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Practicality in Curriculum Building: A Historical Perspective on the Mission of Chinese Education

Abstract This paper examines how the definition and interpretation of the concept *gewu zhizhi* 格物致知 (investigating things and extending knowledge), evolved along with Chinese intellectual efforts to construct the framework for Chinese learning which, in turn, had a profound impact on the development of educational curricula in different historical periods. In Confucian philosophy, “practicality” appears ambivalent, as it can refer to moral cultivation in daily life or knowledge in the material world. Such ambivalence, embodied in the evolution of the concept of *gewu zhizhi*, can be interpreted as a Chinese search for a well-rounded curriculum in education. Within this framework, this paper traces the origin of the concept in *The Great Learning*, and investigates how it was developed to refer specifically to natural studies and then to scientific knowledge introduced into China in the late Qing period. This historical reflection on Chinese education points to the shared humanistic values in the Confucian approach to education and in the Renaissance ideal of a liberal education. It calls for a search for a common humanity in rethinking the content and aim of a modern Chinese education.

Keywords *gewu zhizhi*, Neo-Confucian education, the *scientia* of the Jesuits in the 17th century, *jingshi* Learning, humanistic education

“Gewu Zhizhi”: Its Original Meaning and Conceptual Evolution

The term *gewu zhizhi* 格物致知 (investigating things and extending knowledge), originated in Confucius’ *Great Learning*, which communicated a clear instruction that those who wished to appease the world and to govern the state well should first establish harmony in their households. In order to reach such harmony they had to achieve their own moral cultivation first. In this program of moral

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cultivation, self-cultivation is the foundation and pre-requisite for the betterment of others; the achievement of self-cultivation relies on one's efforts to extend knowledge, and the extension of knowledge lies in the investigation of things (Gardner, 2007, pp. 4–5). Confucian scholars before Zhu Xi 朱熹 (1130–1200), and Cheng Yi 程颐 (1033–1107), had long debated the meaning of “investigation of things.”¹ But it was Zhu Xi who interpreted it by embracing knowledge in the moral, natural and political realms as one unity, and giving the concept individual, social and cosmic dimensions. Within these dimensions, practicality is presented as being concerned with individual morality, social interaction and political activity (Cheng, 1979, p. 37).

Zhu Xi's interpretation reflected the Song Neo-Confucian concept of man on the basis of a new metaphysics. In this metaphysical system, man, *tian* 天 (heaven), and *di* 地 (earth), were regarded as one body. Zhang Zai 张载 (1020–1077), claimed:

Heaven is my father and Earth is my mother, and even such a small creature as I finds an intimate place in their midst. Therefore that which fills the universe I regard as my body and that which directs the universe I consider as my nature.²

In this definition, a man was not just a son of his parents but also a son of Heaven and Earth.

How did a human being become one with Heaven and Earth? A general principle in Song Neo-Confucianism was that a person had to “put his moral nature into practice and bring his physical existence into complete fulfillment”; then he could “match [Heaven and Earth]” (de Bary, 1966, p. 497). Moral practice required *li* 礼 (ritual); and ritual was needed to regulate activities such as “seeing, hearing, thinking, reflection and movement” (de Bary, 1966, p. 58). They were all natural activities and thus should be practised in accordance with *ziran zhi li* 自然之理 (principle of nature). According to Mencius, the Principle of Nature was the harmony and order of things, and this was also the work of sagehood (Mencius, 5B: 1). Song Neo-Confucians expounded this idea using the terms in the *Book of Changes*: “the character of the sage is ‘identical with that of Heaven and Earth; his brilliancy is identical with that of the sun and moon; his

¹ For a discussion of *The Great Learning* and its interpretation before Zhu Xi, see D. K. Gardner (1986), *Chu Hsi and the Ta-hsueh, Neo-Confucian Reflection on the Confucian Canon*. Cambridge, MA: Council on East Asian Studies, Harvard University, pp. 17–26.

² Zhang Zai, “Western Inscription” as cited in de Bary, 1966, p. 497.

order is identical with that of the four seasons; and his good and evil fortunes are identical with those of spiritual beings' ” (Chan, 1967, p. 6). In modern anthropology, ritualized behavior is related to the harmony and order of a society. In Song Neo-Confucianism, the harmony and order of a society and of the universe were integrated. The harmony and order of a society was based on the harmony and order of the universe.

The practicality in their discussion was also clearly defined. They called metaphysics “the idea.” For example, Zhu Xi said that people should not “just hold on to the idea of filial piety”; instead, they had to “know the way to practice it,” such as how to “serve their parents and to take care of their comfort in both winter and summer” (Chan, 1967, p. 66). The way to practice in the theory of the Cheng Zhu school was by focusing on *xiaoxue* 小学 (elementary learning), where the *gewu* 格物, was “the direct understanding of such-and-such an affair”; while *daxue* 大学 (higher learning), was the search for *suoyiran* 所以然, that is “the investigation of such-and-such a principle—the reason why an affair is as it is” (Gardner, 1990, p. 90).

The Song Neo-Confucian concept of man and the metaphysical perception of the universe allowed later scholars to seek *li* 理 (the Principle), in the diversity of things, including natural phenomena.³ As Benjamin Elman (2007) shows in his study of *Ming Dynasty Compendia and Encyclopedias (Leishu)*, the approach of Yuan-Ming scholars to the investigation of things shifted to a growing emphasis on pursuing the wide variety of scholarship which covers both natural things/phenomena and human affairs, and *wu* 物 thus contained a broader scope referring to things, phenomena, events and affairs. Their incorporation of more practical elements into the framework of knowledge provided a common ground for the Chinese reception of “natural history” introduced into China by early Jesuits. Elman (2007) points out:

When the Jesuits presented an alternative genealogy for “natural history” in an Aristotelian conceptual language (= *scientia*), Chinese collaborators such as Li Zhizao (1565–1630) translated their description of the structure of the visible world in the language of the late Ming theory of knowledge, namely *gewu qiongli* (investigation of things and exhaustively mastering principles). (p. 149)

This then laid a significant foundation for the mutual accommodation between

³ For a study of Zhu Xi's natural philosophy, see Kim, 2000.

