

STUDY OF ENVIRONMENTAL EDUCATION IN THE UNIVERSITIES OF GERMANY

Helena-Maria Sabo

Keywords: : "novelare" [renewal], cooperation, interdisciplinarity, quality, school opening

Abstract: The role of schools will be mainly to acknowledge the importance of environmental issues. These issues are very complex and therefore interdisciplinarity is required in order to tackle these issues. Therefore, getting students and citizens involved shall be very important and also a "Novelare" [renewal] of thinking and educational system in general.

In Germany, as opposed to Romania, teachers and students fight really and make endeavors for more than 20 years to educate and to be educated in the spirit of environmental protection.

In universities we will encounter only vague attempts of interdisciplinary cooperation as far as environmental protection is concerned – this shall depend, first of all, on the professional training of the teaching staff. Just a few examples:

- in 1991 / 1992 new attempts were made to impose an environmental study in universities but, these attempts were only little developed.

- 1994 - this study will be extended also among the members of the teaching staff.

Yet, we won't come across a certain "Canon" of environmental education. The goal will be to integrate an interdisciplinary principle which shall become the basic principle of environmental education.

The purpose of this study could be summarized to the following:

- description of some real concrete phenomena and contents of environmental education

- comparison of the work of various universities and faculties - follow up the principle of a complex study

The purpose will be, at the same time, to comprise environmental education in research, studies and in the teaching process.

The following aspects will be mainly debated:

- promotion of some environmental education issues related to this issue

- pass some examinations related to environmental issues
- development of complementary studies in the field
- provide the teaching staff and the students with relevant models
- support some “awards” related to environmental issues

1. Presentation of some theses concerning academic environmental studies

First thesis:

The process to make clear some questions within a given period of time within universities must be suspended in order to get, for real, at the beginning stage of these attempts and orientations in the field.

The question will arise:

- shall we continue to use some teaching methods related to the model of differentiation or shall we take into consideration the current issues, both local and global, and their integration in schools, in academic environmental studies?

- within environmental education, shall we deal only with heightening people’s awareness of certain environmental issues or shall direct ourselves towards a new way of living?

- how could be environmental education be integrated in the general educational system, what would be the new concepts to which we shall react, shall we change our living standard or our way of living?

- how could we complete this environmental education in schools?

Shall we use specialized teaching staff?

As far as the training of the teaching staff is concerned, we shall first focus on maintaining their knowledge at a current stage of life standards. Environmental issues won’t be explained only from the technical point of view or just be removed, but they will always be part of a complex system.

The purpose of environmental issue shall be:

- to treat things responsibly and acknowledge critical situations;
- argumentation of any possible causes;
- thinking of and finding of a short-term solution, with long-term effects;

Therefore we shall:

- take the responsibility to take things seriously
- have the ability to generalize
- to think systematically
- to act by own forces
- to acknowledge and get out of conflict situations
- to give some discourses
- participation, responsibility
- competence in the field and ethics

The principle of competence shall be taken more and more seriously in this particular case.

Second thesis:

Environmental issue is clearly a multi-dimensional issue. Especially as far as studies are concerned, those who study shall conceive, learn these issues in more detail. Within environmental education, syntheses of cognitive and emotional knowledge shall be used. Therefore, we shall clarify how, to what extent we could comprise complex elements within this study in spite of some specialty differences of various subjects of study. There will be required, first of all, qualified teaching staff not only on various stages of study, but also in a certain profession. The current issue shall be more and more oriented in the attempt to comprise more subjects of study, which are necessary to solve environmental issues.

Third thesis:

Environmental education shall be regarded within faculties and universities as a chance for integration. This shall mean a cooperation and integration between various special subjects of study. Universities shall be mainly oriented towards a traditional form of study in a certain specialization.

Due to the complex issues, these shall change and give the chance to new integrative concepts. New subjects of studies shall be used and multiple topics shall be provided (interdisciplinary cooperation). The identification of any possible subjects shall be necessary in order to create some integrative concepts.

1- each subject of study will have the chance to provide those who study with its own knowledge as far as the issues of environmental education are concerned.

2 – a “standard” analysis – that is transparency shall be given to projects and offers related to environmental issues.

