SCIENTIFIC THINKING AND ENVIRONMENTAL EDUCATION AS FACTORS OF INNOVATION IN LITERATURE FOR CHILDREN

Scientific Thinking and Environmental Education as factors of innovation in Literature for Children

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Abstract

In children's literature science and nature have traditionally played the role of a narrative device, a landscape background for the setting where to let speaking animal characters act. It is only since the 70s that the environmental issue has started to appear through the ecological problems, by dragging new visions and critical analyses into literature. The article analyzes the influences the scientific environmentalism had on the Italian literature between 1970 and 1980, when an ecological awareness starts to progressively develop within the country.

By adopting some rules belonging to *ecocriticism*, attention is being focused on those works which are the first ones to be inspired by the *"thought-through-connection"* notionof modern ecology and which find their first expressive and artistic paths in the narrative for children and young adults by identifying, in a connected way, the *crossovers* with the popularization of science and with the objectives of environmental education.

Through the narrative themes and the popularising writing – adopting the ecocritical statute as a reference guidance – the strategic problems relating to the ecological issue within the Italian *fiction* and *non fiction* are brought to the fore: the effects deriving from the aggression to Third World's resources, the need for science to radically change its own traditional point of view, the inseparable interrelation between environmental damage and social damage by paying special attention to the role played by information. It is therefore suggested that modern ecological thought has remarkably contributed to the general innovation of literature and publishing industry for children which has developed in the subsequent twenty-year period.

Key words: children's literature, fiction, non fiction, ecocriticism, popularisation of science; ecological thought; interdisciplinarity; prejudices.

Zusammenfassung

In der Kinder- und Jugendliteratur hatten die Wissenschaft und die Natur traditionsgemäß die Rolle eines erzählerischen Notbehelfs, eines landschaftlichen Hintergrunds für die Szenerie, vor dem sprechende Tierfiguren agieren. Erst in den 70er Jahren beginnt die Umweltfrage durch Umweltprobleme hervorgerufen aufzutauchen und bringt in die Literatur neue Visionen und kritische Betrachtungen ein. Der Artikel analysiert die Einflüsse des wissenschaftlichen Umweltschutzes innerhalb der italienischen Literatur zwischen 1970 und 1980, als im Land eine allmähliche Verbreitung des Umweltbewusstseins begann. Unter Anwendung einiger Maßstäbe des *Ecocriticism* wird die Aufmerksamkeit auf Werke, die sich als erste von *„Gedanken im Zusammenhang"* mit der modernen Ökologie inspirieren lassen und welche die ersten expressiven und künstlerischen Wege in der Belletristik für Kinder- und Jugendliche beschreiten, gerichtet, wobei die *Cross-overs* mit der

populärwissenschaftliche Literatur und mit den Zielen der Umwelterziehung zusammenhängend ermittelt werden. Mit Hilfe von Erzählthemen und populärwissenschaftlichen Schriften sowie unter Anwendung des ökokritischen Ansatzes als Bezugsgröße werden die strategischen Probleme der Umweltfrage in der italienischen *Fiktion* und *Nichtfiktion* hervorgehoben: die Auswirkungen des Angriffs auf die Ressourcen der Dritten Welt, die Notwendigkeit, dass die Wissenschaft ihren traditionellen Standpunkt radikal ändern muss, die untrennbare Wechselbeziehung zwischen Umweltschaden und sozialem Schaden mit besonderem Augenmerk auf die Rolle der Information. Es wird daher die Hypothese aufgestellt, dass der moderne Umweltgedanke zur allgemeinen Innovation der Literatur und des Verlagswesens für Kinder- und Jugendliche, die in den darauf folgenden zwanzig Jahren ihre Entwicklung nahm, beträchtlich beitrug.

Schlüsselwörter: Kinder- und Jugendliteratur; Umwelterziehung; Ecocriticism; Populärwissenschaftliche Literatur; Umweltgedanke; Interdisziplinarität; Fiktion; Nichtfiktion; Vorurteile; Innovation.

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Scientific Thinking and Environmental Education as factors of innovation in Literature for Children

Introduction

The representation of childhood and the search for an ideal relationship with nature find interesting examples on the basis of an explicit environmentalist message to children at the end of the Nineteenth century, in England and in the United States, due to associations striving for the protection of parks and wild animals (Rahn 1995). Influenced by the heritage of Rousseau's natural education, the writers belonging to this tradition were not particularly successful but they started to legitimise an environmentalist literature involving also great classics, such as those from the Victorian Age, during which colonialism had encouraged discussion on discoveries, explorations, pristine places, e.g. *The Jungle Book* by Rudyard Kipling or less exotic and cosier contexts, such as Kensington's gardens in the adventures of Peter Pan, or the *Secret Garden* by Frances H. Burnett.

