The Research in the Environmental Consciousness and the Interacted Education of Teachers in the Middle School

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Abstract: The environmental education in the higher normal colleges and universities plays a vital and indispensable role in improving the national quality and strengthening students' environmental consciousness in whole-course. This article discusses intensifying the environmental consciousness on the students who are not major in emironment, rearing the interacted teaching parts and the methods of training extracurricular activity skills, so as to lay a foundation for the systematization and regularization of higher college's environmental education.

The UNESCO and UNEP have put forth the theme that environmental education should be all-life which faces to any ages. Correspondingly, the outline of 9 years' compulsory education in China has also posed the principle that penetrating environmental education in the curriculum of compulsory education. The whole-nation and whole-course of environmental education has become one objective of Chinese national quality's education. Currently, many higher colleges are probing actively the ways and methods of realising the objective. Our school also has made some beneficial attempt.

1. The status and function of teacher's education in environmental education

There are about 1,100 state-run universities in China, among which the normal colleges and universities take account for a quarter. The higher normal academy is not only the base for bringing up middle school's teacher but also the chief force which take part in the whole-nation and whole-course environmental education in the future. Therefore, the teacher's education in the higher normal academy is particular and indispensable in the field of environmental education. The outline of 9 year's compulsory education in China regulates finitedly that we should penetrate the content of environmental education into geography, chemistry, and other related subjects. It means that environment has not yet been compulsory in the primary and secondary school, and it is necessary for teacher to penetrate relevant content in their majority teaching by virtue of their own environmental awareness, knowledge level and practice skill. So the higher normal education's effect on training students' environmental awareness is much more important. As to the future teachers, they should not only grasp systematic basic knowledge of environment science but also improve their all kinds of abilities, which including penetrating environmental knowledge in related subjects, initiating environment protection course indispendedly, leading and nurturing students to be close to the nature, know the nature, find environmental problems and improving environment practically. Due to above reasons, the teacher education's function and responsibility in environmental education are both very important and definited.

2. The methods and ways of training environmental consciousness in teacher's education

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This research subject is being probed actively in Chinese environmental education, the following are the measures we take in education.

(1) Introduction of theory and environmental ideas

① Combining establishing curriculum indispendedly with penetrating teaching

Northeast Normal University is a comprehensive normal university, establishing 46 specialities, among which including Chinese, education, history, politics, maths, physics, chemistry, geography, biology and so on. It began to initiate the public optional course of probability theory of environment science from 1986. Students have been liking this course and the amount of selecting the course is growing year by year. The number is over 600 at present, which is about 25 percent of whole number in the same grade. To satisfy the students'demand, we have initiated another serial course called environment and health. During the teaching, we not only attach importance to environment science knowledge and environmental awareness but also seek to explorate the relationship between environment science and many other subjects such as geography, chemistry, biology and education. We set out the correspond contents and chapters related to environment science in secondary school's textbooks, so that students can find out the junction point between environment science and their specialities. And then they can lay a foundation for realising penetrating environment knowledge more rapidly in secondary school's teaching in the future.

② Emphasis on the textbook construction of environmental education

When it comes to the environmental education of students who are not major in environment, the popular science has always been chief in the past, so, there isn't any satisfactory teaching material at home and abroad. Having established the environmental courses for many years, we compose systematic textbooks, such as modern introduction theory of environment science, environment and development, protect human's homeland--the Earth and so on. They have the same features in that their common theory guide, value pursuit, theme, object is respectively sustainable development, environmental ethics, suggesting green civilization and harmonious coexistence and cooperate development between man and nature. Because of these characters, they are very popular with students.

③ Training teacher's capability of launching environmental education according to the secondary school's educational demand.