3 – interdisciplinary cooperation shall provide the basic possibility of education as it is essential for the organization of environmental education 4 – in the context of coordinating various offers and projects, the use of practicable teaching discourses and methods shall be necessary. Therefore, we shall notice that it does not depend to a great extent on the quality of study, but on the competence and the competence of those who study. The commission for the coordination of each particular subject of study shall become necessary.

Fourth thesis:

Compulsory study of environmental education shall have to be supported by studies, legislation, guidelines and ordinances. Besides the commitment of some members of the teaching staff, environmental education shall also be comprised and expressed in public. A certain regularity (that is, it shall not be sporadic) and organization shall be necessary.

Fifth thesis:

Environmental education requires an interdisciplinary research in universities in order to create some systematic categories. There shall be necessary a multitude of quantity and quality elements which shall be put together and compared to each other and the prevailing elements shall be clearly pointed out.

For the time being, we shall not come across such concepts concerning:

- the complex character of environmental issues in universities
- the way in which these integrative, interdisciplinary concepts are developed

Moreover, when conducting researches, we will come across methods, purposes of various categories of subjects of study. In order to be successful, new strategies should be found, study reforms, all of them requiring a long-term process.

The following shall be analyzed:

- the relation between man and nature
- the relation between environmental education and the role of school
- the relation between the specialist in the field and environmental education
- analysis of various models: professor – student
- analysis of various projects, initiatives

Sixth thesis:

As part of teaching training in order to learn a profession, the central place shall be held by the researchers in the field of education. It will be very important to try to reunite nature with technology and find some rules and models for long-term use.

This pedagogy shall be very important for the understanding of environmental education. Therefore, the following shall become necessary:

- the analysis of some theoretical systems, even of psychological systems in case of isolation
- the mode of transmission of these teaching processes
- systematical thinking of environmental questions
- use of both school and political pedagogy in order to understand this process

2. Analysis of teacher-training environmental education within the University of Bremen

Here we shall understand that not only the specific school profile but also the whole university shall be important for the understanding of environmental education.

Therefore, several theses will be acknowledged emphasizing not only the understanding but also the need for such an education.

1- Environmental education shall define the rights and obligations within each university

2- Each university shall create its own profile, to establish its own tasks but also to create standard rules

3- These standards shall be compared as far as grades and examinations are concerned, the award of certificates ...

4- Environmental education can be found at each stage of study, especially in the teacher-training education, which is compulsory.

5- In the current university education system (even in Romania) such an environmental education could be found at the starting stage – the stage of research.

Methodical action

Between 1990 and 1994, an analysis shall be made in order to answer to various questions related to the importance of environmental education, in various academic specializations which shall be further studied. The outcome will be that we will not come across, practically, any obligation concerning environmental education on a scale from 0 – 25% in Geography. In some cases, we shall nevertheless come across an ecological profile within which we shall attempt on the presentation of the importance of environmental education.

Another method will be asking some short questions, such as in the case of Germany, where 28 members of the academic teaching staff in Biology and Chemistry were asked several questions between 1993 and 1994. The result was that only in these cases, the emphasis shall be laid on the importance of environmental education.

A third method will be followed by a questionnaire in the special studies: Biology and Chemistry (the questionnaire shall consist of 20 questions in relation to environmental education).

The result was that all university professors see environmental education as absolutely necessary. But only 65 of them really put it into practice and cooperate with other members of the teaching staff and 35% acknowledge that the issues related to study and researches will make possible the orientation to environmental education.

The fourth method consisted of taking, intentionally some specialized members of the teaching staff: 2 of Biology, 2 of Chemistry and 2 of Environmental Law – in an interview on environmental education in schools. The result was that everyone described it from own perspective. For instance, biologists as they will use ecology as part of their biology works, ... those in the field of Chemistry, as they will need this knowledge for their professional training..., legal advisors will need it as they act interdisciplinary and shall need it in practice....

