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ENVIRONMENTAL EDUCATION AT THE LOCAL LEVEL – EXAMPLES OF PROGRAMS LEADING TO SUSTAINABLE WASTE MANAGEMENT

1. Introduction

Since protecting the environment is one of the most important global tasks, environmental education should become an important part of general education. Up to now environmental education has dealt more with the end results of pollution, the so called “end-of-the-pipeline” approach. Today the challenges of education are defined by the idea of sustainable development. Environmental education has to use a holistic approach to nature, has to recognize the complexity of the matter it is concerned with. The paradigm of growth and development needs to be replaced by the idea of sustainability – development without threatening the rights of future generations to satisfy their needs; the continuity of life and life-supporting ecosystems [Bosselmann, 2001, 168]. Environmental education should be able to show a link between individual live styles and the state of the environment, which an individual inhabits. Recently a new term has entered into educational discourse – sustainable development education, which adds several ideas to the basic concepts of environmental education. Such education should be more strongly oriented toward meta-awareness building, recognition of the needs and rights of future generations and informed citizenship. In the first section of this paper the current concepts of environmental education and sustainable development education are described. There are certain ideas on how to structure educational efforts, in order to bring about environmental education of good quality. In the second section the aim is to describing some of these ideas as proposed by various authors. In the third section an interesting example of educational efforts made

at a local level is presented – the activities of the Association of Municipalities “Dolina Redy i Chylonki” based in Gdynia, Poland. This association was formed in order to facilitate the introduction of a program of selective garbage collection, but now it offers programs that are structured according to the holistic approach to education advocated in the first section of this paper.

This paper does not aim to measure the effectiveness of the programs presented. Such measurement would involve prediction of the outcomes and probably comparison to outcomes of other programs of this type, or comparison to a control population that is not influenced by any programs. However, the author wants to present the activities of the association rather than to measure their effectiveness or impact.

2. Environmental education and its philosophy

Education plays an important function in passing on values, beliefs and norms to succeeding generations within every society [Goode, 1988, 398]. Although socialization as such takes place on many different levels and by many different means, transmitting values is evident in formal education. Schooling is also about passing on indispensable knowledge, which enables proper functioning in the surrounding world. But knowledge cannot stand alone, so more broadly the goals of education are defined in terms of passing on knowledge, skills and attitudes.

Environmental education is an important part of educational efforts in today's world. Protecting the environment has become an issue on the political agendas of developed countries (at least) and changes in general education reflect this shift as well. The basic assumption which underlines any efforts in environmental education is the assumption that protecting the environment is crucial. A lot of people assume that protecting nature is important, but still the debate on this issue is on-going and has not concluded yet (for instance George W. Bush's refusal to sign the Kyoto protocol was a very strong voice against the importance of environmental protection). Increased consumption and production, leading to an increasing amount of waste, create threats to our natural habitat. In this light environmental education explains how to – by protecting our environment and nature – protect ourselves, as well as future generations.

However, there is discussion regarding the actual shape and content of environmental education. Some authors [Gonzalez-Gaudio, 2001; Luke, 2001; Stables 2001] claim that there are conflicting assumptions present in environmental education, and what is more, that a certain paradox is inherent to it. Environmental education, while talking about a complex entity (the world of nature), uses a fragmented perception, so

the holistic phenomenon of nature or the world is divided into areas or disciplines such as air pollution, earth contamination etc. The very concept of nature itself is shaped by education: environmental education is based on the concept of nature, and offers an explanation of mechanisms driving nature (if we agree to use this mechanistic parallel). Schools and teachers shape the way nature is perceived:

As the primary institutions for credentialing individual learners and legitimating collective teaching, schools and universities do much to construct our understanding of the natural world [Luke, 2001, 188].

