

The critical condition of environmental education in argentina: the need for conceptual and methodological innovations and new educational policies

Estado crítico de la educación ambiental en Argentina: la necesidad de innovaciones conceptuales y metodológicas y nuevas políticas educativas

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Abstract

The aim of Environmental Education (EE) is to teach citizens to behave favorably, by means of protective and supportive actions, towards the natural and social environment throughout their lives. However, EE has had little relevance and development in Argentinean schools. Almost as a general rule, it has been dealt with as a strictly disciplinary issue, with an encyclopedic methodology where the emphasis has been laid, and still is, on conceptual content. A new approach is required, with an active methodology on the students' part, which focuses activities based on an analysis of real problems in their surrounding environment. Hence, there is the need for a deep analysis of such problems and a change in the teaching practices, so as to deal successfully with the type of training as to content, values and procedures that EE proposes. But all this will not be achieved until educational policies are implemented, showing an awareness of the role which EE fulfils in the moral development of human beings.

Key words: environmental education, educational policies.

Resumen

La educación ambiental (EA) ha tenido escasa relevancia y desarrollo en las escuelas argentinas. Casi por regla general, se ha sustentado en un planteo estrictamente disciplinar, con una metodología enciclopedista donde el acento estuvo puesto, y aún está, en los contenidos conceptuales. Se requiere un nuevo enfoque, con una metodología activa por parte del alumnado, que centre las actividades en el análisis de los problemas del entorno cercano. De allí que se vuelve necesario un relevo de tales problemas, y un cambio en las prácticas de enseñanza de los profesores, para abordar con éxito el tipo de formación, en contenidos, valores y procedimientos, que propone la educación ambiental. Pero todo ello no podrá lograrse hasta tanto no se implementen políticas educativas conscientes del papel que la educación ambiental desempeña en el desarrollo moral de las personas.

Palabras clave: educación ambiental, políticas educativas.

INTRODUCTION

The environmental issue poses two unavoidable facts. One is that the existing knowledge about natural systems is insufficient—which explains the fact that the management of resources has been affected by gross mistakes, and the other, that the options currently applied to the use of such resources are incompatible with the satisfaction of the needs of all human beings and other species. As Herrero Molino (1990) points out, the human errors which have led to the environmental crisis have a lengthy historical background, but their consequences have generated a situation which is new to human beings and which calls for new models. Thus, EE takes advantage of the knowledge of all the disciplines concerned with the natural and social environment, but faces the need for new approaches to knowledge, new values and new behavior. The solution is not to be found in proposals to create new academic courses where new contents are taught, but in projects whose educational strategies will have to be the result of collective and cooperative experimentation, which provides a means of understanding the world and functioning in it. In this sense, Jiménez Aleixandre et al. (1995) recommended the use of the term “transversal dimension” instead of “transversal topics”, which supports the premise that the objectives of environmental education must be integrated with the other areas of the curriculum without constituting a “new topic”.

The reality surrounding the student

If we agree that the environment characteristics today are, more than ever before, the result of social, economic, political and technological decisions—rather than of physical conditions—we can understand the urge for an analysis that embraces all these conditions as a whole. Traditional teaching, fragmented and distant from the students' daily life, has not prepared them to understand and face the vertiginous changes of their surrounding reality, let alone to picture their global impact (Meinardi et al., 1998).

To take this daily context into account implies considering the students' previous knowledge on the subject; this is an ideological issue (the students do not come to school without any knowledge) and a pedagogical issue (the need to count on what has already been learnt to articulate new learning there). But to bring into the classroom the problems that affect them and that they suffer from every day in their extra-school experiences is also a necessary issue.

According to Jiménez Aleixandre et al., an approach which seems to be useful to incorporate environmental education into the teaching of the sciences implies taking into account the students interest when working on local problems. According to the authors, the students will then feel further motivation to develop an assignment which involves questions that affect their own city or community.

A student whose environmental reality involves clandestine dumps in his neighborhood may hardly become sensitive and eager to act upon the impact that, at world level, the indiscriminate felling of trees in the Amazon may have.