As a matter of fact, the literature by authors from North European Countries seems to be the privileged framework for analysis, as if the feeling for nature had specific national narrative forms or if the narrativization of these Countries' national feeling were intimately linked to a certain way of perceiving nature. Paul Hazard's (1954) opinion on Andersen's fairy tales and on 'Nordic' literature as a whole is emblematic: the Danish writer proves to be a master in animating animals and objects until their deep voice can be heard clanging.

He provides enchanted paintings, letting the readers discover the 'fantastic dominions of snow and ice', thousands of nuances of the long and sleepy winters, with a range of colours which are not flaming but delicate and vague, and an imagination which is closer to dream, deeply linked with emotional life, with its uncertainties and doubts. The world of nature, meant as a dimension of the imaginative world, has always represented a place elsewhere where man can escape alienation and depersonalization but, as well, the background against which to develop initiation paths, a magical and fairy dimension dominated by fancy and animism which are typical of children's thinking.

But it will be with another Danish writer, Karin Michaelis, that the romantic feeling for nature will be translated into a real ecological pedagogic programme. Already in *The Green island* (1937), the story of a boy and of his fellow citizens who see their village covered with water because of a flooding being transformed into an island, she will introduce some fundamental issues: islanders are indeed compelled to talk togetherabout *vital space*, and about agricultural holdings which should

have determined a sustainable development, compatible with respect for the environment. Especially the series of novels dedicated to her best known character – the young *Bibi* who, during her travels around Denmark both alone and together with her friends, devises strategies in order to improve the world and rediscover nature – introduces important topics, such as the relationship between tradition and innovation, the contact with nature as a way of expressing the most genuine side of oneself, the training value of travelling. Bibi founds an association for the protection of animals; she takes part in environmental movements of *avant-garde* schools attended by young people from all over the world near the Black Forest; she travels on mighty ships cracking the ice of the North Sea; when in Berlin she is hosted by Albert Einstein and, in the city, she finds out about the emergence of shopping malls and of new public transport means. The writer therefore appears to be extremely wise, in her novels, when weighing out on the one hand a childish vision of nature – seen as a dimension close to childhood, an almost magic and unspoilt place, mainly a rural one, onto which the popular point of view projects mighty fantastications – and, on the other hand, a modern and amazed look facing historical facts which, exactly in the Thirties, were changing the relationship between man and reality.

The nature covered through the large number of trips taken by Bibi brings to mind a sort of a geography handbook, a narrative scheme shared with other classics of literature for children and young adults, from *Sans famille* by Malot to *Cuore* by De Amicis and to *Nils Olgerssons underbara resa genom Sverige* by Lagerlöf, These are books whose approach is certainly a little strict but which have had the merit to provide their children-readers with an initial sense of national identity and of space, by progressively moving away from familiar contexts to gradually broadening knowledge horizons, metaphorically narrating, in this route, the growing up of characters who gain a more complex maturity by experiencing life directly.

A nature regarded as a placid and unspoiled dimension, a romantic metaphor for the human soul, a landscape living in perfect harmony with the events taking place within it – events which are especially related to the life of rural community – reappears in the novels by Astrid Lindgren, in the trilogy dedicated to Emil and, above all, in *Holidays on Seagulls' Island* (1964) which is inspired by the beauty of the Stockholm Archipelago: life on the island teaches Karin, the main character, the capacity to feel the energy of a simple, happy and intimately unspoilt nature flowing through her body, a nature able to represent a sort of reservoir of positive emotions from which to draw on for the rest of her life. A wild, totally absorbing and primordial nature, which requires respect and knowledge, is instead the absolute protagonist of the beautiful novel *Ronja* (1982): a kind of *forest feeling* runs through the whole book. The joining with all creation, the experience of seasons, the

ecstasy about the arrival of spring, the changing in perceptions during the different hours of the day, all of this represents a sort of melody flowing through the novel's pages (Edström, 2000, pp. 277-278).