Christianity and Confucianism, and between natural studies and moral /spiritual cultivation.

As is known to the students of Chinese history, the early Jesuits were fully aware of the power of knowledge in China and East Asian societies. Ricci's cultural accommodation policy was largely characterized by the Concept of *xueshu chuanjiao* 学术传教 (evangelism via knowledge/scholarship). As mentioned above, in the framework of traditional Chinese learning, the study of natural phenomena, technology, ethics and philosophical teachings formed an organic whole. Ricci understood this and used the word *tianxue* 天学 (learning from heaven),⁴ to integrate Western learning into the Chinese system, and Christianity blended together with scientific knowledge as Western learning (Sebes, 1988, p. 40). In Ricci's journal, the term *questa scientia* contained the meaning of both "scientific" knowledge and "learning from heaven," as the term is translated as "this knowledge." This ambiguity is perhaps attributed to the original meaning of *scientia* which, as Elman (2006, pp. 3, 15) noted, was an *Aristotelian concept* referring to any kind of organized knowledge in Ricci's time, and thus included theology. It was not surprising that in 1626 Li Zhizao published *Tianxue Chuhan* 天学初函 (Learning from Heaven), which included natural studies as well as religious writings (Peterson, 1988, pp. 141–142). Both Ricci and Li Zhizao saw the relationship between the study of the natural world and God, its creator, and the term *tianxue* enabled them to embrace metaphysics as well as physics.

During the Kangxi reign, under imperial patronage, the *literati* grew increasingly interested in the knowledge of Western astronomy and mathematics introduced by the Jesuits (Bai, 1995). Later, *kaozheng* 考证 (evidential research) scholars such as Dai Zhen 戴震 (1724–1777), Qian Daxin 钱大昕 (1728–1804) and Ruan Yuan 阮元 (1764–1849), "successfully incorporated technical aspects of Western astronomy and mathematics into the literati framework for classical learning" (Elman, 2010, p. 390). The principle of evidential research was embodied in two phrases: *shishi qiushi* 实事求是 (to search for the truth through concrete facts) and *wuzheng bu xin* 无证不信 (no belief without evidence).

⁴ There are various translations of the term *tianxue*. Willard Peterson translates it as "learning from heaven"; see W. J. Peterson (1998), *Learning from Heaven: The Introduction of Christianity and Other Western Ideas into Late Imperial China*. In D. Twitchett & F. W. Mote (Eds.), *The Cambridge History of China* (vol. 8, part 2, pp. 789–839). Cambridge, MA: Cambridge University Press. But Dr. Paul Rule thinks the term should be translated as "heavenly learning," since "heaven" in the term is the object but not the source of study (Paul Rule's unpublished manuscript on Chinese Rites, Chapter 4). I am grateful to Dr. Paul Rule for providing me with his argument and this information.

Eighteenth-century evidential scholars placed emphasis on “exacting research, rigorous analysis, and the collection of impartial evidence drawn from ancient artifacts and historical documents and texts” (Elman, 2010, p. 388), aiming to recover original Confucianism via *hanxue* 汉学 (Han learning).

Although it was not until the nineteenth century that evidential scholars’ “search for the truth through concrete facts” was consolidated with *gewu zhizhi* in Song learning, investigation of things and the extension of knowledge (Elman, 2010, p. 389), a defining line between *gezhi* approaches in Song learning and evidential scholarship had actually been drawn in the eighteenth century when Chen Yuanlong 陈元龙 (1652–1736), published his *Gezhi Jingyuan* 格致镜原 (Mirror Origins of Investigating Things and Extending Knowledge), in 1735. The book “represented a post-Jesuit collection of practical knowledge” including astrology/astronomy, geology, human affairs, plants and trees, and insects (Elman, 2010, p. 391).

The eighteenth century evidential scholarship laid a solid foundation for later generations of Chinese scholars to embrace Western learning with the blessing of their own ancient authority. Meanwhile, the combination of natural studies and religious doctrines enabled not only the early Jesuits but also the Christian missionaries that followed to package secular knowledge and Christianity together. These two knowledge systems developed in a seemingly separate way, but were interlocked and mutually interacted with one another. This is evidently embodied in the nineteenth-century missionary writings, the curriculum of missionary schools in China and the native Chinese pursuit of statesmanship for practical use (*jingshi* learning). Let us first investigate the missionary side of the story, and discuss the *jingshi* learning in the next section.

In late nineteenth-century China, Christian teaching, Confucian classics and science subjects comprised three components in the curriculum of the major mission schools. By and large, missionary educators of the time established and operated the schools by modeling the Western learning component of the above model on the liberal education they had received in their home countries.⁵ In 1872, Calvin Wilson Mateer (1836–1908) developed a three-point formula for the success of Tengchou Presbyterian College: The Chinese language was used as the teaching medium, traditional Chinese education was supplemented by Western learning and Christian character was emphasized (Hyatt, 1976, pp. 166–167; Wang, 2000, p. 27). In 1881 under the leadership of Mateer, the

⁵ For the influence of American Protestant educators and their school curriculum on China’s educational reforms from the late Qing to the 1930s, see P. Buck (1980), *American Science and Modern China, 1876–1936*. Cambridge, MA: Cambridge University Press.

Tengchow College developed a regular course of study which, in the view of Mrs. Mateer, “was a program equivalent to the ordinary college curriculum in America” (Hyatt, 1976, p. 183). Mateer was very proud of his college that offered such broad knowledge. In his view, Christian schools had to educate men in Christianity and Western science which would enable them to outshine men equipped with traditional Confucian education (Mateer, 1890, pp. 459–460).

