

# An Analysis on the Development of Environmental Education in the People's Republic of China

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## Introduction

Environmental Protection is a National Strategy in China. Since 1980s, the government has valued the environmental improving in a deep extent. Meanwhile, education has been regarded as a measure to develop the new generation's environmental values and attitudes. Thus environmental education has been gaining great attention. In particular, the different levels of education authorities, environmental agencies and schools are cooperatively promoting environmental education. However, as environmental education develops, it faces problems that are influenced by factors outside the education system. This paper summarises the current situation in environmental education in China, and gives a brief analysis of those factors that cause the major problems.

## Background

There are four educational stages in China: Pre-school education for children aged 3-6; Primary education for pupils aged 6-12; Secondary education for students aged 12-18, and, Higher education for those who pass appropriate entrance examination. The secondary education phase is equally divided into junior and senior parts. School is compulsory for the 9 years of primary and junior secondary education, known as basic education. Basic education is governed and funded by local government. The curriculum for basic education and its syllabuses (or might be called curriculum standard) are determined by the Ministry of Education, while detailed guidelines for each subject is drawn up by provincial education commissions. The guidelines lay out the introduction, teaching objectives, contents, teaching principles, teaching implementation and evaluation and relative objectives and contents for each academic year. Educational evaluation is usually made by inspectors from the local educational authority, educational research institutes, schools and even universities. Evaluation focuses on the achievement of aims and objectives as well as the content - including aspects of cognition, skills and emotional development.

Higher education consists of training colleges (2 year courses) and universities (4 years for bachelors degrees, 2.5 years for master degrees, and 3 or more years for PhDs). Most higher education is funded by the provincial or municipal government. However, some well-known major universities are funded by both central and provincial government. These universities are more autonomous in curriculum decision making and educational assessment and evaluation than the more provincially controlled institutions.

## **Development in environmental education**

### **1. The starting phase**

In 1979, a conference on environmental education in basic (primary) education was organised in Beijing by the Environmental Education Committee of the Chinese Association of Environmental Science (CAES). The conference recommended that environmental education should be undertaken at both primary (students aged 6-12 years) and secondary (12-18 years) stages. It marks the official birth of Government sponsored environmental education in China. Subsequently, several schools, in a range of cities and provinces, were selected to implement a 3-year pilot launched by the CAES in 1981, aimed at finding a way to implement environmental education in the existing basic education system (SEPB, 1991:237).

Two kinds of environmental education thus emerged: preservation of nature and pollution control. A new discipline based on the holistic concept of environment appeared and formed the environmental science education at the early stage (Chen Yiqui, 1981).

In 1985, after several years of piloting, the State Environment Bureau and the State Education Commission held a nation-wide meeting in Liaonin Province about environmental education. In 1989, the Government held a similar meeting in Guangdong Province. Teachers from various regions attended the meetings to exchange their experiences of environmental education activities. After the conferences, many documents were published to spread the teachers' experiences throughout China.

### **2. The re-orientation phase**

In 1992, the Evaluation Committee for Primary and Secondary Teaching Materials, organised by the State Education Commission, evaluated and approved the teaching syllabus of various subjects in the compulsory stage of school education. The document stated that, 'In order to inform the students of the national policies in the as-

pects of population, resources and environment, environmental education must be paid attention to in such subjects as nature, social studies in primary education, and physics, chemistry, biology, geography, etc. in secondary education'. Since then, environmental education has maintained its formal position within the compulsory education stage.

In 1994, in response to the spirit of the World Environment and Development Conference (UNCED), the State Council issued Chinese Agenda 21(the State Council, 1994), which emphasised that 'the essential way of avoiding poverty and developing economics is the science and technology's progress and labourers' level of competence. Educational development is a fundamentally important project towards the sustainable development' and it required educators 'to reinforce the inculcation of the thought of sustainable development,' and 'to infuse such contents as resources, ecology, environment and sustainable development into primary and secondary curriculum.' Hence, after 1992, environmental education in China has been oriented towards sustainability.

### **3. The green schools initiative phase**

In 1996, the central government issued a document, which pointed out that "environmental education is a basic measure to promote the whole nation's moral qualities and scientific and cultural qualities", calling on "constructing green schools of different levels by 2000."(SEPB, SEC, etc. 1996). Thus, with the help of local environmental protection authorities, under the leadership of local educational authorities, the schools are engaged in the movement of green school initiatives.