Therefore it can be noticed that both study and research will involve a little number of the members of the teaching staff who should be oriented towards environmental studies. It is important that besides specific tasks (tasks in the special field) of each university professor, environmental education shall also be studied by imposing some Reforms. Having faith in good luck and destiny is not enough. And here comes the greatest role of universities: to bring together economy and community in a dialogue and to provide each other with mutual respect towards its partner of dialogue and use of both parties as positive effects (cochancellor Chr. Marzahn 1991 from the University of Bremen). Dialogue and cooperation shall become the elements of materialization of environmental protection and which shall bring about a practical solidarity between teachers and pupils and students. New bridges shall be created to impose some reforms, some new perspectives. Something new must be found in the whole academic structure in order to provide with new possibilities, new roads, to reduce fear and human concerns. "A new cooperation with nature will become extremely important and necessary and it shall mean less consumption, less traffic, fewer techniques, less luxury..."

Environmental education in universities and schools shall be intended to create new ways for a new beginning of the relation with nature. And nobody who is undergoing a professional training shall avoid this purpose!"

3. Analysis of environmental education in the University of Kassel

As a result of the analyses performed in this institution, the following can be noticed:

- the intentions of environmental pedagogy shall be expressly acknowledged and made public in writing.
- the polyvalency and the multitude of subjects of study is to be noted as well as a number of offers for various models of study. Environmental education and the interdisciplinary aspect can be noted in the study as it is present to a large extent.
- even in the case of some elective subjects of study, of various offers and interpretations
 - great number of seminars, colloquiums, essays for the structuring of environmental protection
 - we won't come across here a pedagogical study which shall be exclusively environmental.
 - Within universities we may come across a number of interrelated subjects of study in relation to study and environmental education, the reduction of certain paradigms (for instance, in Biology) is impossible.
 - coordination, cooperation shall be only partially expressed. The following will be important:

- make public all the offers in the field
- the principle of liberalism, of free will shall be mirrored in the renewal of study and to make it compulsory will be regarded with skepticism.
- The question for financial subsidy will arise as well as the question for a personal help and institutionalization of this help.
- Common working elements of various groups shall allow a better research of the study and this shall not be just for documentation purposes.

4. Analysis of environmental education within the University of Halle-Wittenberg

This university has almost 12.000 students and is structured according to the classic model of 7 faculties. Only 15.6% of the students will graduate and obtain a diploma or will be conferred the Degree of Master in environmental education. The following methods shall be remembered:

1- analysis of documents, study, examination, concepts of study as well as environmental research and the work during colloquiums

2- Personnel interview by means of a questionnaire and questions

As part of the documents in Biology, Chemistry, Economics, Technology we will not find the relevant environmental elements only extremely rarely or slightly connected to environmental education. 2/3 of the interviewed personnel shall agree to the importance of environmental study, to combine study with technology, nature, economics, politics...

Here will be important the qualification of graduates oriented to new issues of environmental protection (e.g., conduct discussions). A center of research for environmental issues was set up in 1993 acknowledging the importance of interdisciplinary relation. Here we can find offers of studies (subjects of studies) both compulsory and elective, providing the students with a real atmosphere of research. We may encounter debated subjects such as:

- "environment and the future of mankind"
- "man – technology – environment" which shall allow students to acquire the necessary knowledge in the special field

Yet we shall not encounter the compulsory character of study it shall depend, to a great extent, on the personal commitment for environmental protection issues.

5. Analysis of environmental protection in the University of Dortmund

The structure of university – this university comes with a new structure as it was set up after the Second World War in 1962-1968. It has about 24,000 students and it ranks among the newly emerged German universities. In 1980, a new department of special pedagogy was created 2/3 of the students within this university shall be trained in the pedagogical field. The analysis of environmental

education shall become compulsory between 1990 and 1993. The real analysis shall determine some difficulties as we shall find direct information on the contents of the study. They tried to use, in this respect, a questionnaire comprising 8 questions. The answer was that 50% of those who were submitted the questionnaire recognized the importance of environmental study. The result of the questionnaire shall be arranged in tables by various subjects of study. Since 1984, it can be noted a tight cooperation between the Institute of Geography and Didactics and other external schools and universities related to environmental education (e.g. holding some seminars).

