

The Problem and Challenge of Environmental Education Teacher Training in China

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ABSTRACT

Although the teacher training system in China is perfect, it is hard for EE teacher training with stable statue now. China didn't have a complete and effective EE teacher training system till now. Although there are both interdisciplinary method and cross-curriculum method can be used in teacher training, the master teachers who have the capacities to apply these methods freely are too shortage in China. EE capacity building needs proper EE training but there is still shortage of such formal educational system for EE talents development in high level. In long term, EE have to acquire legal position in education system in China. It still has a long way to run to make a rapid and remarkable progress on EE teacher training system in China.

Key words: Pre-service teacher training, In-service teacher training, Interdisciplinary method, Cross-curriculum method

Environmental Education (EE) in China has run its own way for 30 years since it emerged in early 1970s. Attendance in the Human Environment Conference held in Stockholm enlightened Chinese and promoted the convoking of China First National Environmental Protection Meeting in 1973, which was counted the inchoation of China's environmental protection and environmental education. However, in spite that Chinese government attended in many important international conferences on EE and agreed with the conceptions put forward in those conferences such as Stockholm (Sweden, 1972), Tibilisi (Georgia, 1977), Rio (Brazil, 1992), China's EE developed slowly and still stayed on a low level compare with that in some developed countries.

Since reforming in 1978, China opened its door to the world. Chinese could see EE in the world, and learnt so many things from the world. Impelled by external power, EE in China changed by inches but stably. Chinese researchers consider that presently, EE in China has been close to situation in other developed countries on ideas, but far away to those on practice. Hereby the prospect of China's EE mainly depends on how to handle the problems in practice. Improving teachers' EE capacity is a key issue hereinto. At present, EE training is provided in many educational fields in different ways in China.

EE Training for Middle School And Elementary School Teachers

There are two aspects of EE training for middle school and elementary school teachers. First is Pre-service training and second is in-service training.

Pre-service teacher training

In China, pre-service teacher training is mainly provided by teacher schools - training schools, teacher colleges and normal universities. EE training is also attached with general teacher training in such schools. Currently, there are two types for EE training in teacher schools. One is to open an

interdisciplinary course that is called interdisciplinary method; another is to penetrate EE into special courses, which is called cross-curriculum method.

Interdisciplinary method is applied in some teacher schools. Generally, the schools that use interdisciplinary method have departments on environmental sciences or environmental education – such as geography department, department of environmental sciences, and department of resources. The departments can open compulsory or selective EE courses for all students. For instance, Beijing Normal University (BNU) opened "Introduction on Environmental Protection" and "Environment and Development" by Institute of Environmental Sciences in 1986 and 1994 respectively, "Conservation Biology" by department of biology in 1998, "Environmental Education" by department of geography in 1998; Southwest Normal University opened a selective course "Environment and Development" in 1998 by Environmental Education Training Center; Guangzhou Normal College opened "Introduction on Environmental Ecology", "Biodiversity Conservation", "Environmental Pollution and Monitoring" since 1980s. It also opened EE course since 1990s. In addition, some teacher schools of middle level that elementary school teachers are trained there also apply interdisciplinary way to implement EE training. For example, Canal Teacher School of Middle Level (Jiangsu Province) has a course "Environmental Protection" for all students.

Cross-curriculum method is also an important method which many teacher schools use. "Future teachers" in different subjects who study EE by cross-curriculum way can recognize the "EE tendency" in their subject matters, teaching strategies and technologies. For example, Jinzhou Normal College (Liaoning province) opened a series of courses that have a general name "Environment Analysis", which included "Introduction on Environmental Protection", "Fundamental Ecology", "Environment and Human Health", "Pollutants and Standard Analysis", "Environmental Standards and Quality Control for Environment Monitoring" and "Environmental Management and Environmental laws"; Shandong Normal University (Shandong Province) put EE contents into its geography curriculum in geography department; Yantai Normal College (Shandong province) opened "environmental chemistry" in its chemistry department; Fuyang Normal College (Anhui province) opened "Environmental Engineering" and "Introduction of Law" in its chemistry department. In middle teacher schools in some areas, cross-curriculum method was also used. The representatives are Leizhou Teacher School (Guangdong province), Wuzhou Teacher School (Guangxi province), Songyang Teacher School (Jiangsu province) and Taihu Teacher School (Jiangsu province).