In 2000, the State Ministry of Education and the State Environmental Protection Bureau jointly issued Announcement on Awarding Green Schools, and in 2000, 105 schools are awarded the title of National Green School. On the ceremony of the awarding, the vice minister of education Mr. Wang Zhan said, "environmental awareness is the symbol of civilization of a country or a nation. In order to realize the strategy of sustainable development, environmental education should be the important content of school education."(Wang Zhan, 2001) The minister of environment Mr. Xie Zhenhua said, "environmental awareness and eco-civilization is the main component of modern civilization, for the youth, environmental qualities are necessary for the social development. Therefore, environmental education is the basic content of the modern education for qualities. Now, the environmental education of schools has got a new development, that is the activities of green school initiative."(Xie Zhenhua, 2001). Up to now, there are more than 5000 green schools of various levels, among which there are more than 300 national green schools.

## Curriculum Development

In 1980s, the environmental education paid too much attention to the knowledge. As the time went on, people gradually realized that the final aim of environmental education is to train qualified citizens with environmental awareness, knowledge, skills, values and attitude. With such qualities, one could have a behaviour model that is kind to environment.

Since 1994, the Ministry of Education started to make programme for the environmental education both in primary and secondary education. From the end of 1990s up to now, a new curriculum innovation is launch, environmental awareness and values of sustainable development are infused into the new curriculum system.

According to the spirit of curriculum innovation, the content of curriculum should be changed from knowledge-based to comprehensive development, containing not only intellectual but also affective objectives. Thus all the subjects should make contribution in realizing the aim of environmental education. Scientific subjects has plenty of knowledge that is related to environment, but that could only accomplish the cognitive objectives of environmental education. The development of affective objectives, such as values, aesthetic conceptions, morality, responsibilities, etc, would rely on the social scientific subjects. Chinese subject, for example, could equip the learners with communicative skills so that they could understand others environmental views and express their own values as well. Chinese subject also help the learners to appreciate literary writings that could promote the learners' aesthetic abilities. As for the history subject, the students could have the ability to think about the evolution of the relationship between human beings and environment with historic views, and this process could promote the value clarification.

### 1. Pre-school Education

The Educational Compendium in Pre-schools points out that: 'The arrangement of Kindergartens' environment must be paid attention to. The campus should be made green in a planned way so that children can live in a clean, tidy and beautiful environment which has educational significance.' (SEPB, 1991:273). According to this philosophy, environmental education, at the pre-school level, makes full use of children's surroundings, with the aim of forming an attitude of appreciation for a living and protected environment.

In 2001, the Ministry of Education issued Instructional Outline of Kindergarten Education, which suggests five curriculum fields including health, language, society, science and art(MOE, 2001). The development of children's environmental awareness is inquired to be carried out through the five curriculum fields(Guan Peihong &

Wang Yihong, 2003).

In practice, many kindergartens integrate environmental education into their teaching activities. For example, such aspects of environment as water, air, noise and their relationship with human beings are infused into the curriculum. Teachers may use specimens, models and pictures, so that children can develop a positive, vivid understanding and awareness.

## **2. Primary Education**

At present, environmental education in most primary schools is integrated into the existing subjects, such as Chinese, mathematics, social studies, geography, science, nature study, art, and so on (Xu Hui & Zhu Huaixin, 1999:205). Science is a core subject for environmental education, including such basic topics as air, water, soil, noise, plants and animals, food-chains and ecological balance, etc.

The other subjects, such as Chinese, life and morality, music, art, etc, are all utilized to contribute the environmental education. The new version of textbooks contains plenty of environmental contents. For example, in the Chinese textbook, there are a lot of poems, fairy stories that are related to the nature. In the textbook of life and morality, there are a lot of units related to the environmental ethics. And the contents of music and art emphasize on the appreciation of nature.

Primary schools also implement environmental education through extra-curricular activities. Teachers often guide their students to participate in such activities as tree or flower planting, hiking and mountain-climbing, aimed at developing their pupils' initial awareness of protecting and improving the environment through observation and experience.

## **3. Secondary Education**

In most secondary schools, environmental education is infused in subjects such as chemistry, physics, biology, geography, civics, Chinese and social studies. According to the curriculum standards issued by the Ministry of Education in 2001, Chemistry, biology and geography are the major subjects that are used to achieve environmental education cognitive objective, while civics, Chinese and social studies are the subjects to achieve such environmental education affective objectives as environmental values, morals and responsibilities.