Today books for children and young adults focusing, in a more or less direct way, on the topics of environmental education represent a remarkable share of the publications market, expressed through a wide catalogue of opportunities, ranging from the classics of environmentalist thought, such as *The Man Who Planted Trees* (1953) by the French author Jean Giono, to handbooks and activity books, with games and experiments introducing young people to ecosystems, arriving to popularisation books dealing with the topic of biodiversity and climate change, e.g. the denunciation book by Al Gore - *The Crisis of Global Warming told to Youth* (2008), and to publications mainly linked with active citizenship. It may be said that the beginning of a literature for children which is not pedantic or moralistic but indeed latched on to contemporary times from a stylistic and thematic point of view, which is sensitive to the reality to be presented to the young reader without any censorships or sugar-coating, stems also from a profitable contamination with the environmental and scientific culture of the Seventies. In this sense, the contribution by Gianni Rodary has been emblematic: he was the pioneer of an experimental literature for children and young adults, marked by the «coming down of barriers among literary genres, the use of parody and of the technique of rewriting, the high rate of intertextuality» (Rossitto, 2011). The works by Rodari show a deep ecological awareness in the expression of a strong solidarity towards people, being in a close conjunction with the natural environment surrounding them. It is not for nothing that the main character of the nursery rhyme whose title is*A mature man with an unripe ear*(*NoT,* Original title in Italian: *Un signore maturo con un orecchio acerbo*), defined as being an original 'pacifist ecological manifesto' (Panzarasa, 2011), has a young ear which is useful to understand things adults have forgotten about: the words of trees, of birds, of clouds passing by, of stones, of streams, and also of children when they say things which may sound mysterious and incomprehensible to a mature ear. Not only does Rodari significantly pay attention to scientific themes but the ecologist level of his work goes together with those important problems, such as the debate over the neutrality of science and the role played by scientists, towards which the author takes a clear and sharp value position already in *The Cake in the Sky* (*NoT,* Original title in Italian*: La torta in cielo,* 1966). A sensitivity which will widely resound in books and tales by authors who will bet on the productive connection among literature, science and ecology: by putting together narration and popularisation, they will refer to the new paradigms of science, such as the thought through connections, the unpredictability and irreversibility of environmental damage, by expressing a kind

of ecology which is no longer limited to the observation of the living systems, to their aesthetic vision but which is indeed able to make a problem of the environmental situation, and to provide young generations with updated and refined critical and hermeneutical skills.These international pedagogic and cultural principles and trends will be referred to and re-launched during the *Intergovernmental Conference on Environmental Education in Tbilisi* where, among the other recommendations, it is established for the first time that: «A basic aim of environmental education is to succeed in making individuals and communities understand the complex nature of the natural and the built environments resulting from the interaction of their biological, physical, social, economic, and cultural aspects, and acquire the knowledge, values, attitudes, and practical skills to participate in a responsible and effective way in anticipating and solving environmental problems, and in the management of the quality of the environment.» (UNESCO, UNEP, 1977).

1. Three important books in Italy

Between 1970 and 1980 in Italy, together with Rodari's production, three books introducing modern environmental concepts in children and young adults' literature are published. If reread from a contemporary ecocritical point of view, they appear to be the first ones to be dealing with thought through ecological connections by offering it as a character of the plot and aconstruction of the writing: *The Island* (*NoT,* Original title in Italian:*L'isola* 1974)by GiuliaNiccolai and Luciano Marco Boschini, *Blue SkyChlorophyll* (*NoT,* Original title in Italian: *Clorofilla dal cielo blu*, 1975) by Bianca Pitzorno and *A Hare having the Face of a Young Girl* (*NoT,* Original title in Italian: *Una lepre con la faccia di bambina,* 1978) by Laura Conti.

The Island is for younger children and it talks about the resources of a territory being exploited and the subsequent exclusion of its inhabitants from this process. It is maybe the first time that this topic is being dealt in a simple and direct way in the literature for children and young adults.

The story talks about a Happy Island discovered by the powerful Society PQRSTT which is ruled by 7 Authorities. 'As soon as they landed on the island thanks to their competences, the 7 Authorities soon became aware of the happiness and healthiness of that place, as well as of its resources. And, in order to better exploit the latter, they decided that the former should be eliminated'. So they build factories, plants and megalopolises which are identical to those of the countries they come from, they sell Catarine's monkeys –which had been living there for a long time– to zoos and those that succeed in escaping are able to survive by remaining hidden within the

island together with children who, on their turn, have been moved away because they can no longer play in the occupied lands. By clearly alluding to the seven oil companies which, in the 70s, had a monopoly over the market of oil world exploitation, the story highlights the close connection between assault on environmental resources and impoverishment of territory through the exportation of their own economic models. The illustrations by Boschini are the ones to provide the right view for a significant and poetic interpretation of the whole book. Every picture of the Happy Island's surface is indeed drawn according to the curvature profile of the earth's horizon, thus suggesting that the story refers not only to that remote island but that it has something to do with what is actually happening in every part of the world. The horizon's representation provided by Boschini shows us that weak people are the first victims of any Exploitation Organization, as a matter of fact the horizon «....is the first line to trace so that the earth can be conceived, that is invented […] it allows the local order and the cosmic order to overlap exactly because it sets up a hinge not between two different and separate parts of the world, between finite and infinite, but between two conceptions: the world which is made up of processes and relations and the world which is made up of things" (Farinelli 2007).

While keeping the pedagogic interpretations and the literary interpretations of books for children and young adults as separate as possible, it is clear that the new scientific and environmental knowledge represents innovative contaminators. From 1970 onwards, the notion of environment itself goes beyond the aesthetic approach in order to gain the statute of being «a huge, enormously complex living machine that forms a thin dynamic layer on the earth's surface. […] Each living species is also linked to many others. These links are bewildering in their variety and marvellous in their intricate detail» (Commoner, 1971). In the same way as in the Environmental Education the change in habits and points of view becomes a new territory for pedagogic research, so in the literature for children there is the emergence of stories interpreting them.