Although applied in many schools, cross-curriculum method sometimes is criticized as unorganized, unsystematic and separate. In "cross-curriculum" schools, EE usually was integrated into the subjects which has close relationship with environment, such as chemistry, geography, biology, and hardly seen in other subjects. On the other hand, traditional pre-service training for teachers usually concentrates on special study area, not EE. Such training makes difficulty for students to understand environment and environmental education by cross-curriculum learning. Some normal universities attempt to solve this problem by establishing comprehensive environmental department (center, institute). Northeast Normal University, East China University, Southwest Normal University and Beijing Normal University all have such institution. This is an important measure to build EE capacity of "future teachers". But another problem is that the comprehensive environmental department always was considered as "not teacher training purpose unit". Its graduates know a lot about environment, but a little about education. So it is difficult for them to be EE teachers.

Besides two major methods mention before, some place also link EE capacity with teacher certificate. For example, Changzhou City demanded all new teachers must accept training about environmental knowledge before they go to teach. The training is necessary for getting teacher

certificate. But it is not common in China.

In-service teacher training

China also put effort into in-service teacher training on EE. First of all, Chinese central and local governments carried out many training programs for in-service teachers. State Environmental Protection Administration (SEPA) held EE workshops for middle and elementary school teachers many times. And since 1993, SEPA and the Ministry of Education (MOE) jointly held EE training workshops at Beidaihe every summer for middle school head teachers all around the country: In Shanghai, Beijing and Wuhan, teachers on geography, biology and chemistry had to accept EE training since 1990s; In Acheng City, environmental protection bureau provided short-term workshops on environmental knowledge for teachers on chemistry, physics, biology and natural science in elementary schools before they go to teach EE in schools.

In-service teacher training on EE is provided by teacher training schools, too. Entrusted by governments or international organizations, normal colleges and universities usually provide such training. BNU plays an outstanding role in this work. Geography department of BNU has integrated EE contents into its post-graduate courses for in-service middle school geography teachers since 1990s; Environmental Education Center at BNU also opened post-graduate courses on "Environmental Education and Education for Sustainability" for in-service middle school teachers all over the country in 2001. Teachers in all subjects could take this course to improve their EE capacity. In addition, BNU also implemented in-service teacher training programs funded by UNEP, WWF or other organizations since late 1990s. Besides colleges and universities, teacher training schools also provided some EE training for teachers, for examples in Tianjin Teacher Training School and Beijing Teacher Training School.

Distant education is also an important way for in-service teacher training. China has a big teacher population, and the quality of teachers varies with regions. It has to rely on modern educational technology to provide EE training on a large scale. BNU developed a series of distant learning technology in 1997 and experimented in late years. China Ministry of Education has selected 45 colleges and universities as experimental schools for modern distant education. Some of these schools also put EE content into their distant learning courses. Some experts predict that distant education will have a big rise in near future. EE teacher training can benefit from that as well as.

In overview, China didn't build up a complete, normative EE teacher training system. There is no any normal school have students specialize on EE. Few teachers in school apply himself/herself to EE. Recently Chinese government take steps on develop EE teacher training projects with funding support from international organizations. For example, environmental education centers for teacher training and research have been established in 21 universities in China in cooperation with MOE, WWF and BP-Amoco. It is seen as an onward force for teacher training for EE in China.

EE training for college/university teachers

EE in colleges/universities can be divided into two parts: professional education and general education. So EE teachers can be also divided into two types: professional EE teacher and general EE teacher.