Such views were shared by other missionary educators, such as Junius H. Judson (1852–1930), the principal (1880–1911) of Hangchow High School which later became the Presbyterian College in Hangchow. In Table 1, the first column lists the weaknesses in the Chinese education system as perceived by Judson, and the second column lists topics included in Judd’s curriculum that were aimed at addressing these weaknesses.

Table 1 Judson’s Comparison of the Curriculum in Chinese Education and Missionary Schools

Weakness in Chinese Education System	Judson’s Curriculum Included
<ul style="list-style-type: none">• Lacked knowledge of other nations and held overweening regard for their own;• Failed to provide students with a basic knowledge of nature;• Ignored most of the arts and sciences;• An inability for close and patient logical thought and investigation;• Lack of taste, imagination and insensibility to beauty and the principles of order and harmony.	<ul style="list-style-type: none">• Geography and history;• Natural philosophy, chemistry, astronomy and anatomy;• Included arts and sciences;• Geometry, trigonometry and algebra;• Music and sports.

Note. Adapted from *Catalogue of Hangchow High School* (1894), 上海, 中国: 杭州育英义塾 [Shanghai, China: American Presbyterian Mission Press], pp. 1–2.

In the four-year preparatory courses, the third year curriculum included *Science Primers*, chemistry and physics. Its equivalent Chinese title is *gezhi qimeng* 格致启蒙 (*huage* 化格). In the fourth year, the course continued with a focus on astronomy and physical geography. In the six-year course catalogue, the third year curriculum contained a course on physics, with a focus on motion and force, attraction, hydraulics, hydrostatics, pneumatics, sound and light, and its Chinese equivalent was *gewuxue* 格物学 (*li* 力, *shui* 水, *qi* 汽, *yin* 音 and *guang* 光). In the fourth year, the course on physics continued but mainly focused on heat, magnetism, electricity (*re* 热, *ci* 磁 and *dian* 电; *Catalogue of Hangchow High School*, 1894, pp. 7–9; and its Chinese version 2a–2b). Clearly,

here the term *gezhi* was employed to designate the learning of natural science or any useful knowledge, and *gewuxue* was used to refer to physics.

Benjamin Elman argues that Protestant activities and achievements in translation, publication and education contributed significantly to the introduction of modern science in late Qing China. He further points out that it was the joint efforts between native Chinese scholars and Christian missionaries that created an intellectual common ground on which they “compromised” the Chinese concept of *gezhi* and “a notion of modern science informed by Christian natural theology for missionaries.” Moreover, “such compromises reproduced the Sino-Jesuit term for natural studies (*scientia*), but it now referred to modern science (*gezhi xue*), not early modern science (*gezhi*)” (Elman, 2005, p. 319). In terms of practicality in curriculum building, a conceptual evolution of *gezhi* learning developed from a moral cultivation program to a search for the Principle in the diversity of things, to the inclusion of the natural studies of the early Jesuits, and then to modern science subjects in the missionary school curriculum. We may contend that the development of the concept of *gezhi* learning helped missionary educators to transfer Western liberal education onto Chinese soil and enabled the Chinese to perceive it “on their own terms.”⁶

China under Western Powers: Practicality with a Focus on *Jingshi Zhiyong* 经世致用

The above discussion of this intellectual transition from *gezhi* to *gezhi xue* presents a genealogy within the development of Chinese thought. Meanwhile, the socio-political situation in China after the Opium War in the 1840s took away the ease with which late Ming scholars had encounters with the Jesuits during the seventeenth century. The study of Western knowledge in evidential research in the eighteenth century could not continue to be a pure scholarly search for the truth from Confucian classics; rather it became an urgent matter relating to the survival of China. Under such circumstances, the *jingshi zhiyong* (statesmanship for practical use) thus emerged as a new knowledge system emphasizing the use of Western technology to combat the intrusion of Western powers. In this *jingshi* 经世 framework *gezhi* learning was then extended to include scientific

⁶ “On their own terms” is a point borrowed from Benjamin Elman’s expression in his work (2005) to describe how the content of liberal education was transmitted and built into the curriculum of a modern Chinese school system.

knowledge from the West. Here I use the development of the *jingshi wenbian* 经世文编 (essay collections on *jingshi*), phenomenon in late Qing to demonstrate this point.⁷

The first *Huangchao Jingshi Wenbian* 皇朝经世文编 (Collected Essays on Statecraft from the Qing Dynasty), was compiled by Wei Yuan 魏源 (1794–1857), on behalf of He Changling 贺长龄 (1785–1848), in 1826. It advocated learning for practical use, and shifted away from evidential scholarship which focused on book learning. This edition classified essays by scholars of the early Qing in eight categories, covering subjects from general scholarship and the art of government to practical issues such as defence and irrigation.

Between 1826 and 1914, about 20 collections of *jingshi* essays appeared. These sequential publications to Wei and He's collection in 1826 demonstrate both continuation and change in intellectual trends in the late Qing era. For instance, in 1881 Rao Yucheng 饶玉成, compiled a second collection with the same framework as the first collection but adding essays written between 1830 and 1880. During these 50 years China had experienced the Opium Wars, signed several unequal treaties with the Western powers and opened five ports; meanwhile, the Self-Strengthening Movement pursued the dream of building a "wealthy country with strong military power," which also became the main focus of writings and scholarship of the time. Rao collected 519 essays on this topic in 120 volumes. In 1888 Ge Shixun 葛士浚 (1845–1895), also published his continuation to the edition by Wei and He. Ge's collection was a breakthrough in both content and organization of the essays. He established a new category entitled *yangwu* 洋务 (foreign affairs), containing about 200 essays by well-known government-official reformers, such as Zeng Guofan 曾国藩 (1811–1872), Zuo Zongtang 左宗棠 (1812–1885), Li Hongzhang 李鸿章