Blue Sky Chlorophyll is probably the first book embracing the new environmental vision in its plot, since it talks about a vegetal extraterrestrial baby girl fallen down to earth in Milan, one of the most polluted cities in Italy, who is at risk of dying because of urban smog. The characters of the story are the scientist Erasmus and his two nephewswho, with the help of a doorwoman, will save the baby girl from the one who wants to vivisect her for studying her and, then, from death caused by pollution. What makes this book one of the classics of environmental literature for children and young adults is not only the theme of air pollution, the evident basis of the plot, but indeed the narrative solution given by the author to Chlorophyll's problem. As a matter of fact, the progressive poisoning of the vegetal baby girl is not treated through a specialised-medical approach, aimed at

curing exclusively her disease, but indeed through an environmental intervention on the whole city: Milan will be covered with very strange and unknown invaders (green plants able to produce a plentiful quantity of oxygen) which will improve the life of all of its inhabitants and, at the same time, will save the young alien. In this way Bianca Pitzorno puts forward science as being a positive factor within the individual life but only if it derives from a social science which is substantially different from the 'official' one, a science which is aware of the limits beyond which there is no return, by adopting one of the quality points of scientific environmentalism in the literary construction: the goal of consistency among knowledge, values and behaviours.

As a matter of fact, it is precisely the notion of *limit* which in those years comes to appear within the new environmental and scientific culture, also thanks to the publishing of *The Limits of Development (NoT,* Original title in Italian: *I Limiti dello sviluppo*; Peccei 1972) and of the report by the System Dynamics Group Massachusetts Institute of Technology (MIT) which, for the first time, shows that the notion of unlimited development is taking the planet on the brink of collapse.

In Italy a practical demonstration of this notion occurs in a dramatic way in Seveso in 1976, when a breakdown in the production reactor of Icmesa (a chemical and pharmaceutical factory belonging to Hoffman – La Roche multinational) releases a high amount of dioxin in the air, a chemicals substance which causes general damage to living organisms up to genetic alterations lasting for generations. The tragedy of Seveso, for the first time in Italy, makes ordinary people feel that the ecological issue actually affects everyday life. It is Laura Conti, the mother of Italian scientific environmentalism, to give substance and expression to this matter through her book "*A Hare having the Face of a Young Girl"* (*NoT,* Original title in Italian: *"Una lepre con la faccia di bambina").* It is the story of two twelve-year-old children, Marco and Sara, – he is from a well-off family and she is a girl from the poor South of Italy, emigrated with her family – who find themselves plunged into the polluted territory, being victims as their community is. Laura Conti lives this drama from the inside: she is a member of Lombardy Regional Council when the event takes place, she is a doctor with a long active membership in the anti-fascist and anti-Nazi resistance, and she is a great popularizer since she has already written books for children and young adults on ecology and sexuality.

This time Conti chooses indeed to narrate more than to go for journalism or popularization. She does it so for some good reasons explained in the foreword to the book that, if reread today, bring to mind in quite a predictive way the contents which, almost ten years later, would become some of the framing pillars of the *Bruntdland Report* on behalf of the United States. In this report, the term *sustainable development*, also as a linguistic christening, occurs for the first time: «Humanity has

the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs». (WCED,1987).Narration, Laura Conti says, makes it possible to go beyond chronicling and the coldness of scientific information, allowing her to analyse from the inside the social damage which is always related to environmental damage, as also Svetlana Aleksievič will state, many years after, in her book on Chernobyl, by writing that «narration makes it possible to reconstruct feelings more than events». Laura Conti talks indeed about social breakdown seen through the feelings of two kids touched by this event exactly during their growth, the weakest ones among weak ones. A dimension causing life projects to go lost, whole families to be disorientated when facing the impossibility of reorganizing their own everyday life upon some kind of certainties because of poor or contradicting public-service information, leaving everyone in doubt and indecision. Marco and Sara are thus obliged to look for information on their own: they eavesdrop on the murmuring of adults in squares and in their houses, they assign their own meaning to what they listen to and to their fears, until they open a window on the pains of life, one's own life and that of people one loves, in order to come to terms with it sometimes in a cynic way – as Sara often does – or in a desperate way as it happens to Marco. Through the description of the social isolation experienced by the population of Seveso, the author identifies *information* as being a quality element within sustainable development for ruling in a healthy and ecological way a territory and a community, by describing an information system which omits information and is subject to the powerful pharmaceutical multinational company and its political connivance. Marco and Sara's families, as all the other families from Seveso and the nearby, are kept in the dark about the real damage caused by dioxin released during the accident and, what's more, they are distracted towards parallel topics in order not to be alarmed but, actually, in order not to be made aware of real facts. By rereading the book adopting a selective approach when giving back a historical approach to some contextual factors, one gets the impression that it talks more about future than that it narrates the present it was inspired by. As a matter of fact, the accident in Bhopal in 1984 and the Chernobyl's explosion in 1986 will present once again most of the problematic environmental and social questions which one can find in the book, and the issue of disinformation will be equally important and interrelated with the ecological damage.