Teachers for Environmental Professional Education

Teachers for environmental professional education are usually trained in comprehensive universities. In most cases, many graduates from environmental departments of the universities, especially masters, doctors and post-doctors, will enter colleges/universities and become teachers for

environmental profession. Recently, China has build up a relatively good system to train professionals on environmental sciences. Peking University, Zhongshan University, Beijing Polytechnic University and Tongji University built departments on environmental sciences early or late in 1973-1978. Chinese national colleges/universities have set 16 bachelor level specialties, which involved with science study, arts study, agriculture study, forestry study, medicine study, teacher training and other research fields. And 200 master level specialties and about 50 doctoral level specialties were also set up. Some universities took up providing post-doctor positions on environment sciences from 1990s. In recent decade, Chinese colleges/universities recombined each other in nationwide scale – some disappeared and some merged others. So the number of colleges/universities drops to 1224. Up to year 2000, 10% national colleges/universities have set up bachelor level specialties on environmental sciences. More than 10 thousand students get bachelor or higher degree on environmental sciences from these specialties. Hence in general, China has enough EE teachers on environmental professional education, and has a complete system to training teachers on environmental professional education.

Teachers for General Environmental Education

General EE mainly is offered for the students who don't specialize on environmental sciences. There are two ways to provide general EE in colleges/universities. First way is to open selective courses that link the specialty with environmental sciences. For example, "Environmental Chemistry", "Environmental Chemical Engineering", "Pollutant Chemistry" for students major in general chemistry; "Pollution and Ecology", "Environment and Sanitation" for students major in biology; "Nature Conservation", "Resources Protection" for geography students; "Environment Management", "Environmental Law" for students in political sciences; "Environmental Literature", "Environmentally Writing" for students major in language and literature studies. On the other hand, some departments integrated environmental knowledge into the specialty courses. For example, teaching how to prevent and eliminate unwholesome ions in "Analytical Chemistry" course, the conservation measures of natural resources in "Physical Geography" course, how to write stories about environment in writing course.

General EE in colleges/universities also is provided through selective or compulsory cross-curriculum courses on environment science or environmental education. For example, Tsinghua University demanded all undergraduate students must have credits on "Environmental Protection and Sustainable Development". Selective courses "Environmental Sciences" and "Introduction for Sustainable Development" are also provided for graduate students.

To adapt to the conditions of general EE, the teachers for general EE in colleges/universities include teachers who penetrate EE in specialty teaching self-consciously and teachers who specialize in general EE courses. But no matter for any type, China still has not any special institution and program to train teachers for general EE.

EE as a major in universities

Few universities in China provide master degree titled "environmental education". The students who got such degree usually become teachers specialize on EE in middle school or EE researchers in universities. Since they accepted special training on EE, not only environmental sciences, they are expected to be more capable to implement EE in all level schools. But hardly any universities, except for Beijing Normal University and Capital normal university, have such degree.

Discussion and Conclusion

Teachers play a very important role in development process of EE. In 1975, the International

Environmental Education Program argued that teacher training is the point of the point for EE. Research also showed that lack of qualified EE teacher is the main constraint for EE in China. But it is regretful that China didn't have a complete and effective EE teacher training system till now, except teachers for environmental professional education. Only few elementary and middle schoolteachers are doing EE – as a part-time job. Such situation is obviously not satisfied and cannot meet the demand for “improving all citizens’ environmental awareness”.

EE capacity is the basic for an EE teacher – either in elementary/middle school or in college/university. EE capacity building needs proper EE training – either pre-service or in-service. Generally, three aims must be considered in EE training: firstly, improve teachers’ understanding and sensitivity for environment; secondly, upgrade teachers’ values on environment; improve teachers’ skills for EE. Current EE teacher training system cannot reach these aims. In such sense, the most important constraint for development of EE in China is that teachers lack EE capacity. In long term, EE have to acquire legal position in education system. Then EE teacher training system can have a stable base; in short term, to improve teachers’ EE capacity and provide enough EE teachers, especially in elementary/middle schools, distant educational technologies should be applied actively, in-service training should be the keystone and pre-service training should be enhanced. It still has a long way to run to make a rapid and remarkable progress on EE teacher training system in China.

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