Between 1987 – 1992, it can be noted the proposal of a model of environmental education which has been published later on – 3 hours of work per day and subsidized by the state by means of a study “The Quality of Study”. It was remarkable the cooperation with various organizations:

- "Deutsche Gesellschaftliche Umwelterziung" DGU
- "Arbeit Natur Umwelterziung" ANU
- various community organizations KVR
- Field Studies Council, England

Between 1991 and 1993 the following emerged: 77 organizations, various seminars related to environmental issues; 59 of them are at the pedagogical level, 13 at the administrative level, 7 at the level of scientific education, 3 on site remediation, 3 at the level of community sciences (sociological, physical, theological).

Therefore, as part of the 5 semesters, we shall find 77 issues related to environmental education. These figures must be relativized as the notion of “environmental relevance” cannot be strictly limited. In this respect, the following trends can be defined:

- arrangement of study of various specializations allows the recognition of certain issues related to environment, education but it does not impose it.
- the interest of students related to environmental topics, various conferences on environmental topics which shall be regarded as positive.
- various activities of students shall be mirrored in various groups of work
- interdisciplinary cooperation is requested
- joint work between different members of the teaching staff and institutions which are outside universities shall be acknowledged only in little cases.
- the importance of environmental education shall be rarely expressed, people will talk more on “environmental issues”.

The consequences – the need to impose an interdisciplinary character will become clear in environmental education, the cooperation of the members of the teaching staff with various organizations, exchange of experience.

A common design of environmental education organization shall become necessary. Attracting and getting involved those who study environmental issues shall become necessary as well as the contacts with various organizations, internal, external, councils...

6. Analysis of environmental and teacher-training education in the University of Potsdam

As part of this analysis, it will be necessary to understand 3 factors:

1-structural

2- professional training (Ausbildung)

3- future prospects

1. The model of the university of Potsdam offers, in exchange of a strict professional training a flexible model between pedagogy, psychology, sociology and the special subject of study – primary, complementary – and a further professional qualification.

As far as environmental issues are concerned, it can be noted the setting up of a center for environmental scientific research, having 2 categories: one for scientific research and one for environmental education.

Here, one can note an environmental cooperation on various topics: environmental toxicology, environmental medicine, chemistry... The study will be completed and a diploma shall be awarded and starting with 1995/1996 a Master Degree in the field of environmental research.

2. While analyzing the contents of training, we shall note a classic method. We will find important issues in Biology, Chemistry, Geography, Technology... This will surely depend, to a great extent, on the commitment of the teaching staff in the field, in relation to conducting some related debates, exchange of experience, coordination. This plurality which is acknowledged by environmental education shall not be absolutely necessary.

Besides compulsory courses, there will also be elective courses, giving us the chance to think on environmental education. We shall also encounter an environmental elective module which is studied during 10 semesters. The choice of subjects of study is absolutely free.

Between 1994 – 1995 an intensification of environmental education can be noted, cooperation with various universities (e.g. Tübingen), ministries, research, and culture.

3. Generally, environmental education means and requires largescale publication, officialization and help. Clear priority issues of community must be established in order to classify the need to impose environmental education as well as conscious negotiation

Here (that is in the case of Postdam) it will be very important to try to RENEW this study and not necessarily to show the importance of it! Positive effects and progresses will be noted only if each student will get involved and this shall outline the importance of environmental education.

7. Analysis of environmental education in the University of Rostock

A more complex analysis has been established in 1995. This analysis mainly concerns the analysis of some issues related to environmental law, ecology, environmental protection...

Its purpose will be that environmental education must show a clear state of environment and increase people's sensibility and awareness as far as environmental issues are concerned.

Educating pupils in schools and making them feel responsible with environment will bring about, first of all, a better training, qualification of the teaching staff. This will be achieved only partially, the cause being, partly, the little options for study in this field, as a basis of environmental education.

As far as the results of the University of Rostok, it can be clearly noted the protection of "Ostsee" of the various analyses conducted by specialists in the field of Biology, Chemistry, Physics, Sports... related to the basic elements of Pedagogy. Explicit offers we will find even in Mathematics.

Generally, we can note an intense activity as well as the attempt to train students and get them acquainted with environmental protection issues. There will be shortage of environmental topics in German, history or in other foreign languages.

