Review article  Learning Beyond Schools: Nonformal Environmental Education in Taiwan

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Abstract
In the early 1990s, environmental education (EE) was initially launched at all levels of the school settings (K-12) in Taiwan. Since then, EE has become a theme and has been recognized as an influential instrument for environmental concerns by most Taiwanese educators. With such powerful outcomes from EE, it was found that environmental awareness and attitudes held by the public in general were dramatically increased from the past decades. Accordingly, EE with its three-dimension components-formal EE; nonformal EE; and informal EE – have been consciously designed and practiced in order to reach out for a large part of the society. For example, by the year 2001, there were five graduate institutes of environmental education established under the Teacher Normal Universities throughout Taiwan. And, in the context of nonformal EE, educational programs and interpretation at the institutions such as environmental education centers, nature centers, zoos, museums, parks, outdoor-education settings, park & recreation and so on have been implemented and adopted by a broad array of organization practitioners. But, as regards informal EE, namely, “environmental communications,” there had received relatively less attention than formal and nonformal practices during the time. On June 5, 2010, the Legislative Yuan of Taiwan adopted Environmental Education Act, which is a significant expansion of EE in Taiwan. This review article briefly addresses the history and current state of nonformal EE developing in Taiwan. In addition, a dynamic expansion of nonformal EE promoted by Environmental Education Act was explained in the article as well.

Key words: nonformal environmental education, Environmental Education Act, environmental education certification

I. History of Environmental Education Development
The US environmental movement occurring in the 1970s for environmental education (EE) had its significant impacts on the society of Taiwan, even though Taiwan has been relatively late of developing EE in comparison with other western countries. Since the early 1980s, when the problems of environmental pollution and natural resources exploitation became a great threat to the national planning and the public health, Taiwanese professionals, with the background in areas such as nature study (i.e., science education, geography, biology, agriculture, forest), conservation education (i.e., environmental science and engineering), and outdoor education (i.e., nature and heritage history) have worked to construct the emerging field of EE. In the year 1987, the Environmental Protection Administration of Taiwan initially established a specialized unit to develop the practices of environmental education. The orientation of EE implementation led by this unit tended to be government-based and conservation-oriented education, through transfer of the environmental information necessary for the public to control and prevention of environmental degradation. For this reason, the understanding of EE perceived by a large part of people in Taiwan, over the past years, was all about “pollution education”, such as littering prevention and waste recycling. A few years later, in 1992 the Executive Yuan of Taiwan passed the “Environmental Education Guideline”, which designated the Ministry of Education as the lead agency for guiding all of the public schools (K-12) to establish school environmental education policy and a working group in support of environmental education practices. According to the Guideline, seven actions are listed as below (Ministry of Education 1997):
1. to establish an integrated environmental education system;
2. to enhance environmental education programs in all levels of the school system;
3. to promote nonformal environmental education;
4. to promote professional training by building up their power and abilities in dealing with environmental education and environmental protection;
5. to develop research on environmental education;
6. to promote international cooperation and information exchange on environmental education; and
7. to provide awards and grants for those contributing and devoting in the practices of environmental education.

Based on this guideline, two major approaches that are designed to carry out environmental education in Taiwan as a whole were recognized as formal education and nonformal education. Through three dissemination systems—Environmental Education Centers, Environmental Protection Exhibition Centers, and Nature Centers—the duties in developing environmental education programs were distributed to different sectors of the government-agencies, such as Ministry of Education (MOE), Environmental Protection Administration (EPA), Council of Agriculture (COA), and Ministry of Interior (MOI) (see Figure 1). Most of EE programs, in Taiwan, were initially responsible for pre-service teacher training and provision of in-service workshops on a regular basis primarily via sponsored by the Ministry of Education. Since implementation, the programs had grown their experiences and tended to reach out to a variety of people by implementing their oriented tasks such as practical education, conservation education, outdoor education, local nature and heritage education etc. Since then, EE has become an important campaign for environmental conservation and resource management in a participatory means for a broad sector of the society. Given these effects, educators, researchers, programmers, and policy makers were anticipating a progression in Taiwanese people, particularly school students, in their environmental awareness, adoption of positive environmental attitudes and particular actions towards the environment.