Furthermore, many times the students may end up rejecting or neglecting an EE which exhibits broad and empathetic objectives, but which does not help them explain and solve their own immediate problems.

In an attempt to awaken their compassion or to shock them, they are presented with problems very distant from their lives, like the danger of extinction of the panda bear or the oiling of penguins. It is not that these issues are not important in themselves, but perhaps they are of little or no relevance to our students and will only contribute to the construction of parallel instances of learning, which, as Tonucci (1993) explains, are those which are structured parallel to the students' reality, and therefore may be learnt, but the students go on living as if they ignored them.

The pretended sensitivity of some ecologist and environmentalist sectors was once defined as bourgeois ecology. This view has been taken to the classroom, and has signaled the way in which, in general, environmental issues are dealt with.

In their book *Ecology and Development*, Hedstrom And Hinojosa (1992) argue that the bourgeois view of ecology considers that the environment is threatened and should be defended. There is no questioning about the ultimate causes of that threat, but an immediate, superficial analysis: there is no serious criticism of the economic or political interests that lie behind the polluting agents. Thus, the solutions that this view might propose will be mere palliatives...

In fact, the bourgeois side of this position does not consist in some kind of sentimental ingenuity which does not see the possible reasons, but in their concealing.

It is precisely this bourgeois approach—ecologist and environmentalist—which is in crisis, which does not include more than unidisciplinary explanations (from biology, for instance) and which does not do anything but get the student away from the gist of the issue.

The dealing with environmental issues from a perspective of little significance for the students impairs the possibility of concrete participation.

On the other hand, to start from the environmental reality of the educational community may lead us to a more general analysis, and along that way, it is possible that the student might have come across situations of analysis, research, predictions, etc.

What is evident then is the need to contextualize the problems to develop with the students. That is, take as a starting point an issue related to their daily environmental lives. In the same spirit, they should be educated in values and attitudes: in contexts of reality, in their relation with the environment, with others in that environment and with the pre-conceptions or ideas which the students have already constructed on all these issues.

An example of a change of perspective is proposed by García Carmona (2004) in the teaching of the contents of physics with a CTS approach. The author presents a paper which aims to raise the students' awareness and

capability to assess the impact that scientific-technological actions have on their immediate environment. Thus, the study of the problem of noise in a community enables the students to approach not only an environmental education issue, but also cohabitation and health issues. Therefore, emphasis is laid on the need to take the student's daily and immediate context (family, neighbours, school, classroom) as the frame of reference for the implementation of activities.

According to Moreno Marimón (1992), constructing knowledge means attributing meaning to that knowledge. Environmental issues are spontaneously linked to daily issues, for they reflect the social queries of the time, those which the students hear of every day. To take those issues as starting points, as axes that congeal the curricular subjects, is to ensure that these will take on meaning.

EE is conceived of as a permanent process in which individuals and community become aware of their environment and acquire the knowledge, the values, the competence, the experience and the will capable of making them act individually and collectively to solve present and future problems of the environment. Therefore, EE goes beyond the school in that the person's training exceeds the schooling period, and must be based on the acquisition of knowledge as well as competences and values. In this sense, Jares Y Suárez Pazos (1981) maintain that starting from a global conception of the environment—as a set of biophysical and cultural elements, relations, actions and influences of all sorts that act dialectically in a given community—, it is necessary to add that the students should feel directly involved in it physically as well as emotionally and intellectually.

Besides, EE calls for conceptual and methodological innovations, for an educational system that develops the students' critical thinking, individual and collective responsibility, solidarity and the commitment to ethical principles. An educational system should take the students' life experience into account (Meinardi et al., 2002).

Characteristics of environmental research

The research experiences dealing with the environment in the sphere of EE have generated a number of new situations and didactic problems, which in turn need new approaches and reference models. EE requires a methodological and didactic treatment centered on the resolution of complex problems and on the taking of decisions which involve epistemic aspects (of the disciplinary knowledge itself) and axiological aspects (of the associated values).