Some schools, at the senior stage in particular, establish a specific subject, such as Environmental Protection or Environmental Knowledge, which is formally listed on the timetable and brought into normal teaching programme. Such subjects are usually elective courses. Textbooks for these courses are usually compiled by the teachers

who are responsible for the courses so as to match the local environmental reality.

Secondary schools also pay attention to developing environmental education through extra-curricular activities. Teachers usually organise some subject-groups, such as the geography lovers' group, biology lovers' group, etc., in which students could go a step further to study environmental knowledge or do some relevant experiments. For example, the biology and geography lovers' group (formed by students of Junior I and II) in Xuejun Secondary School in Hangzhou, Zhejiang, are organized by their teachers to investigate the water quality at the source of the Great Canal(Zhu Huaixin, 2002b: 166). Also, many schools make efforts to disseminate environmental knowledge by holding exhibitions, lectures or forums on environmental situation(Shao Wenqi & Tao Chen, 2003: 21-22).

#### **4. Higher Education**

Since the late 1980s, most higher education institutions have shown concern for the development of environmental awareness in students who will enter such fields as economics, law, science and technology, art, journalism and publishing, and whose work will indirectly affect the urban and rural environments. Many institutions offer elective courses that develop specific environmental knowledge and concepts in accordance with particular specialities. For example, they offer such courses as 'pollution and living things' or 'environmental sanitation' for the students of a biology department; 'natural conservation' or 'protection of resources' for the students from a geography department; 'environmental management' or 'environmental law' for the students from a politics department. These courses are designed to broaden the environmental knowledge of students of various disciplines, strengthen their environmental awareness and develop appropriate environmental values and attitudes.

In order to equip university students with environmental knowledge, skills, awareness and values and attitudes, many institutions have infused environmental education into foundation courses instead of setting up a single course on environmental aspects. These institutions pay much attention to related specific environmental problems in the basic courses. For example, in an analytical chemistry course teachers might explain how to prevent iron from endangering human bodies and the environment; in a physical geography course, teachers would introduce the issue of natural resources and the measures of their conservation. This action has the advantage of relating basic theory with practice. A few institutions offer students regular lectures from a range of specialists. These lectures are non-degree courses, but they aim to improve students' understanding of the environment from different perspectives.

## 5. Teacher Education

In China, there are two kinds of pre-service teacher training institutions. One is the 'normal school' which belongs to the secondary education phase, and which enrolls students who have just finished junior secondary education. The duty of the normal school is to prepare primary school teachers. The other type of institution is the 'normal college', which is part of the higher education sector. Normal colleges enrol students who have just finished senior secondary education and prepare them to be secondary school teachers. In both institutions, environmental education has been integrated into the existing subjects so that the students can receive environmental through their daily learning. On the other hand, the teacher training institutions pay attention to the students' understanding of the relationship between their specialities and environmental education, guiding them to explore the links between the two fields, so that when they graduate, they not only have strong environmental awareness and correct attitude, but they are also prepared to implement environmental education through their own teaching subjects.

In order to train the future teachers to be skilful in integrating environmental education in their relative subjects, several institutions have begun to set up a course of environmental education for those who are working for diploma or degrees of education. For example, from 1996, the Department of Education in Hangzhou University set up a course named An Introduction to Environmental Education for students on the Bachelor of Education degree programme. Such a course does not involve gaining specific environmental knowledge and concepts, but involves the pedagogic principles of environmental education, the aim of which is to equip those wouldbe educationists with some theoretical knowledge of environmental education as a field of research.

Starting from 2001, there are various teacher-training programmes for environmental education and green schools from local to national levels sponsored jointly by educational and environmental institutions. Each year, there are thousand of teachers get such training at different levels.

### Some Influencing Factors outside Education

Since the 1990s, China has taken great strides in the field of environmental education in primary and secondary levels. Since the history of environmental education in China is quite short, some unavoidable problems have hindering the development of environmental education. Generally, there are three specific issues that particularly affect environmental education in China.