This fragmentation of the concept of nature might be illustrated by the following metaphor involving two zones. In his critical paper Timothy Luke [2001] discusses the typical view of the world present in environmental education today. He claims that from this viewpoint the ecologist discourse concentrates "at the end of the pipe", when pollution and contamination have already occurred. This view is based on the belief that there are two separate zones – society and nature, the brown zone (industrialized and thus polluted) and the green one (wild and untouched). These zones are perceived as isolated, distant, so it is hard or impossible to see the links between them. Society and its operations, he claims, are ignored in environmental investigations, as they do not represent nature. Ecologists who hold this view place nature outside society and economy. As a result they do not investigate the following vital factor: the way, in which society is organized, affects the Green zone,

...how industrial metabolisms are fabricated and where ecological efficiencies might be realized before end of the pipe disaster occurs [Luke, 2001, 187].

The paradigm that feeds such a view is a paradigm of growth and development. This view is also a result of the idea of progress, understood as gaining control over nature. Environment and its protection are seen as a subject of managerial action, are a subject of management by professional experts (who acquire the knowledge of managing the resources, risk and recreation during their education). Luke pictures this by naming such an approach "resource managerialism" [ibid., 191]. In general, he claims that this dualistic view of nature and society as green and brown zones is

...a major intellectual distortion in most environmental education. What surrounds all the organisms now is the environment, economy, society and community of humanity [ibid., 193].

In this way he advocates a change of the approach toward a more holistic view where this division is artificial. Human societies, economies

and communities have to be seen as environments, not in opposition to them. In his words nature and society should be perceived as a "holistic cluster of interdependent relations". This is a basis making educational efforts efficient, as it enables us to get to the core of environmental problems. The problem is not how to manage pollution, or waste, or risk, but how to prevent them, how to track them in society's functioning. Finally, how to design a sustainable way of social life. The philosophy that lies behind this view has its sources in chaos theory, which claims that the world has non-linear dynamics – is not composed of a cause-effect chain [Gonzalez-Gaudiano, 2001, 163].

Recently a new term appeared in educational discourse – sustainable development education. While environmental education is defined as effort to teach about the relation between human beings and their environments [Bosselmann, 2001, 167], sustainable development education offers more broadly defined goals, it does not contradict environmental education. However, it simply adds several ideas to the basic concept of environmental education. Stephen Gough and William Scott cite the document of the British Sustainable Development Education Panel, which claims that:

Education for sustainable development is a process that would enhance learners' knowledge, values and skills in order that they might participate more effectively in social decision making [Gough, Scott, 2001, 138].

For instance, curriculum guidance for British teachers implies seven key concepts central to SDE: interdependence; citizenship; needs and rights of future generations; diversity; quality of life, equity and justice; sustainable change; uncertainty and precaution [Stables, 2001, 251]. This specific set of concepts shows clearly that the new approach to education is actually based on attitude formation and on an holistic approach to society/the environment. These ideas are not limited to technical issues of environmental engineering, but go beyond. They describe various dimensions of society understood as the environment and being within the environment (as Luke suggests). Education is not limited to the formation of good behavioural habits – like recycling, selecting garbage etc, but tries to formulate a general overall picture of the world and the role of humans in it. One no longer deals with teaching ecology as such, but it becomes a project of forming a global perspective an worldview. These ideas, on the one hand, refer also to the global dimension by underlying equity and justice as values and, on the other hand, to the time dimension by stressing the needs of future generations.

3. Environmental education – areas for change

The philosophy presented above needs to be applied in practice in schools and at universities. As Andrew Stables argues:

Education could be more strongly oriented to developing increased meta-awareness of dominant cultural practices within our own societies and the cultural practices of others [Stables, 2001, 254].