However, according to the EPA assessment findings (1998), school students (including college, high, secondary, and elementary schools) had showed a moderately low participation rate in action for the environment while their general knowledge and attitudes about the environmental problems (i.e., air, water, waste pollution, land management,

Figure 1: A Framework for Collaboration of Environmental Education Implementation in Taiwan (Source: modified from MOE 1997)
wilderness conservation, climate change) are being increased substantially. In addition, the assessment also found that the extent of the behavioral performance among those student groups is gradually weaker as the students are elder. Also, college students and adults have received relatively less influence from the instruction of EE. This is echoed in an essay by Chen found in Palmer (1998), where he pointed out, “environmental education [in Taiwan] is implemented most effectively in the elementary schools, and gradually declines as students grow older” (p.217). In view of this, three major reasons were concluded: (1) in Taiwan, EE implementation had been largely predominated by the twelve teacher training universities, so that pre-service and in-service teachers, as well as the younger students in different levels of mandatory education system have obtained relatively more opportunities for EE instruction and practices compared with the older students in general academic universities and colleges; (2) the EE relevant courses had not been found to be widely offered by the general academic universities and colleges as an elective basis; and (3) according to the National Science Council of Taiwan, major research projects in EE (1988–2001) were given more attentions on a formal education topic (e.g., EE concept study and curriculum development) other than on the nonformal EE issues (Chang 2001, Kao 2002). As a result, the students in general universities and colleges were posited as ‘marginal groups’, which are not equivalently studied or focused on by most researchers and education programmers as contrasted with younger students and teacher groups. In a result of that college students soon entering into the society, it has no clue for them to carry out the pro-environmental behaviors.

Given the above reasons, encouraging paradigm shift on approaches of EE, and enhancing the elements in nonformal education techniques were urgently needed in Taiwan at the time.

II. Grassroots of Nonformal Environmental Education

The direction of EE change in Taiwan has initiated by a number of bottom-up processes. NGOs facilitate grass roots EE programs and activities, and they are a major part of nonformal education. According to the EPA records 200 NGOs engaged in environmental activities, it was found that 156 are registered with the Ministry of Interior Affairs with a focus on resource conservation, educational orientation, and animal rights/welfare topics; and 44 with the EPA related to the agency’s mission of pollution control. The special features of Taiwan’s environmental NGOs are a volunteer basis, self-sufficient, and linked to the socio-political environment (McBeath and McBeath 2011).

Many of Taiwan’s environmental NGOs were formed in the 1980s to oppose local pollution sources. Taiwan’s environmental NGOs are relatively specialized by area of environmental concern. A large number specialize in reducing pollution. Many other groups specialize in the protection of different endangered or threatened species or protection of animals in general. There is a relatively little overlap in membership of Taiwan’s environmental NGOs, the main reason is that people selectively affiliate what environmental issues/topics they are concerned with, so that the related information and knowledge are effectively available. Yet, it resulted in an unfavorable situation in which the links between NGOs are not enough, so their views and practices on EE are fragmented.

Most of Taiwan’s environmental NGOs have developed good relationships with government agencies, such as the Environmental Protection Administration, Council of Agriculture, Ministry of Interior, and Ministry of Education, so they can ‘survive’ by applying for funding from the agents. Also, those NGOs have more influences on polices and the society for their appeals. Environmental groups often deliver environmental education through many means, such as training programs, environmental interpretation & communications, symposiums, public hearings, and lobbying etc.