Since knowledge is the product of social interaction—as Vygotsky points out (1985), for whom all the superior psychological processes are first acquired in a social context and are then internalized—, we need an educational language that integrates the students into the world where they live, achieving communicable internal representations which are in turn socially valid—a language that will allow the successful internalization of a social construction of the environment. As researcher Raúl Gagliardi (1998) puts it, a person does not know something when he is unable to incorporate it into his own language, into his own words, when he is unable to integrate it into his own life.

EE is a new and integrative proposal that tends toward the construction, from different disciplines and their specific didactics, of a new conception of the environment in scientific education.

EE may become an area particularly suitable for the implementation of new didactic strategies, such as the conscious and guided use of argumentation (Meinardi et al., 2002). This is so due to its eminently critical, evaluative nature, centered in problems, which challenges traditional didactic approaches centered in the transmission of the erudite knowledge of biology or of other disciplines.

Assessment of the Present Environmental Education

Ulf Carlsson (1998), Head of the Office of the Program of Environmental Education and Training of the United Nations, proposes that environmental education should abandon lecture rooms and the offices of organizations to find a place in everyday life. EE must be totally integrated into all work aiming at sustainable development, for no lasting effort is achieved without education and the appropriate components of constructive capacity. According to this approach, EE should be more local, and incorporate the environment and the local culture into its work. The educational component should be modified by means of the appropriate training of the educators. Thus, EE might become an important tool within the sustained development and protection of the environment and natural resources.

In 1972, the International Conference of the United Nations on Human Environment, held in Tbilisi (Stockholm), recommended the establishment of an international program of EE that should have an interdisciplinary approach in and out of the school, that should extend to all the levels

of formal education, and that should also be directed to the general public. This program should suggest the simplest steps a person might take to direct and control his surroundings within his own possibilities. Today, more than thirty years later, we are analyzing how effective EE has been in raising awareness and changing attitudes.

So far, EE has been a very academic discipline. For a learned person, it is fairly easy to think of the abstract treatment that on occasions the environmental issues require. However, for less educated people, who are not used to the type of abstract thinking that the sciences demand, to understand environmental problems may be very difficult. Until now, EE has usually been something from educators to educators. Another problem is the negative approach that may be adopted when discussing environmental issues. This may generate a feeling of hopelessness among people, which leads them to do nothing for the environment.

According to Carlsson, there are thousands of youngsters and adults who have been made aware of environmental problems. New approaches must be offered to cause reflection upon their values and change their lifestyles.

Difficulties in the implementation of environmental education in schools

A diagnosis (Pascual Trillo et al., 2000) on the integration of environmental education into compulsory secondary education in Spain has revealed data that lead to a profound reflection upon the issue.

Even though there exist some differences between school teachers and authorities—depending on the training college area (biology, geology and physics, followed by chemistry, geography and history)—in the appreciation of the relevance that the integration of environmental education into the lesson planning has, most of them consider it as very important or fundamental.

The study detected—as a general impression among teachers and authorities—that not many activities on environmental education are carried out in a regular and planned fashion. The most frequent type of organized activities is school outings, but always depending on whether the (climatic) conditions are favorable. There is, therefore, a high degree of improvisation and lack of planning in the development of concrete educational activities which are not included in the everyday lessons.

However, among authorities as well as teachers there (over fifty-five percent of the people surveyed, in all cases), is a very significant degree of interest in resources to be found outside the school, such as non-governmental organizations, public institutions of environmental management, institutions of permanent training in the area, libraries, and universities.

As regards the obstacles against the integration of EE into the schools, over fifty percent of the people surveyed highlight the following as important or fundamental:

- 1) The multiple tasks and demands that the teaching profession involves;
- 2) The scarcity of resources and means in the centers of education;
- 3) The lack of organization and curricular spaces at schools;
- 4) The difficulty in reaching agreements among the different disciplines; and
- 5) The little external support given to the teacher.

From all this, it can be deduced that there exists a generalized manifestation that at least three of the main obstacles—the implication of new tasks, the scarcity of resources and the lack of external support—that impair the incorporation of EE into the schools, are external to the institutions..

On the other hand, among the teachers, the offer to increase teacher training is highly appreciated.

Other measures praised for having positive effects are :

- 1) An increasing contact of the schools with other institutions;
- 2) The promotion of the implementation of particularly motivating activities.