Developing awareness actually means that the teachers' goal is to make their students critical toward their own worldview, habits and common knowledge. The crucial change is the change in outlook from a fragmented to a holistic approach. At the level of behaviour it means that the observation of everyday practices should first lead to conclusions and then lead to a change in habits. Environmental education stops being defined in terms of the technical knowledge students are supposed to gain. It starts to be a kind of value that is present across the curriculum, regardless of the actual topic taught – it can be part of a biology class, as well as a language class. This level of awareness also demands a reflective attitude (hence observations and conclusions) and calls for activism (steps to change). At the level of educational practice certain old habits prevent such a shift. Klaus Bosselmann identified areas in which actual change in learning and teaching could occur in order to facilitate environmental education. He proposes moving toward holistic experience in teaching and learning. According to him, the way such holism can be pursued are as follows [Bosselmann, 2001, 176]:

- Learning and teaching as a holistic experience.
- Discovery learning rather than reproductive learning.
- Investigative learning rather than linear transport of material.
- Exploring reality rather than reading books.
- Active learning rather than passive reception of information.
- Productive action rather than reproduction of facts.
- Gaining experience rather than acquiring knowledge.

Again a scheme of reflection and action is visible – do rather than listen, explore yourself instead of believing others who tell you what the world looks like. This type of approach also calls for a radical change in the traditional approach – a shift from teacher-centred methods toward student-centred learning.

Actual practices need to be analysed in order to gain a picture of environmental education efforts. In the studies carried out by six OECD member countries environmental education was found to be marginal and isolated topic within the school system (despite international agreements) [Gonzalez-Gaudiano, 2001, 161]. It is doubtful that such education would

be found to be more developed in Central European countries. The Polish government decided to lay the foundation of environmental education in the 2001 Bill on Environmental Protection, which states very generally that issues of environmental protection and sustainable development need to be covered in all the general education curricula in all types of schools. It also states that the media are supposed to form a positive attitude of society toward environmental protection [Bill on Environmental Protection, article 77–78].

Based on this bill the Ministry of Education introduced curriculum foundations, which contain environmental education among other topics [www.men.waw.pl]. At the level of these ministry documents the goals of environmental education are defined broadly and seem to present the holistic approach advocated in the previous section. In the earliest stages of education the ideas presented in the curriculum make connections between everyday life, people's behaviour and other elements of the environment on the one hand, with the state of environment on the other. At later stages the more technically defined goals are added: energy management, ecological legislation. This would indicate the presence of the paradigm criticized by Luke – a managerialist approach to the environment. Unfortunately, achieving such broadly defined goals meets many obstacles in practice. Teachers lack the proper preparation and knowledge to teach environmental issues.

Here we come to the issue of university education and the ability of universities to prepare teachers to face the tasks of introducing a new holistic approach. Klaus Bosselmann uses the term “ill-equipped” to describe the preparedness of universities to deal with educating future teachers [Bosselmann, 2001, 170]. He claims that universities are divided (by habit) into faculties and departments are incapable of interdisciplinary cooperation – cooperation that is indispensable in grasping the complexity of sustainability. Sustainability is an area that underpins and affects all disciplines, and it does not follow traditional boundaries between disciplines. So universities need to restructure the way they teach to reflect this interdisciplinarity. Bosselmann proposes several ways to overcome this weakness. One is to complement traditional degree structures with a project oriented focus of study – in order to introduce a multidisciplinary approach into the traditional path of gaining degrees. Another idea is to introduce and promote cross-faculty research projects, i.e. interdisciplinarity of research. This all needs to be accompanied by changes within administrative structures – ideally universities would need open, transparent administration which supports such changes. Also, universities as large institutions should run their opera-

tions according to the rules of sustainability, so that practice and teaching content and processes do not differ [ibid., 172–175].

4. Education and sustainable waste management

Agenda 21 strongly underlines that active implementation and promotion of sustainable development requires multiple level institutions, social groups and governments. However, as previously mentioned, Klaus Bosselmann notes, that activity is actually present mainly at the local level [Bosselmann, 2001, 170]. While one may complain about a lack of any other radical or significant activities, the local level seems the most vital in terms of educational efforts. It is reflected in a popular slogan “Think globally, act locally”.

