Investing a Better Future: Education for Sustainable Development as a Means to Strengthen the Environmental Education

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Abstract. Since the outbreak of the epidemic, the environment education and the education of sustainable development became the main focus once again. It is because some citizens lack consciousness of ecological civilization and sustainable development, caused environmental pollution, indiscriminate killing of wild animals, destruction of social public health, injury and sacrifice of people's physical and mental health, disturbance of urban and rural social life order, etc. The outbreak of the novel coronavirus pneumonia undoubtedly confirmed the urgency of strengthening the global citizens' education for sustainable development. This serious epidemic related to the sale and consumption of wild animals is a wake-up call again. It is necessary to reexamine the relationship between man and nature and the way of human behavior. Education is the key factor for the implementation of sustainable development. Good health and well-being, and quality education are the third and fourth goal for sustainable development proposed by the United Nations. Through content analysis and case analysis, this paper indicated that teachers’ educational ability for sustainable development is a professional ability that higher education institutes should apply education for sustainable development as a means to strengthen the environmental education. Teachers identify with the concept of sustainable development education and are willing to practice the values of sustainable development in life and educational activities.

1. Introduction

In the late 1960s, human beings began to pay attention to environmental issues. The United Nations (UN) organized international Conference on the Human Environment in Stockholm from June 5 to 16, 1972, bringing whole world attention back to environmental issues. From June 5 to 16, after 12 day’s discussion, the committee proposed “Declaration of the United Nations Conference on the Human Environment”. Stockholm Conference marked a turning point in the development of international environment. United Nations Environment Programme (UNEP) established at the same year to guide and coordinate environmental activities. UNEP is the global champion for the environment with programs focusing on sustainable development, climate, biodiversity and more.
The concept of sustainable development was first formally discussed at Stockholm Conference. The twelve-day’s international conference brought together representatives of global industrialization and developing countries to define human rights in creating a healthy and vibrant environment. Since then, countries all over the world have been trying to define the meaning of sustainable development. Now there are hundreds of definitions, covering international, regional, local and specific sectors. Sustainable development is not only to meet the needs of contemporary people, but also not to harm the future generations to survive. Sustainable development should not only achieve the goal of economic development, but also protect the natural resources such as atmosphere, fresh water, ocean, land and forest, so that future generations can develop and live in peace and contentment.

Sustainable development and environmental protection are not only related, but also different. Environmental protection is an important aspect of sustainable development. The core of sustainable development is development, but it requires economic and social development on the premise of strictly controlling population, improving population quality, protecting environment and sustainable utilization of resources. Development is the premise of sustainable development. People are the core of sustainable development. Sustainable and long-term development is the real development. So that future generations can continue to live and work in peace and safety.

2. Literature review

The word "sustainability" was first put forward by ecologists. The so-called "ecological sustainability" intends to illustrate the balance between natural resources and their utilization. In November 1991, the International Union of Ecology (INTECOL) and the International Union of Biological Sciences (IUBS) jointly organized an international conference sustainable development. The results of the seminar developed and deepened the concept of sustainable development, defined sustainable development as "protecting and strengthening the production and renewal capacity of environmental system", which means that sustainable development is the development of system renewal capacity without exceeding the environment. In 1991, the International Union for Conservation of Nature and Natural Resources (IUCN), the United Nations Environment Programme (UNEP) and the World Wildlife Fund (WWF) jointly published "Carrying for the earth:

A strategy for sustainable survival Living”, defining sustainable development as to improve the quality of human beings’life quality under the condition of not exceeding the capacity of maintaining ecosystem conservation, and puts forward nine basic principles of sustainable human survival.

![Figure 1: Seventeen goals for sustainable development](image)

UN proposed 17 goals for sustainable development as follows: no poverty, zero hungry, good health and well-being, quality education, gender equality, clean water and sanitation, affordable and clean energy, decent work and economic growth, industry innovation and infrastructure, reduced inequalities, sustainable cities and communities, responsible consumption and production, climate action, life below water, life on land, peace, justice and strong institutions, partnerships for the goals. The 17 Sustainable Development
Goals (SDG) address the global challenges we face, including those related to poverty, inequality, climate change, environmental degradation, peace and justice. The 17 SDGs are all interconnected, and in order to leave no one behind.

Colorado State University Professor Edward (2016) pointed out the overall goals of environmental conservation and economic development are not conflicting but can be mutually reinforcing. Sustainable development requires that per capita welfare does not decline over time. The minimum condition is ensuring that any depletion of natural capital is compensated by reproducible and human capital, so that the value of the aggregate stock does not decrease. Pearce, Barbier and Markandya [3] offer a definition of sustainable development in terms of not depleting natural resources. As a leading environmental economist, Robert Repetto [6] in his book ‘Global Possible’ said that sustainable development is a continuous process that considers all natural and human resources as a means to achieve certain goals or objectives.