In conclusion, it can be estimated that the integration of EE into the schools still is to a great extent a pending issue—as seen from training college—a training college which, on the other hand, acknowledges the relevance of this educational approach, despite the existence of several adjustment problems of the system to the claims of the educational reform and the lack of enough external support, which leads to a deficient inclusion, which to a certain extent is regarded as poorly planned and lacking in regularity.

A research work conducted in Argentina (Campaner, 1999) points out that the observable obstacles are:

- 1) Little teacher training in EE and its consideration as transversal;
- 2) A training college with ideas about the environment which are narrow, simplistic, and which do not take sociocultural components into account;
- 3) Insufficient knowledge of the local environmental problems; and
- 4) The little time available at the training college for inter-area or interdisciplinary work.

In this context, the opportunities for the curricular proposals are: an opening of the official curriculum for the incorporation of EE; the intention of the teachers to consider transversal dimensions in their projects; and a favorable school atmosphere for articulation work between different levels.

As regards teacher training, there often appears a simplistic view of environmental problems, in which an attempt to construct the idea of environment as a natural system prevails, laying emphasis on the teaching of physicochemical and biological factors.

Therefore, the most outstanding obstacles are:

- 1) The absence of teacher training;
- 2) The scarcity of bibliography and disciplinary materials with an environmental approach, especially including the treatment of regional and local problems.

This is replaced by news or articles from newspapers and magazines, which tend to have a sensationalistic approach and usually come from non-reliable sources. And, as was already said, the articles are about issues that are not related to regional problems.

Argentinean researcher Cristina Davini (1997) points out that the complaints of the teachers about development courses refer basically to the distance between the content of such courses and the real problems of the actual practice or the lack of technico-methodological orientations to teaching within the complex process of the classroom. In relation to such complex issues as the ones which involve EE, there is a concrete additional problem: the scarcity of existing information on regional or local environmental problems, which should illuminate the treatment of environmental issues in the classroom.

It has also been observed that although there are available alternatives, for teacher training as well as for student instruction, some are not taken full advantage of or are underused. For example, in the City of Buenos Aires there is no record of visits to the ecological reserve "Costanera Sur" by student-teachers at training colleges between the years 1998 and 2000, which leads one to suppose that no primary or secondary school teacher in Buenos Aires has visited the place as part of his professional training (González Urda, 2001).

CONCLUSIONS

It is crucial to understand the history and context in which environmental education develops, to work towards an integral dimension in which social, political, economic and environmental values are needed to develop a sense of responsibility and respect for the environment (Barraza & Walford, 2002).

An example of integration of dimensions for the environmental perspective has been carried out in Sweden, particularly in Stockholm, for the last ten years. This integration has involved the participation of civilians and authorities of a number of sanitary and environmental protection organizations, and citizens have had the chance to influence the program. This has resulted in clear and permanent environmental measures within areas such as water conservation, public transport, traffic and noise, garbage, and energy (Witteck & Lewis, 2000).

In this sense, we believe that an EE Project in Argentina should take multiple variables into account, as occurs when environmental problems are analyzed, and aim at objectives such as:

- The increase of knowledge about the different environmental problems which affect different regions of the country;
- The promotion of changes as to how to teach science, by means of the transformation of the scientific conceptions of the teachers, besides their ideas and teaching practice; and
- The contribution to raising the teacher's awareness in the performance of his role as orienting agent or facilitator of the learning process, as well as in the strategies to use, and the capability to handle the students' difficulties.

However, these objectives will not be able to be achieved without a diagnosis of the situation of the country aimed at gaining knowledge of its own environmental problems. Thus, we propose the involvement of students and teachers in research work toward the solution of such environmental problems.

As Sanmartí and Pujol point out (2002), the school has to be organized as a social group which aims at acting coherently in terms of certain options, and which enables the students (and training college and administrative staff) to experience the actions of the group itself. To this, we add that, from our perspective, the school can become a place of generation or production of knowledge, facing as a group, the solution and treatment of the local environmental problems.