⁷ There are numerous studies of *jingshi* essays in China. The information on the *jingshi* essay phenomenon in this article is based on Shen Yan's articles, which provide a general account of the formation and development of the genre of *jingshi* essays. Y. Shen (2004), 近代“经世文编”赓续潮流述论 [On the Continuous Compilations of “Jingshi” Essays in Late Qing]. 史学月刊 [Journal of Historical Science], (3), pp. 108–115, doi: 10.3969/j.issn.0583-0214.2004.03.018. Y. Shen (2005), 试论近代续“经世文编”文化热潮的成因 [On the Phenomenon of Continuous Compilation of the HCCSWP in Modern China]. 湖北大学学报 (哲学社会科学版) [Journal of Hubei University (Philosophy and Social Sciences)], 32(4), pp. 489–492, doi: 10.3969/j.issn.1001-4799.2005.04.036. For another study on this topic see also P. C. Li (2006), 晚清“经世文编”现象研究 [A Study of the “Jingshi Essays” Phenomenon in Late Qing]. 中州学刊 [Academy Journal of Zhongzhou], (1), pp. 182–185.

(1823–1901), and Zhang Zhidong 张之洞 (1837–1909), as well as by scholar reformers such as Feng Guifen 冯桂芬 (1809–1874) and Xue Fucheng 薛福成 (1838–1894). Also, Ge added essays on mathematics and calendar-making, a reflection of scholarly interests in *gezhi* learning (scientific knowledge).

Another example is the *Third Collection of Jingshi Essays of the Qing* compiled by Chen Zhongyi 陈忠倚, featuring essays written between 1888 and 1898. This collection was no longer constrained by the style and structure established by Wei and He. Instead, Chen deleted some old categories and content such as traditional Chinese rites, because they were not relevant to reform issues. More importantly, Chen placed much emphasis on Western science and technology, producing thirteen volumes of essays spanning mathematics, *gezhi*, chemistry, commerce, manufacture, and mining.

China's defeat in the Sino-Japanese War in 1895 signalled the failure of the Self-Strengthening Movement. Calls for further reforms formed a new intellectual trend. Sales of the collected *jingshi* essays thus were phenomenal, reflecting the market demand for books on this topic and under this title; and the intellectual response to this new tide. Western science and technology gradually became the focus of what the Chinese called practical learning. He Liangdong's 何良栋, fourth collection of *jingshi* essays can be seen as a reflection of this change in the intellectual trends of the time.

The Shanghai scholar He Liangdong compiled the fourth collection of *jingshi* essays, published by *Hongbaozhai Shuju* 鸿宝斋书局, in 1902. In his collection He focused on Western science and technology to a much greater extent than previous editions and adopted more specific and modern terms for science subjects. Compared to other collections, He's edition classified Western sciences in a most detailed and specific way.

Practicality was at the core of this *jingshi* learning structure, and its specific purpose was to make China as strong and prosperous as Western powers. Christian missionaries, Chinese converts, scholar- or official-reformers and their sympathizers appeared to have all agreed that China needed practical learning which incorporated Western science and technology, in order to secure the future of China. Take Li Wenyu's *Xixue Guanjian* 西学关键 (The Key to Western Learning) for example.

Li Wenyu 李问渔 (1840–1911), a Chinese Catholic priest in Shanghai and the first Chinese editor of a Chinese Catholic newspaper, the *Yiwenlu* 益闻录, which

later became the *Huibao* 汇报,⁸ translated the English book entitled *A Guide to the Scientific Knowledge of Things Familiar*, by the Rev. Dr. Ebenezer Cobham Brewer (1810–1897), into Chinese with the title *Xixue Guanjian* 西学关键 (The Key to Western Learning). Brewer's book, first published in 1838, provided scientific explanations for common phenomena of life and was intended for readers who were not well educated in science. This small volume achieved unprecedented success and was translated into other languages, including French, Spanish and Portuguese. Li's translation was based on a 1876 French version of the book and Li stated that it was intended for "all the literate Chinese in the twenty-two provinces," hoping that they all "will be able to understand the key points of *gezhi* or scientific knowledge [*xian ling gezhi yaoyi* 先领格致要义], which then will prevail, and consequently talented people will be trained and produced. [The study of scientific knowledge] is fundamental for [the country] to be wealthy and strong" (Li, 1903, pp. 1b–2a).

While Li Wenyu was a devoted native Catholic priest, John Fryer (1839–1928), an English man and "a secular missionary," exerted a more profound impact on China's movement to modernization in the late Qing through his work in the translation bureau of Jiangnan Arsenal. Fryer devoted himself to the spread of scientific knowledge in China, and founded the *gezhi shuyuan* 格致书院 (Shanghai Polytechnic) in the mid-1870s. He also edited a six-volume collection of Chinese *gezhi huibian* 格致汇编 (scientific books), and set up the *gezhi shushi* 格致书室 (Chinese Scientific Book Depot), in 1885.⁹ The books on modern science and technology that Fryer translated, compiled and published became the key sources of Western learning that Chinese scholars and reformers felt were desperately needed for China's reform programs. After the 1895 Sino-Japanese War, many collections of Western learning included the

⁸ For a brief biography of Li Wenyu, see H. Fang (1988), 中国天主教史人物传 [*Biography of Chinese Catholics*], (Vol. 3). 北京, 中国: 中华书局 [Beijing, China: Zhonghua Book Company], pp. 284–288; B. X. Chen (1962), 他们影响了世界 [*They Influenced the World*], 台北, 中国: 光启文化事业 [Taipei: China: Kuangchi Cultural Group], pp. 66–69. For a study of Li Wenyu's life and his career as a journalist, see J. Kurtz (2010), *Messenger of the Sacred Heart: Li Wenyu (1840–1911) and the Jesuit Periodical Press in Late Qing Shanghai*. In C. Brokaw & C. A. Reed (Eds.), *From Woodblocks to the Internet: Chinese Publishing and Print Culture in Transition, circa 1800 to 2008* (pp. 81–109). Leiden, The Netherlands: Brill.