During the period of 1990s, guided interpretive walks, and field activities such as species identification, bird watching, hiking were increasingly practiced in most National Parks. Nature study started becoming prevalent from the relatively recreational view towards a more learning-based approach. This trend led nature study being viewed as an educational perspective, moreover, it triggered families and individuals to visit parks, zoos, museums and other facilities. Many activities during this period tended to emphasize education for the sake of self-enlightenment. This evolution was away from mere “pollution education” towards developing understanding of ecological relationships and processes.
III. An influential NGO of EE_CSEE

The Chinese Society for Environmental Education in Taiwan (CSEE) is a national non-governmental organization, founded in 1993. The society was initially established by a group of scholars, officials, and teachers in the school system. It is a membership organization dedicated to promoting environmental education both on academia and practices in formal, nonformal, and informal settings through research, outreach, capacity building, evaluation, and dialogue. Up to date there are more than 300 members registered in the Society. The vision of the Society is “to mitigate the degradation of the human and natural environment and to empower people’s actions for building a sustainable future.” The goal is expected to help researchers, practitioners, policy-makers, organizational leaders, and funders advance a sound implementation of environmental education. Therefore, 5 themes are included in CSEE’s mission as: academic development, publications, outreach services, professional training, and international cooperation, etc.

Theme 1: Academic Development

There includes periodical publication and international annual conference. CSEE has issued a periodical publication called “Environmental Education Research (EER)” quarterly since 2003 (Now Bi-yearly). The main focus of EER is on Research Articles, Review Articles, Essays and Analyses. In addition, the international annual conference has held since 1991. Each year focuses on different theme, and inviting scholars and practitioners from interdisciplinary areas as well as from overseas to participate.

Theme 2: Publications

CSEE has published an EE yearly, reporting case studies of EE practices in the formal, nonformal, and informal settings. The EE yearly called “Green Teacher” has published since 2005. Until the year 2016 it has been issued the 9th edition.

Theme 3: Outreach Services

CSEE has long advocated Environmental Education Act in Taiwan since 1994. Until 2011 the Act has legislated and designated the EPA as the authority. CSEE has been working with the EPA to establish handbooks, principles, and criteria for being a qualified environmental education personnel, facility, and institution. Moreover, CSEE often holds workshops for capacity building.

Theme 4: Professional Training

CSEE has regularly conducted professional training. From 2011, CSEE started to train up educators and specialists working in outdoor environmental education, being capable to bring out EE programs and the services in nature centers. This promotion has created a new job career for young people in Taiwan now.

Theme 5: International Cooperation

Since 1993 CSEE founded, it has been seeking partnership with the International organizations. CSEE has signed up MOUs with many countries, including Cross Strait and Four Places (China, Hong Kong, and Macao), East Asia (Japan, South Korea), and North American Association for Environmental Education (NAAEE). In addition, CSEE helped Taiwan Forestry Bureau (TFB) sign a MOU with Field Studies Council, UK for 5-year plan (now is 2nd round for 5-year plan) to improve learning quality in outdoor environmental settings.

IV. One of the Effective Approaches for Nonformal EE_Nature Center

The concept of ‘nature center’ was first brought to publicity in Taiwan by some interdisciplinary researchers in 1991, based on the significance of the nonformal realm of environmental education. During the year 1992 to 1997, there were at least 15 centers operated via funded by Ministry of Education. At that time, most nature centers were run by public-owned lands and natural areas, e.g. national parks, recreational farms, national forests, and agency-based lands/facilities. However, due to the shortage of financial support, and lack of experienced personnel and professional training for planning, implementation, and evaluation of the programs, those nature centers thus didn’t function properly and independently. Then, they all were terminated (Chou 2001).