Repetto defined sustainable development as “a development strategy that manages all assets, natural resources, and human resources, as well as financial and physical assets, for increasing long-term wealth and well-being.” United Nations Educational, Scientific, and Cultural Organization (UNESCO) [10] recognized the importance of Education for Sustainable Development (ESD). ESD is not only a key element of quality education, but also a crucial enabler for sustainable development. Teachers’ education has a key role for leading a sustainable development future. Albareda-Tiana, Ruíz-Morales, Azcárate, et al. [1] presented the first result of the Education and Social Innovation for Sustainability (EDINSOST) project, whose objective is to train graduates capable of resolving the challenges facing our society by integrating training in sustainability competencies into the Spanish University System (SUS).

Ayesha, Sajid and Muhammad [2] conducted a research to test effects of sustainability education on pre-service Pakistan teachers’ attitude towards sustainable development. The findings indicated the need and potential of education for sustainable development in different academic programs is to enhance the students’ attitude towards sustainable development. At eight Spanish universities, the sustainability competency map has been successfully adapted to several undergraduate degrees in education (Primary Education, Pre-School Education, Pedagogy and Social Education) and a master degree program in Environmental Education. Teh and Koh [7] presented quantitative methodology to support implementation of SDGs in universities, such as enhancing sustainable management of storm water, air quality and water quality in campus and beyond. The researcher also suggested an initiative in unifying science, technology, engineering and mathematics for analyzing the adverse impact of climate change on coastal groundwater and vegetation.

Xueyan [11] defined teachers’ educational ability for sustainable development as a professional ability that teachers identify with the concept of sustainable development education and are willing to practice the values of sustainable development in life and educational activities. The connotation, educational goal and characteristics of sustainable development education are the basis for teachers to form the educational ability for sustainable development. The three dimensions of professional attitude, professional knowledge and professional skills constitute the main structure of teachers’ educational ability for sustainable development.

3. Research Methods

In the context of sustainable development, the research results and work of the "environmental education" cooperation project are shared, exchanged and discussed every year. The "Sino-German Sustainable
"Education Workshop" is an excellent example. German experts provided special trainings on sustainable education for the sustainable project team members.

There are nine sub-theme of sustainable education workshop namely biodiversity, climate change, ecology and ecosystem, environmental protection, resource management, environment and health, commodity production and consumption, urban and rural development, and regional characteristic modules. There are eight methods of sustainable education workshop namely professional working methods, situational methods, communication and cooperation methods, reflection methods, open school methods, creative methods, action-oriented methods, and media. Through a series of activities, forward-looking thinking and behavior, global open awareness, cross-disciplinary work, plan and action, justice and unity, understanding and cooperation, motivating self and others, reflecting on lifestyle, role model and other sustainable competencies are cultivated.

The sustainable education workshop is of great significance for Shanghai schools, teachers and students to practice environmental education and promote the sustainable development of ecological civilization. This project not only cultivates students’ environmental awareness, develops local school-based courses, and makes environmental education go deep into quality education, but also cultivates a group of teachers who are engaged in environmental education and have cross-disciplinary knowledge and skills and a research team of comprehensive practical teaching methods. German professor leaded the research team to carry out teacher teaching and research exchange activities in Shanghai every year to promote the practice process of environmental education in Shanghai schools.

It is hoped that the common exploration and consensus reached by the Sino-German cooperation units on the educational concept will radiate to a wider range of schools, teachers and students. Cultivate the students’ attitude of caring for nature and respecting nature, form the behavior habit of maintaining the ecological environment, establish the sense of mission and responsibility of protecting the environment, be a small protagonist of sustainable development in line with the requirements of the times, and contribute to the construction of China's ecological civilization spirit and quality. Take domestic waste classification as an example. Research team from Development Research Center of the State Council [4] conducted a research among 46 key cities.

The findings indicated that 38.3% of the Chinese households in 2018 classified domestic waste, an increase of 11.4% over 2017.46 key cities have equipped nearly 5000 classified kitchen waste transport vehicles and nearly 1000 classified hazardous waste transport vehicles. 134 central units and provincial departments have fully implemented the classification of domestic waste. In 46 key cities, the domestic waste treatment system of classified delivery, classified collection, classified transportation and classified treatment is gradually being established, and will continue to invest 21.3 billion yuan to accelerate the construction of treatment facilities. For example, in Guangdong Province, 80% of the schools have implemented environmental education in varying degrees to build energy-saving campuses and practice environmental concepts, especially in the Pearl River Delta, measures such as "deepening the CD-ROM operation", "controlling the amount of kitchen waste", "paperless office and teaching", "classified garbage cans" have been carried out in a conventional way. The implementation of these measures has a significant role in promoting sustainable development.
From the comparison of the above two sets of data, it is not difficult to find that the air quality of Shanghai is worse than that of Guangzhou in the same period. But at the same time, the annual GDP of Shanghai is higher than that of Guangzhou. The two are in inverse proportion. Through content analysis and case analysis, the results indicated that environmental education is closely related to sustainable development, and environmental education is a part of sustainable development education, which needs mutual interaction and common effect. The direction of environmental education is reoriented according to sustainable development. Sustainable development education has the function that environmental education cannot achieve.