⁹ David Wright's work (2000) devotes Chapter 4 to Fryer's life and his work at Jiangnan Arsenal; Chapter 5 covers the Chinese Polytechnic, and Chapter 6 reviews popular science journalism, with a focus on *The Chinese Scientific Magazine* Fryer edited. See D. Wright (2000), *Translating Science: The Transmission of Western Chemistry into Late Imperial China, 1840–1900*. Leiden, The Netherlands: Brill.

publications produced by Fryer for Jiangnan Arsenal. For example, Yuan Junde 袁俊德, produced a collectanea entitled *Fuqiangzhai Congshu* 富强斋丛书 (Collected Works from the Prosperous and Strong Studio), in 1901, with a follow up book published in 1902. In these two collections he included 108 translated works published by Jiangnan Arsenal. Compared to Yuan Junde, Zhang Zhidong was a much more prominent government official, who also included 44 works from the Jiangnan Arsenal out of his entire 53 works collected in his *Xixue Ziqiang Congshu* 西学自强丛书 (Collectanea of Western Learning for Self-Strengthening) in 1898 (Zhang, 1996). These two examples may very well illustrate the impact of Fryer's works and publications of Jiangnan Arsenal on late Qing reform movement. The titles of these two collectaneas also clearly demonstrate what the Chinese wanted from these books: knowledge that could help China prosper and become powerful.

Such publications redefined the concept of *gezhi* and *shixue* (practical learning), and Western learning became a significant component of the original Chinese knowledge system. This in turn influenced educational reforms and curriculum building. Of course, tensions and struggles between the old and the new were inevitable, and consequently many scholars had to justify why China had to modify its time-honored scholarship and learn from the West. The foreword (by a Qing scholar named Wu Qingyuan 吴磬远) to Yuan Junde's collectaneas, for example, discussed the relationship between *renyi zhi dao* 仁义之道 (Confucian learning) and *fuqiang zhi shu* 富强之术 (Western science and technology, lit., methods of becoming prosperous and strong). In his view, the two should not be separated as two conflicting things. His logic behind this point was that if one talks about *ren* 仁 (humanity) and *yi* 义 (righteousness) without touching upon any knowledge relevant to how one should make his country prosperous and strong, this is then not truly the Confucian learning. His view was that China now faced Western powers and was in a situation similar to that during the periods of the Warring States (475B.C.–231B.C.). This was not because China was a weak nation, he asserted. He contended that while China had the longest lasting civilization in the world, it was gradually becoming poorer and weaker because *furu* 腐儒 (conservative scholars) did not know how to blend Confucian learning with Western technology to produce the scholarship needed at the time. A prince could claim that he had been benevolent towards his people. However, Wu argued, if the prince could not lead his people to develop agriculture, industrial and trade, and could not find the ways to protect them from foreign intrusions, then his benevolence to his people could not exist. By the

same token, people might claim to be righteous because of their love for their sovereign, but if they could not help their sovereign to fight off foreign intruders, then there was no virtue of righteousness. From this perspective, Wu concluded that the best way to sustain Confucianism was to seek ways of making China prosperous and strong (Wu's foreword to Yuan, 1901, pp. 1a–3a). Such arguments do not seem unique as many scholars of the time advocated Western learning in this way. What is important for this article is that Wu's argument shows the Chinese mentality formed after the Opium War in the 1840s and which has profoundly influenced Chinese culture and society ever since. Moreover, the glory of China's civilization in the past had also become a core component in this mentality. This mentality turned into a powerful pressure that contributed to the campaign for China's *jiuwang* 救亡 (survival), and the *jiuwang* topic was prevalent in late Qing textbooks in such subjects as Chinese language, history, geography and *xiushen* 修身 (moral cultivation). Under such circumstances, the *gezhi* section in Yuan's collectaneas was listed as the foundation for all branches of scholarship. More importantly, the term *gezhi* was conceptualized as referring to science subjects in the modern sense.

Meanwhile, Zhang Zhidong proposed a new balance between moral cultivation and practicality which was concerned with *jingshi* knowledge and mainly related to economy and technology. Zhang's *zhongti xiyong* 中体西用, formula intended to synthesize Western technology as the *yong* 用 (means) for strengthening China and Confucian moral practicality as *ti* 体 (substance). This approach to East-West interaction can be exemplified by the 1903 draft policy for the modern school system, which included a new curricular program from pre-school to higher education. Zhang Zhidong was responsible for the final version of this design, which reflected his attempt to integrate the moral universal in Confucianism and the material world equipped with Western science and technology. To this effort, Zhang Zhidong's notion of the investigation of myriad things included not only Western science and technology but also Confucian moral principles (Lin, 2005, pp. 5–24). This is also what Wu Qingyuan argued in saying that the metaphysics of Confucianism should be unified with knowledge that would bring prosperity to a country, as mentioned above.

From the perspective of a linear development of Chinese scholarship, the empirical road travelled by Qing evidential research scholars brought Chinese and Western learning together into a new synthesis that prioritized “ancient learning” for a new age (Sela, 2011). Hu Shi 胡适 (1891–1962), in the early

twentieth century illustrated this synthesis with his scientific experimentation with ancient Chinese philosophy. In his view, the methods used by Qing evidential research in philology and phonology were “effective in practice and scientific in kind”; and their work “bore obvious resemblance of that of the antiquarians in seventeenth-century Europe” (Wang, 2001, pp. 58, 18). Through the scholarly pursuit of Hu Shi and his followers at Peking University, such as Gu Jiegang 顾颉刚 (1893–1980), we see the legacy and development of “searching for the truth through concrete facts,” and how traditional Chinese learning was studied for scientific comparison.