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2. Occurrences in the popularisation for children and young adults

Therefore it is exactly literature – meant as narration or fiction – that in Italy seems to anticipate the scientific and environmental themes characterising popularisation genres today, themes which only recently have been finding their own matrices for a critical reading which is consistent with contemporary issues and questions. As a matter of fact, the popularisation of science and environment, given the delicate educational issues it puts at stake and the involvement of everyday behaviours, must be considered within a wide system of continuing education and not as a separate element, isolated from the context. The capacity to build bridges between science and imaginary worlds is one among the most important indicators of a good popularisation: from the reader's point of view, the tale about Chlorophyll, as well as that about the second principle of thermodynamics, are both great narrations within which the meaning context makes it possible to move freely between fiction and non-fiction, between narrative literature and scientific literature on the basis of the bridges they are able to build, rather than the rigidity of genres. Ultimately, it is a matter of taking into consideration the sets of meaning related to reading, of providing science with space for narration and popularisation in an integrated way generated by readings and books able to contaminate each other. This is the reason why in environmental literature narration and science, poetic metaphor and strictness of contents, all look for connecting rather than separating factors. Within a sort of new statute for 'sustainability', the more relevant genres and matters are, the more crossovers they open rather than defending self-referential keeps, starting from the sham contrast between humanistic culture and scientific culture, already reported by Percy Snow at the beginning of the Sixties.

A cultural contamination to which, in Italy, Serenella Iovino makes a crucial critical contribution in 2006 through the publishing of the only book in Italian, to this day, on ecocriticism. Ecological literature "*meets the need for interdisciplinarity which an interpretation of the cultural images of nature requires"* and *"The main objective of this kind of writing is that of inspiring the reader to (an ecological or proto-ecological) consciousness of the interdependence among life forms"*. In addition ecocritical analyses *"are interested in how literature and writing, in general, become the expression of the socio-ecological conflicts, of the issues related to the difference (in gender, species, ethnic groups, abilities and so on..) in the environmental discriminations (racism, environmental class system"* (Iovino, 2006).This critical statute of literature, regarded by ecocriticism as being "…the study of the relationship between literature and the physical environment" (Glotfelty, 1996) builds a bridge between science and its communication through

environmental and natural values and their shared cultural meanings, and today it represents the most advanced orientation among the reference statutes oriented towards the principles of the Environmental Education established in Tbilisi.

As a matter of fact, the impact with the imaginative worlds, the *imprinting* that often information and models have on deep knowledge and on mind maps, become representations of knowledge, summaries of ideas, significant metaphors which have often gained the common sense by causing the successful dissemination of scientific theories and marking significant cultural turning points: any description which is not a poetic one could ever be a complete one (Barrow 2009). In the history of scientific communication new ideas have been represented through images which have subsequently become symbolic, these images have characterised the revolutionary passage – not only scientific *stricto sensu* – but the change itself in the collocation within time and history of man and in the vision of oneself.Imagine, for example, the shift in the representation of the earth from a geocentric to a heliocentric model of the universe. But, on their turn, the same symbols have then represented strong limits and resistance in themselves – by turning into prejudices – the moment when science was finding out new interpretations to new changes because, in the meantime, they had been filled in with values and common senses which are difficult to be overcome, as it has happened for atom's representation by Rutherford. Described through a planetary model, where planets turn around the sun, its dissemination as a visual metaphor has become so deeply rooted to oppose its own overcome, so that «an effective hyperbola to display the behaviour of the nucleus and of electrons inside the atom has turned into an obstacle to comprehension, once it has proved to be an out-of-date interpretation of reality» (Goutier, Ioli, 2006). However, the coexistence of a strictness degree and of a poetic degree within popularisation literature becomes an important indicator for the education to sustainability, science is filled with language, plunged into the linguistic expressions of concepts and new paradigms, and it consequently performs a narrative function which, in a set of continual references, draws on and creates new semantic materials (De Santillana, 1966).

René Thom writes that explaining means replacing complicated visible evidence with simple invisible evidence and that the term 'explain' carries all its etymological strength as well as that of a constituting signifier, that is to unfold, to open, to make what lies inside the folds visible, to bring outside the paths hidden by the folds, by showing what is invisible. If this is the conceptual operation carried out by popularising actions, the same operation underlies the overcome of stereotypes which we often tend to adopt in order to 'explain' to those who do not know, without even thinking that children know, indeed they know, and they learn fast.