The offers for environmental training are yet not enough. Environmental projects trying to impose environmental protection at a certain level as well as postgraduate courses, further qualifications, distance learning courses will be remarkable.

Specification of number of students for various subjects of study:

- ecosystem, structure and function of environmental state and environmental protection – 60
- in Chemistry – 30
- in Physics – 30
- in Technology – 30
- Planning, Entrance Examination – 20
- Environmental policy, environmental economy, technology – 80
- Draw up projects, cooperation with mass-media - 50

Conclusion

In all internal causes, it clearly comes out that a professional training in the field at university level is absolutely necessary for the good functioning of various projects and concepts.

Generally, in Germany, university studies must comprise a trend for environmental study, to have a general view on facts, the barriers, creation of a new trend in the field. Thus, study will have a double function. First of all, it will be absolutely necessary in order to have some discussions at the level of science, research in relation to environmental education. On the other hand, it will be necessary to classify the purposes of environmental education and create new profits at this level. In all of these cases, we can note:

- especially after 1990, the establishment of an environmental study, new types of study and courses for the qualification of the university personnel.

- even though we might have a relatively great number of specialists, researchers in the field of environmental protection, there will be no absolute guarantee that a great number of students will be interested in these issues.

- environmental education will be encountered in almost all universities comprised in various subjects of study (more or less).

- there's a strong focus on environmental protection in the field of environmental protection and in the technical field.

Nowadays, these concepts must be necessarily extended to man too – which shall be the center of our attention, the social side and the relation man – environment.

- We will see that nature often prevails over technology. Many times, pedagogical professional training will consist of courses on non-natural environmental issues. For instance, in Philology – environmental education is only little outlined or not at all. A necessary supplementation is required here.

- It will be very important to organize various colloquiums as well as meetings on environmental protection issues. Greater transparency will be required here, especially in international offers.

- in the case of some subjects of study, specializations, environmental education is only little represented. Therefore, the cooperation between various subjects of study becomes mandatory in this respect.

- environmental education could not be qualified as a distinctive subject of study, but as an interdisciplinary research, as a process of integrative study.

We shall find within universities the orientation towards global environmental issues, joint cooperation of the members of the teaching staff, exchange of experience.

We will have to cope with a number of obstacles. Each research shall have its own researchers, methods and even its own tradition. These are hard to be found

as far as environment is concerned and therefore it will be hard to argue this special field. First of all we shall notice the various interests in the field, concepts and structures.

According to the traditional form, it will be rather difficult to create a new orientation with new items. It would be desirable that this possible institutionalization of environmental education should become an open process for the cooperation and for bringing the members of the teaching staff together in order to put together social, legal elements...

In order to be successful in environmental study, it is recommended that this study should become compulsory.

Interdisciplinary cooperation between the members of the teaching staff will be also very important.

Example: the issue of water pollution – by creating some school curricula as well as various realistic projects and a real planning of issues through the joint cooperation between teachers and students. Then the comparison with that of the community, region, European level... by putting together several subjects of study in the field of politics, economy, social, law, geography, health ...

In order to make environmental education compulsory at a university level, modern criteria of study must be created.

1 – environmental education will become compulsory and shall bring about a reform in the system of study in this respect.

2 – as far as various practical activities are concerned, to assess the need for the cooperation of various subjects of study.

3 – universities shall acknowledge not only a good cognitive offer in the field but also a conscious professional training for the future profession.

A modern academic environmental education should bring together, from the very beginning both the moral aspect and competence and shall also lay down some principles the purpose of which will be to create a competent “personality” in the field (personality, competence, moral standards) which shall become the starting base for environmental education!

References

- Bolscho Eulefeld, 1980, *Umwelterziehung neue Aufgaben für die Schule*
Danche H., 1991, *Umweltschutz und Bildungswissenschaften*
Demut R., 1993, *Umwelterziehung im Chemieunterricht*
Hedewig R., 1993, *Umwelterziehung Bilanz und Perspektiven*
Jansen W., 1990, *Umwelterziehung in der Hochschulen*
Mark H., 1986, *Natur und Kulturaufgaben*
Menze C., 1970, *Bildung*
Seybold Bolscho, 1993, *Umwelterziehung, Bilanz und Perspektiv*