The Mission of Education: Search for a Common Humanity

The historical journey presented in the above two sections urges Chinese scholars and educators to rethink the mission of Chinese education in a global age. From the brief outline of this journey we see the *gezhi* learning in its original sense brought about a unity of knowledge concerning individual moral cultivation, social order and natural phenomena. A sense of common humanity was at the core of the Neo-Confucian education program. Meanwhile, the diversity of Yuan-Ming scholars’ approaches to knowledge extended the scholarly space which existed in Song Confucian *gezhi* scheme, and which provided a ground for the Chinese perception of the *scientia* knowledge of the Jesuits in the seventeenth century. Later, evidential research and the nineteenth-century pursuit of practical learning developed this approach further to embrace modern science. On the other hand, however, a traditional balance between the moral universe and the material world was lost in the face of Western powers. Generations of Qing scholar- and government-reformers worked hard to seek the best way to create a new educational program by synthesizing Chinese-Western learning. Apart from Zhang Zhidong’s *ti-yong* formula, Liang Qichao put forward an idealized new mode of learning which would be neither Chinese nor Western but in fact both Chinese and Western (Liang, 1920/1972, p. 161; Hsu, 1959, p. 113). Liang never realized his dream and twentieth century China witnessed the gradual separation of the spiritual universe and the material world within the education system. The collective memory of China’s humiliation appeared to have taught the Chinese a crucial lesson that “being *luohou* 落后 (backwards) would lead China to be bullied by powerful nations” (*luohou jiuyao ai da* 落后就要挨打). This memory, working together with China’s glorious past, prompted the Chinese eagerness to learn modern science from the West. This mentality has dominated the modern

Chinese school curriculum, and modern science and technology, as illustrated in the well-known Chinese expressions *kexue jiuguo* 科学救国 (using science to save China) and *kexue xingguo* 科学兴国 (science for China's prosperity), have since become the key to China's nation building and the renewal of its glory.¹⁰

From this perspective we may see that “practicality” in curriculum building since late Qing lost its balance between the spiritual and material worlds under the pressure of Western intrusions, and modern education has placed much more emphasis on the power of modern science and technology. However, many thinkers and educators soon found deficiencies in modern education. This first started with the scholar-reformers and educators in the early republican era. Most of them in late-Qing reform movements actively promoted their reform programs which were based on models from Western civilizations; but they later discovered the ugly sides of the imperialist West. Reflected in the content of textbooks, we can notice how they lost their admiration for the mighty power of the West. Instead, many scholars and educators began to criticize colonialism and the law of the jungle. For example, a 1913 geography textbook of Commercial Press characterized the British victory over Transvaal South Africa in 1902 as *bu wu*—not a morally justified military accomplishment—because it was like the fights between tigers and rabbits (Zhuang & Tan, 1913, pp. 6a–b).¹¹ Between the lines in the narration of the colonial history, the authors of this textbook expressed their sympathy toward weak nations and races. This is evident in their lament over the loss of two Republican countries. Furthermore, the tiger, a much stronger creature than the rabbit, is used to present the British power as impressive but also as morally suspect, since its triumph over South Africa could not be regarded as *wu* 武, a traditional Chinese virtue referring to morally justified war and military victory (Bai, 2008).

Soon the world witnessed the disasters of the Great War of 1914–1918. Chinese intellectuals such as Liang Qichao had to rethink their previous perception of the West, of modernity and of China's future.¹² Liang travelled to Paris for the Peace Conference at the Palace of Versailles (along with other

¹⁰ For a detailed discussion of this Chinese mentality, see P. Cohen (2002), *Remembering and Forgetting: National Humiliation in Twentieth-Century China*. *Twentieth-Century China*, 27(2), pp. 1–39, doi: 10.1179/152153802796517800

¹¹ For an account of the war, see M. Barthorp (2002), *Slogging over Africa: The Boer Wars, 1815–1902*. London, England: Cassell Military.

¹² For a discussion of the intellectual milieu during this period, see D. Sachsenmaier (2007), *Chinese Debates on Modernization and the West after the Great War*. In J. C. E. Gienow-Hecht (Ed.), *Decentering America* (pp.109–131). New York, NY: Berghahn Books.

influential scholars of the time), and recorded his impressions of Europe after the Great War, which were a stark contrast to the image of the modern and superior civilization he previously conceived and hoped for China. In his reevaluation of the West and China's future, Liang particularly pondered on science, materialism, religion and cultural values. He said that the nineteenth-century scientific revolution and industrialization destroyed three foundations of the old European civilization, i.e., the feudal system, Greek Philosophy and Christianity. The rise of modern science and materialism had replaced the Christian God with the law of the jungle, the *ruo rou qiang shi* 弱肉强食 (lit. the weak ones would be the food/meat of the strong ones). The outcome of such rules, said Liang, was exemplified by the disasters of the Great War. He witnessed such crises during his travels around Europe and used the phrase *qiang mianbao* 抢面包 (fighting for bread) to describe the cruel reality that Europe faced in the aftermath of the War. Based on his observations, he frankly expressed his doubt of the supremacy of science:

Those who used to eulogize the all-power of science had hoped for its success and believed that such success would bring a golden age to the world. Now the scientific achievements have been massive, and the progress in the material world in the recent one-hundred years is much greater than that in the past three thousand years. However, such progress did not bring any happiness but drastic disasters to our human society. It is as if a traveler got lost in the desert, and saw a person's shadow in the distance, so he ran forward to the shadow with all his strength, thinking that the person could be his guide. After his tremendous efforts to catch up with it, however, the shadow disappeared. The traveler suddenly felt hugely disappointed. Who is that shadow? It is this "Mr. Science." Europeans have indulged themselves in a big dream about the mighty power of science, but now they begin to cry out about the "bankruptcy of science." This is the latest change in intellectual trends. (Liang, 1936/2003, p. 12)

Although Liang noted that he disagreed with the view that science had been bankrupted, he acknowledged his changed stance about the power of science, reappraising the values of Chinese culture.