## 1. Historic factors and the exclusion of EE

From the end of the 19th century to mid-20th century, China has experienced a bitter history which included being invaded by many industrial countries. In 1949, the People's Republic of China was founded, and the Chinese leader Mao Zedong announced: 'Chinese people stand up!', inspiring the whole nation. But the new republic faced poverty and backwardness. The whole nation anxiously looked forward to catching up with developed countries, and such slogans as 'combating nature' and 'conquering nature' became a kind of national philosophy. The ideal situation that Chinese people longed for was that of 'a forest of chimneys and a sea of dense smoke'.

The main content in the different levels of education was industrial and agricultural scientific knowledge. The praises of 'labour heroes' who had 'conquered' nature were sung. The main thrust of the curriculum through the whole educational system appeared to be anti-nature. As for environmental education, nobody thought of integrating it into the curriculum.

In 1980s, the Chinese government pursued a more open policy, which made Chinese people recognise again the distance between China and the developed countries. Despite the national policy of environmental protection, a great upsurge in economic construction took place throughout the country. Since the 1980s, China has made great progress towards economic development, but the cost has included the exacerbation of environmental problems. In order to acquire benefits, people seldom consider whether their behaviours are sustainable or not (SEPB, 1991: 215 & 325). Such economic models and lifestyles require an education system to impart the knowledge that could foster the economic development, and environmental education, therefore, was excluded from school education. Chinese Agenda 21 points out that, 'the economic model in China has long been an unsustainable model, the result of which is the exclusion of environmental education in various levels of education,...' (The State Council, 1994). It is true to say that pursuing economic growth is the main reason that environmental education has not got a stable position in most areas of China.

## 2. The pursuit of higher education

China has been deeply influenced by Confucianism for nearly 2,000 years. In spite of several social innovations and changes, Confucianism deeply affects the nation's mental state. One important philosophy is that 'a good scholar will make an official', hence the essential aim of education, for centuries, was to prepare officials. Schooling was the ladder towards the upper class. In order to gain access to higher education,



leading to a higher social position, one had to pass a strict entrance examination. Thus education was aimed at preparing students for the examination. Such education only paid attention to book knowledge and examination technique, and seldom paid attention to values, attitudes or even the application of knowledge.

At present, education in China is by no means only for the preparation of officials, but gaining a higher education still results in relatively easy access to a good social position. Since the numbers of higher education institutions has been limited, only the minority of candidates who graduate from secondary schools, and who do well in the entrance examination, can enter universities and colleges. For this reason, only those secondary schools that send a high proportion of their students to higher education are regarded by the public as schools of high quality. As a result, the secondary schools are only concerned with the subjects that are included in the entrance examination and ignore those that are excluded. It is not surprising that teachers care for nothing but the mastery of knowledge and the skills that are useful for dealing with examinations (Zhu Huaixin & Justin Dillon, 2001a: 40).

Environmental education involves the development of environmental awareness, values and attitudes as well as the dissemination of environmental knowledge and skills (Xu Hui & Zhu Huaixin, 1999: 33; Annette Gough, 1997: 70). Social ethic of conformity, obedience and suppression of personal beliefs strongly affect the success of environmental education (Grace Lai Ya Suk-lin and Stimpson, 1997). Because of the influence of the traditional perspective outlined above, environmental education is ignored by school managers and teachers. Recently, however, the Government and educational authorities have been calling for environmental education initiatives. In response, some schools have established such subjects as 'environmental studies', 'environmental science', 'ecological studies', etc. (although they are not environmental education in its broadest sense, they represent major progress). But even such subjects mainly focused on knowledge and skills are often only arranged at grade 1 - far from the important examination, and they are usually optional subjects. Some schools have recognised that environmental education is an educational process: that it should be integrated into various subjects and teaching activities. In the new curriculum standard, values teaching is paid much attention, and values has become the first aim of each subject, but teachers do not take it seriously, teaching strategy adopted is still mainly content-based. The schools and teachers would rather spend the time in training their students to be skilful in taking examination instead of exploring ways to integrate environmental education or co-ordinating the contributions that various subjects could make to environmental education (Zhu Huaixin & Justin Dillon, 2001b: 345).