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Conclusions

Today science and environmental values go hand in hand, following the fading – in the period after the Second World War – of a certain 'aesthetic' environmentalism often conceiving science as an enemy to fight since it generates progress and pollution.Of course, also science needs to make non-neutral choices on the basis of shared values, and the debate about its neutrality is started in Italy in 1976 with the publishing of the book *The Bee and the Architect (NoT,* Original title in Italian*: L'ape e l'architetto)*, whose title refers to an imaginary pair by Rodari, and which places itself in a new cultural environment at an international level. As a matter of fact: «Literary critics and cultural theorists in particular have been notoriously slow to register those changes in thinking about the relationship of culture and society to the natural world which began to be articulated in neighbouring disciplines, above all philosophy, but also theology, politics and history, from the early 1970s» (Rigby 2002, p. 152). This new need to choose shown by science, and certainly its ethical and environmental profile, must be taken into account and stated by a popularisation book. This is the reason why "the completeness and updating of information are essential requirements. An old book, which does not take into account the most recent discoveries or theories, is a useless book" (De Marchi 2000, p. 27). This indicator carries with it the need for a simplification of language, a simplification which is still often confused with making it stupid. It has already been underlined how the poetic gradient represents one of the elements which is specific to the scientific communicative language, to its capacity to evoke original images and to cause crowding out leading to reflection and curiosity. If this is accompanied by daily experience, going through the idea that 'theory' is actually very practical, whilst being considered as 'abstract' in the commonplaces, the result will be for example a book like *Science on the Swing* (*NoT,* Original title in Italian*: La scienza in altalena,* 1999)which in Italyhas been one of the important innovation guiding in order to popularise scientific principles through testable games. The element of testability should not be confused, of course, with the classic *experiment* carried out in the classroom, such as bean germination, which in some periods of the year involves placing small vases with wet cotton and relating seeds under the windows. Testability should instead invite to and spur into action within nature or into observation within nature, in environment, for two new characteristics that, among other things, the environmental scientific culture has introduced within communication and education.

The first one is that of fostering a multi-disciplinary approach, by facilitating connections and links with other subject matters, so to provide a track which makes it possible to understand

that complex systems need to conceive subject matters not as obstacles but rather as bridges. For this reason, popularisation must also put forward autonomous tools, on the side of the young reader, in order to obtain further information beside that provided in the specific book one is reading, a sort of acceptable challenge accompanying him/her towards building new questions, rather than acquiescing in correct answers. And at the same time popularisation must deal with the topic through problems rather than themes. This is how Mika, the young inhabitant of the stars, explains to his terrestrial friend: « 'When you bow, you give way' – Mika went on – you must never give way to an answer.' 'Why not?' 'An answer is always the stretch of the road that's behind you. Only a question can point the way forward'».(Gaarder 1997, p. 74) Suggesting paths to learn how to make questions is, therefore, one of the quality factors of books for children and young adults on science and environment. This allows oneself to get in the game, to adopt an approach to analyse the real world but wondering about the reasons, by developing the critical thought required to change one's own habits when facing a problem.

The second characteristic is that of keeping the facts well separated from the opinions of the popularizer or from those opinions one deems it necessary to account for in the book. This characteristic is one of the most important indicators – this being particularly true for any kind of information – and it is held particularly dear by the National Science Teachers Association which periodically draws up precise evaluation criteria for popularisation books in co-operation with the Children's Book Council. «Science is passion, science is wonder. The best books about science stir the minds and hearts of readers in very special ways; and when they do, the impressions they make can last for years», as you can read in the introduction to the list of the best 38 books of 2010. Books whose reading record remains for many years and, as such, books which talk about the future, at the level of contents and values, as Vichi De Marchi still reminds us.

« The racist and sexist elements, the stereotyped representations, are harshly criticised. Also the anthropomorphising of plants and animals, so widespread in the most part of literature, is not regarded as being a valuable element: avoiding the humanisation of animal and plant life is a sign of respect and of a deeper understanding of natural balances and of the characteristics of the different species» (De Marchi 2000, p. 28).

SCIENTIFIC THINKING AND ENVIRONMENTAL EDUCATION AS FACTORS OF INNOVATION IN LITERATURE FOR CHILDREN

REFERENCES

Aleksievic, S. A. (2002) *Preghiera per Cernobyl : cronaca del futuro* (*The Chernobyl Prayer*: *Chronicles of the Future*). Roma: Edizioni E/O.

Barrow, J. (2009) *Le immagini della scienza: cinquemila anni di scoperte, una storia visiva*. (*Images of Science: Five Thousand Years of Discoveries, a Visual History)*, Milano: A. Mondadori.

Ciccotti G. Cini, M. [et al.] (1976) *L'ape e l'architetto: paradigmi scientifici e materialismo storico*. (*The architect and the bee: scientific paradigms and historical materialism*) Milano: Feltrinelli.