Considering the current demand of the secondary school's environmental education, we lecture theory, intensity training of demonstrated experiment in class, in addition, we found interacted education course, making the theory of environmental education penetrated into classroom instruction and extracurricular activities, so that students master interacted education approach and teaching parts. As far as the teacher's successive education training class is concerned by ways of research and discussion, we focus on teaching the difficulties and problems in the course of environmental education, intercommunicating good teaching experience, so as to obtain the goal of teaching and learning advance together. By this form, we not only lecture the knowledge of environment science but also learn from each other and improve mutually.

(2) Consolidating the practice ability's training

If only by ways of classroom teaching and training, we can't complete the work of training the secondary school's tearchers to develop environmental education. It is required we strengthen their practice ability by varieties of methods. Fortunately, the practice activities of environment science and technology provides methods and means.

① Analysing and inducing

In this activity, teacher presents topic research content at first, then students continue to complete it by means of questionnaire, information retrieval. During the course, we aims to train students' ability to retrieve documentation, design questionnaire. Take the research in dust and soil storm's courses for example. Students looked up lots of data and made on-the-spot investigation in western drought and semiarid grassland and desert in Jilin province. Under school's organization, they analysed and researched the course in many terms and then finish papers which to be published in school's or other newspapers and periodicals. Another example is about the current situation and growth of environmental education in China. We guided students to collect and compare information about every country's present state of environmental education, to investigate student's environmental consciousness in university, middle school and primary school, to make statistics, analyse, induce, summarize and to write article finally.

② Probing into question

At first students pose problems by themselves, then teachers guide. Its form includes society survey, visit and study. The activity can foster students' practice ability to investigate and analyse, organize and apply, induce and summarize. Some students submitted the problem about urban garbage pollution at present. Teachers guided and organized them to investigate the garbage's dumping and transportation in urban residential district and the waste tip's construction. Having done these jobs, students wrote paper named the advantage and disadvantage of collection of classified refuse and gave some suggestion about garbage disposal in residential district. Other students presented water pollution. We organized students to investigate the lake's water quality on the spot, to sample and analyse, then to finish the topic research. The activity team of environment science went to investigate the water quality in South Lake in Changchun. Students measured the water quality indexes, visited the sediment dredge spot. Their environmental awareness was improved and their ability of designing investigation programme, organizing and practising, experimentalizing on-the-spot, analysing and summarizing were also trained further.

③ Open-experiment

According to the classroom lectures, we design and develop small scientific experiments. They were finished by teachers and students interactedly, we established not only demonstrated experiments which are simple and easy to do and audio-visual but also some field test methods, so as to make students understand the basic theory. So far, me have established 7 big categories, 26 kinds of methods in all.

①' simple and easy methods of water quality monitoring (8 kinds)

②' simple and easy monitoring methods of atmospheric pollution index (3 kinds)

③' the demonstration of atmospheric pollution's emergence and effect (3 kinds)

④' the identification of indicator plants for atmospheric pollution (2 kinds)

⑤' the identification of water pollution indicating animals (2 kinds)

⑥' the raise of acid rain (1 kind)

⑦' green-house effect experiment (2 kinds)

⑧' water treatment methods (2 kinds)

⑨' the rapid test for contaminant in food (2 kinds)

⑩' other (1 kind)

The simple and easy demonstrated experiment is to in support of classroom instruction. On the one hand,

it can make students understand the theory directly and profoundly. On the other hand, it can enlighten students' creatived thought, so that they can develop more classroom demonstrated and course experiments to put them into implements in their future work.

3. Conclusion

The student in normal college will be the middle school's teachers in the future, so their education conception, knowledge structure, teaching and experiment skills, organizing and designing abilities are important sector and base of finishing environmental education. Therefore, (1) Initiating curriculum is one of main methods of improving students' environmental consciousness whose majority are not environment; (2) penetrating education is the best way of enhancing students' ability of finding out the relationship between environment science and other subjects and looking for the junction point; (3) Interacted practice activity is indispensable teaching part of making students master skills to guide and launch environmental protection activity and to exploit the creatived thoughts.

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