In a report produced in 1996, Tello and Pardo mention that, taking a general reference framework developed in Argentina by the Ministry of Education as a starting point, the provinces should have defined their environmental education approach, which would allow for encouraging expectations.

Today, eight years later, we are in a position to claim that those expectations have not yet been satisfied.

We believe that the critical situation which environmental education is going through in Argentina is the result of the absence of national policies which promote awareness of the role that schools play in the formation of positive attitudes towards the environment in young children.

BIBLIOGRAPHY

- BARRAZA, L. & WALFORD, R., Environmental Education: a comparison between English and Mexican school children. *Environmental Education Research* 8 [2], 2002.
- CAMPANER, G., La educación ambiental en el curriculum escolar: un estudio de caso. *Revista de Educación en Biología* 2 [2], 50-55, 1999.
- CARLSSON, U., Veinte años de educación ambiental en las Naciones Unidas. *La educación ambiental veinte años después de Tbilisi*. Amarú, Salamanca, 1998.
- DAVINI, C., *La formación docente en cuestión: política y pedagogía*. Paidós, Buenos Aires, 1997.
- GAGLIARDI, R., Enseñanza-aprendizaje en biología. *Revista de Educación en Biología* 1 [2], 52-55, 1998.
- GARCÍA CARMONA, A., Una propuesta didáctica con enfoque ciencia/tecnología/sociedad CTS para el estudio del ruido en la enseñanza secundaria. *Journal of Science Education* 5 [1], 13-15, 2004.
- GONZÁLEZ URDA, E., *Tesis de maestría en educación ambiental*. Universidad de Málaga, España, 2001.
- HEDSTROM, I. & GÓMEZ HINOJOSA, J.F., *Ecología y desarrollo*. Espacio, Buenos Aires, 1992.
- HERRERO MOLINO, C., Educación ambiental. *Cuadernos de Pedagogía* 185, 1999.
- JARES, X. & SUÁREZ PAZOS, M., A propósito de la investigación del medio. Apuntes de teoría didáctica. *Cuadernos de Pedagogía* 79, 1981.
- JIMÉNEZ ALEIXANDRE, M.P., LÓPEZ RODRÍGUEZ, R. & PEREIRO MUÑOZ, C., Integrando la educación ambiental en el curriculum de ciencias. *Alambique* 6, 1995.
- MEINARDI, E., ADÚRIZ-BRAVO, A. & REVEL-CHION, A., La educación ambiental en el aula. Una propuesta para integrar contenidos multidisciplinares a través de la argumentación. *Investigación en la escuela. Nuevas tendencias de la educación ambiental* 46, 93-103, 2002.
- MEINARDI, E., REVEL-CHION, A. & GONZÁLEZ URDA, E., *Teoría y práctica de la educación ambiental*. Aique, Buenos Aires, 1998.
- MORENO MARIMÓN, M., Una mirada constructivista. *Cuadernos de Pedagogía* 227, 1992.
- TELLO, B. & PARDO, A., Presencia de la educación ambiental en el nivel medio de enseñanza de los países iberoamericanos. *Revista Iberoamericana de Educación. Educación Ambiental: teoría y práctica* 11, 113-152, 1996.
- TONUCCI, F., Hacia una propuesta de educación ambiental coherente. *Aula de Innovación* 12 1993.
- PASCUAL TRILLO, J., CURIEL, G., MARTÍNEZ IBÁÑEZ, G., MOLINA GONZÁLEZ, J. & RAMÍREZ MARTÍNEZ, E., La integración de la educación ambiental en la ESO: datos para la reflexión. *Enseñanza de las Ciencias* 18 [2], 227-334, 2000.
- SANMARTÍ, N. & PUJOL, R., ¿Qué comporta "capacitar para la acción" en el marco de la escuela? *Investigación en la escuela. Nuevas tendencias de la educación ambiental* 46, 49-54, 2002.
- VYGOTSKY, L., *Pensamiento y lenguaje*. Pléyade, Buenos Aires, 1985.
- WITTECK, N. & LEWIS, D., The Environmental Education and Laws of Protection in Sweden. *Journal of Science Education* 1 [2], 74-80, 2000.

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