Commoner, B. (1971). *The Closing Circle: Nature, Man, and Technology*. New York :Knopf.

De Marchi, V. (2000) *Per saperne di più: i libri di divulgazione per ragazzi* (*To know more: popularisation' s books for youth*), Milano: A.Mondadori.

De Santillana, G. (1966) *Le origini del pensiero scientifico* (*The Origins of Scientific Thought)*. Firenze: Sansoni.

Farinelli, F. (2007). *L'Invenzione della Terra* (*The Invention of Earth*), Palermo: Sellerio.

Gaarder J. (1997) *C'è nessuno?* (*Is there anyone?),* Firenze: Salani.

Gotfelty, C. Fromm, H. (1996) *The Ecocriticism Reader: Landmarks in Literary Ecology*, Athen and London: University of Georgia Press.

Gouthier, D. Ioli, E. (2006) *Le parole di Einstein: comunicare la scienza tra rigore e poesia* (*Einstein's Words: Communicating Science moving between Strictness and Poetry*). Bari: Edizioni Dedalo.

Guedj, D. (2000) *Il teorema del pappagallo* (*The Parrot's Theorem*), Milano, Longanesi, 2000.

Haeckel, E. H. (1866) *Generelle Morphologie der Organismen : allgemeine Grundzuge der organischen Formen-Wissenschaft, mechanisch begrundet durch die von Charles Darwin reformirte Descendenz-Theorie.* Berlinl: Verlag von Georg Reimer.

Hazard, P. (1954) *Letteratura infantile* (*Children's literature*), Milano, Edizioni Viola.

Iovino, S. (2006) *Ecologia letteraria: una strategia di sopravvivenza* (*Literary Ecology: A Survival Strategy)*. Milano, Edizioni Ambiente.

Lapierre, D. Moro, J. (2002) *Mezzanotte e mezzo a Bhopal* (*Half past Midnight in Bhopal*). Milano: A. Mondadori.

Panzarasa, S. (2011), *L'orecchio verde di Gianni Rodari* (*The green ear of Gianni Rodari*), Roma, Stampa Alternativa.

SCIENTIFIC THINKING AND ENVIRONMENTAL EDUCATION AS FACTORS OF INNOVATION IN LITERATURE FOR CHILDREN

Peccei, A. (1972) *I Limiti dello sviluppo: rapporto del System Dynamics Group Massachusetts Insitute of Tecnology (MIT) per il progetto del Club di Roma sui dilemmi dell'umanità*, Milano: A. Mondadori.

Pelaia,M. (2006) *Gianni Rodari: orecchio verde pacifista* (*Gianni Rodari: A Pacifist Green Ear*), in « Prometeo», ,94, p. 87.

Prigogine,I. (1981) *La nuova alleanza: metamorfosi della scienza* (*The New Alliance: Metamorphosis of Science*), Torino, Einaudi.

Rahn, S. (1995) *Green Worlds for children*, "The Lion and the Unicorn", 19.2, pp. 149-170.

Richardson, R. (1979) *Learning for change in World Society: Reflections, Activities and Resources*. World Studies Project.

Rigby, K. (2002) . Ecocriticism. In J. Wolfreys, *Introducing criticism at the 21st century* (pp. 151-178). Edinburgh: Edinburgh University Press.

Rossitto, M. (2011) *Non solo filastrocche: Rodari e la letteratura del Novecento* (*Not only Nursery Rhymes: Rodari and Twentieth-Century Literature*), Roma, Bulzoni.

Snow, C. P. (1962) *The two cultures and the scientific revolution.*New York : Cambridge University Press.

Thom, R. (1985) *Stabilità strutturale e morfogenesi* (*Structural Stability and Morphogenesis*). Torino: Einaudi.

Tiezzi, E. (1984) *Tempi storici, tempi biologici* (*Historical Times and Biological Times*). Milano, Garzanti.

Wced. (1987) *Our Common Future*, World Commission on Environment and Development, Bruntdland Commission. Oxford: Oxford University Press.

Moral and religios training – education students for environmental

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MORAL AND RELIGIOUS TRAINING – EDUCATION STUDENTS FOR ENVIRONMENTAL

Abstract

The issue of environmental education is one of the most important issues for the contemporary world. The human relationship with the environment and especially, the human attitude towards it seemed a solved problem a century ago, but in the last decades, it has become a real provocation for more and more people, decision makers, from different backgrounds. If we refer only to the need to maintain a clean environment around us, we have already made an important step for training the young generation. However, the environmental education aims to go much further and it wants to identify viable formative models in the education of today, so students can develop their personality with an acceptable level of understanding their role and place in the created world. In this context, religious and moral formation can bring a significant support for this new aspect of education, in particular, through the arguments based on biblical texts, which you can make to students of different ages. In terms of teaching, to achieve these objectives, there is a set of principles and appropriate methods and we offer some suggestions for their emphasis and integration into current educational context. Obviously, an authentic environmental education integrates models for emphasizing the message that the nature often offers to the man in search of his own identity.