One of the dimensions of environmental education is the issue of the popularisation of sustainable waste management. Due to the high level of consumerism in European societies the amount of waste produced is becoming a burning problem. Environmental education needs to address this issue, as any other, as a holistic problem. Waste management starts from the fact that people want their needs to be satisfied, so they buy various objects, use them and dispose them. This question becomes even more important in wealthy societies, where people can afford to buy significant amounts of sophisticated products made of artificial materials. The task of education about sustainable waste management touches many fields from philosophical to practical ones; from the formation or introduction of a holistic approach at the beginning, pupils’ awareness of their surrounding environment, to the issue of what objects are dangerous to the environment; what are the amounts produced; what is the impact of waste on the local and global environment; how to dispose waste; whether recycling is possible; how to segregate waste for the purpose of recycling. So looking at this type of education one can see that this is a complicated task that calls for a holistic approach. Sustainable waste management is based on everyday activities and habits, and reflection and action are needed to implement such management.

An interesting example of how environmental education may address the issue of sustainable waste management is provided by the Association of Municipalities “Dolina Redy i Chylonki” based in Gdynia, Poland (all information about the association was obtained in interviews with employees of the association and from its web site, see also Adamczyk, this volume). The association was formed in 1992. The need for educational activities emerged when the introduction of selective waste collection was being planned for the first time. All educational activities were structured in a way to propagate selective waste collection and also to

prepare citizens of municipalities for actual segregation. There was a need to inform people which waste can be treated as paper, plastic or glass products, and to introduce the habit of segregating garbage in households. In 1997 the program of selective waste collection was started in the whole area of 6 municipalities and accompanied by certain educational activities aimed mainly at school children. The sources of funds for educational activities were diverse – the basic funds came from obligatory fees that the six municipalities agreed to pay. The association also performs a profit making activity, as it runs the landfill in Łężyce, and everyone that use the landfill are obliged to pay. Another source of money are grants given to the association by the Environmental Protection Fund with branches existing at regional, municipal and community level.

The basic educational activities are based on leaflet distribution. All citizens are informed about segregation, they are informed how to do it and why it is beneficial. Another set of educational activities are programs aimed at schools within the borders of the municipalities – both at teachers and pupils.

General ecological programs are: “Green kids”; “Earth Day”; “Bleu Thumb”; “Ecological Parliament” and Excursions for teachers. “School-monitoring of the environment” concerns programs on waste management with as the main topic “Kids segregate garbage”: “What shall we do with this pile of garbage?”; “Small kids don’t want garbage”; “Clean up the world”; “The Earth is not disposable” and seminars for teachers on waste management and water pollution in the communities’ area.

As one can see from the list above, the programs are of two types – one type deals with garbage and the other type deals with general topics. All programs have their target audience, but they are adaptable to the needs and abilities of the participants. The common denominator of both sets of programs is attitude formation as the basis of teaching. However, the general programs are aimed more at awareness building as the main task and they are structured to give foundations of ecological knowledge and practice, so it is clear that they present a holistic view of the world. The methods used are supposed to reflect this holism. The programs involve more “doing” than “listening”, the teaching methods are active, student-centred, almost all programs are based on extensive experience, learning comes from research, discussion, experiencing, even singing songs and drawing. One could wonder about the impact the association’s programs have on their audience. The association’s employees report that the broad extent of their operations shows the strength of this impact. However, the author does not aim to measure the effectiveness of the programs presented above. Such measure-

ment would involve specification of outcomes, criteria to measure the outcomes, devising control groups or populations etc. The presentation of the programs and their scope as a supplement to school education is the goal of the author.