### **3. The influence of standardised educational administrative management on schools' and teachers' initiatives**

For centuries, the Chinese educational administration has mainly been centralised. Even in the 1980s, the curriculum, subjects, syllabuses, teaching materials and even the teaching methods were determined by the central educational authority, and provincial and local educational authorities only supervised and guided implementation. Recently, the State Department of Education transferred some powers to provincial authorities. Some provinces, for example, could, under the framework made by the central educational authority, compile textbooks appropriate to the local needs. But schools and teachers are unable to decide what to teach, the pace of their teaching or what teaching strategies to use. Actually, the reforms proposed may still be affected by the 'deeply entrenched verticality' characterising Chinese public administration. (Bradbury and Kirby, 1996: 97-107)

Such a situation weakens and restricts schools' and teachers' initiatives. Each school and each teacher may wish to utilise local resources to implement environmental education, according to the community needs and an individual student's developmental status. But the teachers, in order to finish the tasks stipulated by their educational authority, have no time to research the methods of environmental education in the relevant subjects, and have no time to consider how to educate their students for the environment and in the environment.

## **Some Problems inside Education**

### **1. The content of environmental education**

Many secondary schools regard environmental education as a theme that belongs to the natural sciences (Zhu Huaixin, 2002a: 8). Consequently, environmental education is seen as the work of the teachers of such subjects as physics, chemistry, biology, geography, etc. However, a more inclusive approach to environmental education would advocate an emphasis on the issues of cause and effect of problems that are greatly related to human views and behaviours. Subjects in the natural science themselves do not solely constitute environmental education, only a part of it, excluding, for example, social and natural scientific aspects. So to achieve the aims and objectives, environmental education should be integrated into the whole educational process (Zhu Huaixin, 2002b: 83-84).

### **2. Teachers' inability to implement environmental education**

Primary and secondary school teachers in China have little time to explore how to

implement environmental education through their own subjects. If pushed, teachers often simply add some environmental content to their subjects, which actually increases teachers' and students' burden. Meanwhile, schools only pay attention to how their teachers are implementing their own subjects instead of thinking of a way to co-ordinate the contribution that each subject can make to environmental education, therefore, there is usually poor co-operation between teachers (Xu Hui & Zhu Huaixin, 1999: 218).

### **3. Lack of assessment**

There is a major recognition in the West that assessment has great significance in education. To assess effectively, educational aims and objectives need to be clear and realistic (Xu Hui & Zhu Huaixin, 1999:219-220). In China, environmental education only has general aims, for example: increasing students' environmental awareness; equipping them with environmental knowledge and skills; rectifying their environmental attitudes and values, etc. But until now, no standards have been established to describe the degree of those aspects that students of various levels should attain. Without standards, no objective results of assessment can be gained.

### **Conclusion: a Brilliant Future**

Environmental Education has been seen as an important field in the whole educational process. The Ministry of Education launched the movement of Green School Initiative to implement the aim of environmental education. Environmental Education Syllabus was issued in 2003, and environmental awareness and values of sustainable development have been infused into the whole curriculum. With the emphasis on environmental education by the central government, various levels of educational authorities have realised that environmental education should be integrated into the whole educational process rather than establishing a single subject. They now require schools to orient their daily teaching towards the objectives of environmental education. They plan to compile and publish different sorts of supplementary reading materials involving environmental contents and issues, hoping to help and promote environmental education.

Integrating environmental education into the whole educational process does not mean simply adding some environmental content to each subject. It should be a holistic process. In primary and secondary schools, a team will be organised in order to co-ordinate the contribution that each subjects and educational activities can make to environmental education.

In the end, the teacher is the critical element in the development of environmental education. So environmental education will also be initiated in both pre-service and in-service teacher-training institutions. Students in normal universities and in-service teacher-training college will be taught the content of environmental science and the theory of environmental education, so that they can be both good instructors and researchers who are going to find ways of achieving the aims and objectives of environmental education.

In order to accelerate the development of environmental education in China, some universities have already established institutes such as a Centre for Environmental Education Studies, whose duty is to research the theory of environmental education, including the establishment of theoretical framework, the development of curriculum, the approaches of teaching strategies, comparative studies, etc.

Environmental education is now paid much attention by various levels of educational authorities and schools. The problems mentioned above have specific causes which involve national values and ideas and even some national systems, so it is not easy to solve them. With the strengthening of international exchange and the development of Chinese society, some traditional values which are not adaptable to the future needs of society will be weakened. And of course the administrative management will certainly be innovated and improved. Environmental education in China has made great progress, and the future is bright. We are optimistic that with continuing attention from the Government and with public support, environmental education in China will improve rapidly.

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