualization.

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