4. Results and Discussion

Environmental education and sustainable development education are a whole, and they should not be antagonistic. Sustainable development is a more profound and extensive concept than environmental education. There are great differences between the concept of environment and sustainable development. The definition of environment in Chinese encyclopedia is the sum of all natural factors that affect human production and life, but the concept of sustainable development is much broader. With the deepening of the concept of sustainable development, the concept of environment has been further expanded, from natural environment to natural social environment.

At the same time, the content of education has become richer. In essence, environmental education is a kind of education of human and land relationship. That is to let students understand the environmental problems faced by domestic, international and local, and obtain knowledge about the environment. The education of this relationship emphasizes the harmonious development of people, environment and resources. People are one side, resources and environment are the other side. In contrast, the definition of sustainable development is much broader, which includes: 1. Human's understanding of nature, the formation and development of human development concept; 2. The relationship between human and nature;
3. The strategic issue of social and economic development is the sustainable development strategy, which is not only the embodiment of people's environmental outlook, but also the embodiment of human simple values, social outlook and moral outlook, which determines the science nature of the overall trend of social development.

There is a positive interaction between education environment and sustainable development. First of all, environmental education lays the foundation for sustainable development, that is to say, sustainable development is rooted in environmental education. Environmental education is not only an education course, but also a supporter of environmental protection and economic development. At the same time, sustainable development plays a correct role in guiding environmental protection, which is highly inclusive. The content of environmental education will be guided by sustainable development, and the specific methods of sustainable development are mostly derived from environmental education.

5. Conclusions

So far, many scholars at home and abroad have made a wide discussion on the relationship between environmental education and sustainable development education, and the views are different. Generally speaking, there are five views: 1. Environmental education and sustainable development education are equal. This view equates the two things together. Environmental education came out before the sustainable development in education, so there is no more sustainable development education; 2. Sustainable development education is an integral part of environmental education. This view holds that sustainable development education is a new branch formed under the current situation of social development, and also a new means to implement environmental education; 3. Environmental education is a part of sustainable development education. This view is contrary to the second view; 4. Environmental education and sustainable development education are related and independent, but there are overlapping parts between themselves. 5. Sustainable development is the advanced stage of environmental education development. Although the birth time of environmental education and sustainable development is different, both of them came out under the background of the global environment being damaged and facing a great resource crisis. With the aggravation of environmental problems, people's awareness of environmental protection has gradually improved, and the problem of environmental education has been widely concerned. Sustainable development education emphasizes people-oriented, its fundamental purpose is to promote the sustainable development of human beings, and focuses on the improvement of the quality of life of the educated.

Sustainable development education is not only a means of sustainable life, but also a part of sustainable life. However, the traditional environmental education has a narrow scope, which only aims at solving environmental problems. This is essentially different from the sustainable development education, because the purpose of sustainable development education is to cultivate education and ability, and then to solve environmental problems. In a word, environmental education is only the foundation, while the connotation of sustainable development education is more abundant. Fully tap the penetration point of subject teaching, and highlight the pertinence of cultivating the concept of sustainable development.

Taking the education platform as the carrier, integrating the theories and methods of global education, world research and development education, and emphasizing the idea of sustainable development are the cores of modern education. Based on environmental education, the great goal of cultivating talents with innovative consciousness and ability for sustainable development is finally realized. Education for sustainable development is essentially a kind of value education, which is an educational process aiming at the value cognition, perception, practice and the final formation of a stable value orientation of sustainable
development. It is an educational activity that guides people to establish the values, behavior habits and lifestyle of sustainable development through values. Therefore, as a teacher of sustainable development education, we need not only rich knowledge, but also establish the values of sustainable development and practice the values in education activities.

Because of the educational activities, teachers are the model of students and the source of students' values demonstration. Teachers' own values have a direct and profound impact on the establishment of students' values. On the other hand, the values of sustainable development will also become a strong spiritual driving force for teachers to carry out sustainable development education activities. The behavior of teachers in sustainable development education is similar to that of volunteers in public welfare. To invest a better future in the field of sustainable development education, we need a strong spiritual force, a sense of responsibility of teachers for protecting the natural environment, a sense of responsibility of the times for the future of mankind, and a passion to keep it as a cause for sustainable development. Higher education institutes should apply education for sustainable development as a means to strengthen the environmental education.

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