Regarding educational programs and curriculum building, more scholars in the 1920s and 1930s began to re-consider the concept of education, its aim and content and its links to China's future. According to their assessment, China

should not accept and follow Western models blindly. For example in 1936, Pan Guangdan 潘光旦 (1899–1967), as the most distinguished sociologist and eugenicist in China, criticized Chinese “new education” stating that it “did not teach those being educated how, to become human beings (*zuoren* 做人), and how to become *shi* 士 (gentlemen)” (Pan & Pan, 1999, vol. 3, p. 358). In his view, education in literacy, skills and professional training cannot be regarded as the education of *shi*. What he meant here is that various types of education in a modern school system can only be viewed as schooling, providing vocational and professional training after the basic literacy education. Schooling teaches skills which should not be mistaken as nurturing students to be *shi* or gentleman.¹³ Although the term *shi* Pan used here is a concept from the Confucian classics, his definition of it is rather modern. In his definition, the virtues of *zhong* 忠 and *duxin* 笃信, are the essence of the quality that a *shi* should possess. The concept *zhong* in Confucian teaching refers to loyalty, indicating that a loyal person would have the virtue of sincerity and honesty (*duxin*). In Pan Guangdan’s view, “loyalty” is equivalent to “conviction” in English. Another feature of the quality that a *shi* should possess is *shu* 恕, which Pan says is “tolerance” in English. In his opinion, a *shi* should have a broad mind that could understand and tolerate other people’s views, especially those different from his own. This *shu* then means *bo* 博, indicating a broad and liberal mind that can embrace all aspects of knowledge and views of the world; meanwhile, *zhong* or loyalty refers to the firm faith and stance a *shi* should hold. With such quality, Pan then used the term *hongyi* 弘毅 to characterize the attributes of a *shi*’s character (Pan & Pan, 1999, vol. 3, pp. 359–360), which coincides with the humanistic virtues advocated by the ancient Greek philosophers.

Pan’s article was written in 1936, at a time when China faced a series of new crises: military threats from Japan and conflicts between various political forces. He realized that the so-called new education system focused on the training of skilled workers and professionals but neglected the nourishing of one’s quality as a human being, and he felt this would not help the development of China or resolve issues in society.

The same view is also expressed by Czesław Miłosz (1911–2004), the 1980

¹³ For a discussion of the traditional Chinese concept *shi*, see P. K. Bol (1992), “The Culture of Ours”: *Intellectual Transitions in Tang and Sung China*. Stanford, CA: Stanford University Press, pp. 15–16, 32–75; for a brief discussion of the similarities and differences between the Chinese *shi* and the English gentry, see L. M. Bai (2005), *Shaping the Ideal Child: Children and Their Primers in Late Imperial China*. Hong Kong, China: The Chinese University Press, pp. 226–227.

Nobel Laureate for literature, though from a different perspective. Miłosz was truly “a veteran of European turmoil,”¹⁴ bearing witness to bloodshed and terror such as the Soviet invasion of his beloved Lithuania, the Holocaust and the Warsaw Ghetto. With his rich and unique experience in life, he pondered upon the relationship between religion, science, and human society, pointing out that in modern society, “what young people are taught in high school and the university is a naïve picture of the world.” “In this naïve view, we live in a universe that is composed of eternal space and eternal time. Time extends without limits, moving in a linear way from the past to the future, infinitely. Functionally speaking, mankind is not that different from a virus or a bacteria. He is a speck in the vast universe.” “Such a view corresponds to the kind of mass killing we’ve seen in the past century. To kill a million or two million, or ten, what does it matter? Hitler, after all, was brought up on the vulgarized brochures of nineteenth-century science” (Haven, 2006, p. 71). He then called for restoring “in some way the anthropocentric vision of the universe” where “man was of central importance” (Haven, 2006, p. 72).

Miłosz’s call takes us to the roots of humanistic education in the culture of classical Athens in the fifth and fourth centuries B.C. The humanistic and anthropocentric spirit “characterized the religious dimension of Greek life: The world of nature and the divine world were, for them, a single unity” (Aloni, 2003, p. 13). From this point of view we can easily see the similarity between the metaphysical universe in Neo-Confucianism and ancient Greek faith which laid the foundation for classical humanistic education in which the notions of *arête* and *paideia* were at the core. The term *arête* “means skill, excellence or virtue, and is usually related to the activity or function in which you can be expected to demonstrate your essence or vocation.” *Paideia* refers to “the ideal assemblage of human virtues—of the body, spirit and character—which should be regarded as a model of excellence for a good and full human life” (Aloni, 2003, p. 14). These two aspects in humanistic education are actually what Pan Guangdan identified as skill training and education of *shi*. Ancient Greek philosophers, from Socrates and Plato to Aristotle, all claimed “that wisdom or knowledge is the supreme human virtue”; and Aristotle believed that knowledge did not “guarantee the development of a moral and happy human being,” as knowledge can be acquired but one’s moral attributes (such as courage, generosity, honesty,

¹⁴ S. Heaney (2011), Seamus Heaney on Czesław Miłosz’s centenary. Retrieved August 23, 2013, from <http://www.guardian.co.uk/books/2011/apr/07/seamus-heaney-czeslaw-milosz-centenary>).

decency, self-restraint and moderation) cannot be produced through this kind of knowledge (Aloni, 2003, p. 21). Aristotle further warned us that “when human beings are at their best, and knowledge and moral character serve one another, they reach the height of perfection, but when they reject law and justice, their reason can serve evil purposes, and then they deteriorate and become more savage and cruel than all animals” (Aloni, 2003, p. 24). This is what Milosz witnessed during the World War II and what Liang Qichao observed when he toured Europe in the aftermath of the World War I.