Let us have a closer look at the programs' content. The "Green Kids" program was first realized by the Polish Ecological Club, then the association took it over. Groups of volunteers (from kindergarten to college) choose their own activities such as monitoring the local environment, exhibitions, newspapers, excursions etc. They are provided with workshops where they learn how to implement Agenda 21 or how to cooperate with local governments. The association is also responsible for the coordination of activities prepared for International Earth Day in the area of the municipalities – this is aimed at building general awareness and knowledge about how to live without destroying the Earth. "Blue Thumb" is a program, which is concerned with water resources and their protection and pollution. Participants (primary school children) learn how to save water, how to monitor threats, there are contests and exhibitions, and older participants are encouraged to write short articles to the local press. Teenagers – both those finishing primary school and college students – have an annual event called "Ecological Parliament". It is composed of a series of group discussions on environmental protection, on the most significant threats, the program aims at the promotion of local communities by participants. Finally, there is a plenary meeting of all participants in the regional government office attended by local authorities. The event is supposed to give certain knowledge, but also to teach the skills of democratic discussion. Also, teachers can obtain general knowledge about the region they live in by means of excursions to a water plant and a landfill. Excursions are meant to present issues of water protection and waste management in their complexity, in the places where the actual efforts are undertaken. The last program – "School-monitoring of the environment" is a year long contest for primary schools and colleges. Schools are participants of the program that is based on monitoring the local environment according to a certain scheme, provided by the association. One of the aims of the contest is to report on illegal landfills. The school that conducts the most research wins the contest.

The second set of programs are those aimed exclusively at waste management. They also address a very wide audience – from kindergartens through college students to teachers. They are all designed to give participants knowledge on how to produce less garbage and how to segregate garbage in households. The first three programs are aimed at younger children – they teach children general responsibility for the state of environment, how our behaviour influences the environment in general and

waste production in particular. They teach how to segregate garbage as a basic skill and how recycling proceeds. Children are also given an opportunity to see the landfill. The youngest children learn songs and have drawing contests. "Clean up the world" is the second international event that is coordinated locally by the association. Children and teachers, who are interested in cleaning local areas, get bags and leaflets from the association. This action is very popular among both students and teachers in the municipalities. Another activity called "The Earth is not disposable" is a common effort of the association and the utilization plant. This action is aimed at building the awareness of threats to the environment connected with massive waste production (by means of leaflets, posters) and promotion of the use of ecological containers. The last program is aimed at college students and teachers. It takes the form of regular seminars that provide knowledge on strategies of waste management (general ones and ones used by the association), knowledge on types of waste, treatment of hazardous waste or selective garbage collection.

The association's activities are exceptional in their scale, as one employee said, the association is one of the rare groups that work so extensively. Employees estimate that around 200 educational institutions are in contact or involved in the programs offered by the association, around 300 teachers have taken part in the events, seminars and courses. This number gives an idea of the strength of the impact that the association's activities have. The demand for such educational programs is very significant and children are very happy to be involved in different events. This is also a way to reach parents with information, since children try to "sell" parents the ideas they have learned.

The general programs are offered as a supplement to the programs and curricula taught in schools. In some cases the association's programs may be treated as an alternative, aimed at the formation of attitudes and the holistic approach mentioned. As I wrote in the second section – formal environmental education for schools is not designed sufficiently well, or even fails to form a holistic outlook. Teachers themselves often present "resource managerialism" and are neither prepared to discuss attitudes, nor are prepared to enter into a debate on a philosophical perception of nature. At higher levels of education, curricula debate specific issues in environmental protection, but without presenting a vision of nature and the role of humanity in altering the environment. That is why the general programs of the association fill the gap – if necessary they supplement, if necessary they offer alternative ways of looking at environmental problems. The topics that the association covers – waste management – in many cases is an important supplement, as the issue is not always covered in syllabi.

5. Conclusion

This paper was concerned with the way environmental education should be structured in order to facilitate a change toward sustainable development. Starting with a presentation of the concepts of environmental education and sustainable development education in the first section, through a discussion on possible changes to improve environmental education in the second section, the paper goes on to describe activities at the local level and presents the case of the Association of Municipalities "Dolina Redy i Chylonki" based in Gdynia, Poland. The case presented is an example of efforts undertaken to introduce a holistic approach into pupils' worldview, but is also an example of the formation of behavioural habits indispensable in environmental protection. Since education has a significant, if not prevailing influence on the formation of societies, it is worth putting effort into structuring education to be as effective as possible. Although environmental education is still a challenge in many countries, the most important challenge is building people's awareness that protecting the environment is crucial. Societies are part of nature, are linked to nature, so sustainability is a must. Since change is built from small steps, educational programs about sustainable waste management is part of a broader effort of environmental educational.

Literature

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