Until 2007, Taiwan Forestry Bureau (TFB) redefines the value of ‘nature center’, and has operated well in its functions as well as ensures a consistent service throughout the country. TFB is the central authority responsible
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for national forest management and natural resources preservation. TFB lies in the front line to nature resources management, so it has been long confronting the conflicts in resource utilization with all kinds of stakeholders. Since 2005 TFB amended the “Regulations for Establishment and Management of Forest Recreation Areas” and included Environmental Education (EE) in a priority for management. Afterwards, TFB has taken the initiative to establish eight nature centers in the national forest recreation areas throughout the country. By providing five sets of course programs (including School Program, Thematic Activity, Professional Training, Environmental Interpretation, and Special Event) ‘TFB Nature Center’ has become an important venue for learning in/for/about the environment. Particularly, regarding to the formal schooling system which is strongly focused on standard-based learning, the model of ‘TFB Nature Center’ operated has shifted in the way teachers teach and students learn entire time in the classroom into using the environment as a context for curriculum-based learning and for developing related abilities based on EE goals.

V. Status Quo of Nonformal EE_EE Act

In 2011, nonformal EE settings have been again increasingly developed since Taiwan launched Environmental Education Act. The Act accompanies with a national environmental education funds to pay for the education and training, and it requires three kinds of certification: for personnel who conduct environmental teaching and learning, for facilities & venues that is regularly carrying out EE activities and programs to the public, and for institutions that train environmental educators. Up to the end of 2016, there were a total number of 9575 personnel, 140 facilities & venues, and 28 training institutions acquiring the badge through verification in Taiwan.

Taiwan’s Environmental Education Act (EEA) was approved on June 5th, 2010 and went into effect the following year since June 5th, 2011. EEA aims to cultivate citizens’ understandings of their ethical relationship with the environment while improving their knowledge, skills, attitudes, and values with regard to environmental protection. In addition, EEA also encourages citizens to cherish the environment and to take action to achieve sustainability. There are three major characteristics embedded in Taiwan’s EE Act as:

• to make EE more sustainable on a national level, including by providing stable funding and personnel to support national EE efforts;
• to promote EE become a central component of national sustainable development and environmental protection strategies; and
• to introduce certification processes for EE personnel, facilities and venues, and institutions helped to ensure quality of EE implementation.

Besides, the other special feature regarding Taiwan’s EE Act is that, all government officials, school teachers, staff, and students, as well as all employees hired by nation-owned business are required to engage in EE programs for at least 4 hours annually (it’s covered about 25% of Taiwan current population). Thus, in addition to the importance for outdoor learning, environmental education facilities in Taiwan are derived a supplementary value for existence and operations. That is the reason why within the last five years many new nature centers and environmental education facilities have been developed, and there are about 30% of the facilities that are operated by the private sectors.

Environmental Education centers/facilities in Taiwan don’t look new to people, however their tremendous influences in recent years has just begun. Environmental Education Act promotes nonformal environmental education to be developed rapidly in Taiwan, that is, it can provide people more opportunities to learn in/for/about the environment. At this point of time, most Taiwan people are expected to see how individuals change their old lifestyles, make environmental-friendly actions, as well as improve the environment substantially. This will be the strong evidence for the success of environmental education in Taiwan.

VI. Conclusion

The field of nonformal EE is broad and diverse in its education techniques. It includes nature study, interpretations, and conservation education as well as education programs at such diverse sites as parks, nature centers, museums, zoos, aquarium, forest areas, botanic gardens, wildlife refuges, communities, farms and private lands etc. Even though goals and purposes within these fields might be somewhat distinct, most practitioners view the main objective
of nonformal environmental education as stimulation and enlightenment to help create positive environmental values and actions for Taiwan’s society.

About the Author

Yi-Hsuan was born and grew up in Pingtung City of Taiwan. He graduated from the school of Natural Resources at Ohio State University with Master and Ph.D. degrees, majoring in Environmental Education, Interpretation and Communications; minor in Ecosystem Management. He now is a professor at the department of leisure and recreation management in Aletheia University (Tainan Campus) of Taiwan, and Director of the Environmental Education and Ecological Conservation Extension Center at the school. He was the last president of the Chinese Society for Environmental Education (CSEE) and has been active in nonformal EE throughout the country. Also, he has undertaken promotion of school EE in the southern region of Taiwan granted by the Ministry of Education for years now.

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