Although there were a variety of views in Renaissance thought and what we can discuss in this paper is a brief and simplistic version, we all agree that European Renaissance thought placed much emphasis on man and his dignity. It was in the fourteenth century and during the fifteenth century, “Renaissance scholars began to use the term ‘humanities’ (*studia humanitatis*) for the disciplines they studied, taught, and liked. The term, borrowed from Cicero and other ancient writers...came to signify...grammar, rhetoric, poetry, history, and moral philosophy.” By the use of the term “humanities” Renaissance scholars expressed their “professional concerns for man and his dignity,” and the study of these subjects was regarded as being “especially suitable for the education of a decent man” (Kristeller, 1972, p. 7). Such a humanistic approach to man and his place in the world “was not entirely new” and similar ideas “can be found in ancient and medieval writers” (p. 2).

Similarly, the same journey to humanity through education can be found in China. The Song Neo-Confucian scholars called for “learning for the sake of the self”; and this Self had to be realized via a process of “obtaining or extending knowledge through the investigation of things.” As mentioned earlier, both *wu* 物 or things and *zhi* 知 or knowledge, in this maxim embraced metaphysics as well as physics. From a metaphysical perspective, one’s mind and the world would meet through self-cultivation. Meanwhile, the aspects of physics in the term *gewu*, as Elman (2005) observes, linked “a more native trope for investigating things among literati” with “a notion of modern science informed by Christian natural theology for missionaries” (p. 319). What is equally important is that the *scientia* of the Jesuits in the seventeenth century was bearing the fruit of the reconciliation of Christian doctrine and Greek philosophy during the Renaissance period; and Christian natural theology was also reconciled with scientific knowledge of the time. As suggested in earlier discussion, this characteristic of early Jesuits’ *tianxue* or “learning from heaven” enabled the Chinese to find a common ground between the *gezhi* learning and the Jesuit

scientia. Such a scholarly development and continuation also shows a process of fusion between Confucianism and Christianity, religious and secular learning and East and West, from which we may understand how Western liberal education and modern science were transferred onto Chinese soil.

Of course, this was a long and complex adaption and evolution of the concept of *gezhi* learning, but the most important and unquestionable result of this journey is that it provided the Chinese with a broad theoretical framework within which to build a knowledge system and curriculum. This broad framework made it possible for Chinese scholars and educators to synthesize modern scholarship and traditional Chinese learning, and to blend self-cultivation in a moral sense and the study of the natural world as an integrated learning process. Meanwhile, Christian missionaries adopted the same approach in their education practice in China, and Western science and technology in the curriculum of their higher education institutions coexisted with humanistic content in the Confucian tradition (Lutz, 1971; Hayhoe, 1996). This illustrates the fusion of Western and Chinese learning of the late Qing period, an intellectual effort made by both Chinese and missionary educators. More importantly, this may also allow us to find a shared point between the Confucian concept *ren* 仁 and the Renaissance concept of humanity (Bai, 2010).

Education in both Renaissance and Song Neo-Confucianism periods was seen as a significant instrument for creating a new type of human being. The Christian idea reflected in the English humanist approach that everyone is equal before God was the call for civility in place of nobility, and the aim of education was to shape the complete citizen. This core value in English humanist thought regarding education was reflected in a liberal curriculum. The missionary school education in the nineteenth century introduced its basic features and content into China along with Christianity. In Chinese, Confucius' maxim that *you jiao wu lei* 有教无类 (in education there should be no distinction in classes) shares the same egalitarian spirit as those humanist educators, and education is the means to realize this equality. This equality can be understood as humanity, because the word *ren* 人 (person or people) in traditional Chinese philosophy and educational thought was often combined with a core concept in Confucianism: *ren* 仁 (benevolence or humaneness; Bai, 2010, pp. 104–129). What Pan Guangdan called the education of *shi* 士 is actually a humanistic education designed to foster people's humanity. This was the essential principal of the Song Neo-Confucian educational program.

Unfortunately, the balance between practicality in moral cultivation and practicality in economy and technology was lost in the face of Western powers

and in China's move to modernization. The problems in contemporary Chinese education have their roots in traditional Chinese education, but are also associated with China's perception of the nature of education. As the evolution of the Chinese concept *gezhi* shows, Mr. Science was introduced and welcomed into China at a time when China was in crisis and under the threat of Western powers. Such socio-political conditions were also related to the rise of nineteenth-century science which, according to the Chinese perception, defeated religion, especially the creation theory. Meanwhile, Confucianism and traditional Chinese values also faced challenges, and China called for its own Renaissance, aiming to adopt Mr. Science and Mr. Democracy for the renewal of Chinese culture. Reflected in the purpose of education, China has found difficulties in balancing the two competing goals: training for human capital and education for humane talent.

Of course, this is not only a "China problem." In the West there have been on-going discussions about the dimension of liberal education (Mulcahy, 2008). In light of the problems in today's education system, we need to rethink the essence of liberal education and its dynamics in a global age. Within a specific Chinese context, what we need to propose is that a common humanity should be understood as what Pan Guangdan referred to as the virtue *shu* 恕 or tolerance, and from *shu* to reach the unity of human dignity which is a new dimension of *zhong* 忠 or loyalty. This new dimension of the traditional Chinese values in education should not be interpreted as a simplistic revival of Confucianism. Instead, it is a proposal about what an educated person should be, namely an educated person should be able to traverse the spiritual and material boundaries, cross cultural boundaries and embrace different scholarly traditions with a broader knowledge and universal outlook, as well as with professional skills. If we recognize this as the mission of modern education in a global context, we then need to continuously search for a common humanity to facilitate a well-rounded curriculum with a new balance between *arête* and *paideia*, and to foster a young generation equipped with both a humanistic spirit and scientific knowledge.

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