Keywords: Religious Education, environmental education, teaching models, youth education

MORAL AND RELIGIOUS TRAINING – EDUCATION STUDENTS FOR ENVIRONMENTAL

Moral and religios training – education students for environmental

1. Introduction

The approach of the pedagogical human-nature relationship can be made from multiple perspectives, each of them is worthy of research and analysis which lead to conclusions meant to make aware the students about their role and their responsibilities in the natural surroundings they grow. This study proposes an analysis in terms of how Religious Education, by religious and moral formation of students, can contribute to awareness of human relationship with the environment and, in general, with the creation.

Our assertions have as starting points the next premises, based on the biblical texts:

- The whole universe is the creation of God, Who has His existence only by Himself, "*I am who I am*" (Genesis 3,14);
- In the context of the creation, the man has a privileged status given by his creation after the image of God and his calling to the likeness of Him; the man was created through a direct and personal act of God and he is the only vertical person on the Earth and the last of the stages of Creation: "*Taking the Lord dust of the ground, formed man and breathed into his nostrils the breath of life and man became a living soul*" (Genesis 2,7); receiving the command to rule all creation;
- In heaven, man was in harmony with the whole universe: the animals were subjected him; the ground gave all necessary fruits, all created work based on laws that were not broken. To maintain this status, he has to honour the divine commandment, not to eat from the tree of knowledge of good and evil;
- The falling into sin had implications over the material universe, which was the subject of degradation, suffering together with the man: "*The creature was made subject to vanity, not willingly, but by reason of him who had subjected in hope; because the creature itself also will be delivered from the slavery of corruption into the glorious liberty of God's children. For we know that the whole creation groans together in pain together until now*" (Romans 8, 20-22); the man, the lord of creatures, became her servant.
- In the seen world, God has established a very close connection between man and nature; in fact, the man is the creature that links between spiritual and material world, because he was created as a soul-body unity. The man needs the material world around him to survive, and the nature, God's gift to man, has value only by human presence.
- The man can know God by natural revelation, namely the material universe in which all natural phenomena are governed by the precise laws that assure us of His existence and tell us about Him: "*The heavens declare the glory of God and the firmament shows his handwork" (Psalm 18, 1),* and *"the invisible things of Him from the creation are clearly seen, being understood by the things that are made, his eternal power and Godhead*" (Romans 1, 20).

2. Principles and teaching methods, relevant to education for man-nature relationship

The close relationship between man and nature is the subject of some educational approaches, exceptionally valued by Jesus Christ, with different goals and in different ways, taken over the education of the first millennium of the Holy Fathers and ecclesiastical writers and later theorized by modern pedagogy's representatives, with religious concerns. Often these elements are found in what today we call principles and methods of education, of which we will refer to those we consider most relevant to approaches that support the environmental education.

2.1. The principle of intuition

The relationship between the two realities which the religious education reports to - mundane and transcendental - leads to the need for using the intuition, since the access to the world of divine grace is conditioned by concrete knowledge, sensory, which are the basis of the abstraction and generalization of notions, studied concepts (I. Bontas, 1995, pp. 114-115; S. Sebu, M. Opris, D. Opris, 2000).

Things and objects from the surrounding world affect directly our senses by abundance, variety, features, facilities and material and symbolic value, and because of them, the principle of intuition becomes one of prime importance in achieving the aims of religious education, aspect also identified in the biblical and patristic texts. Jesus Christ Himself expounded His divine teachings by both direct speech and in parables, which are images taken from the world "*and without a parable, He didn't speak anything*" (Matthew 13, 34). Since the true knowledge is based on reason and sensitivity, the Saviour showed that the need of intuition is related directly to the abstraction of teaching level (D. Opris, 2012, pp. 182-184).

In the Sermon on the Mount, the principle of intuition is often used; the mission will be accomplished by Apostles being likened to the salt of the earth, the light of the world, the torch - whose role is to light the way around. A text of great beauty is relating to the God's care of the man, face to face with the human spirit of worry who owned. Jesus Christ, intuitively, uses the specific aspects of life such as feeding the birds, beauty of lilies and of field to help people understand that the human value and the concern that the Creator gives him are perfect: "*Behold the fowls of the air: for they don't sow, neither do they reap, nor gather into barns; yet your heavenly Father feeds them. Are you not much more than they? [...] Consider the lilies of the field, how they grow; they don't toil, neither do they spin. And yet I say you that even Solomon in all his glory was not arrayed like one of these. Wherefore, if God so clothe the grass of the field, which today is and tomorrow is cast into the oven, will God not much more clothe you, of little faith?*" (Matthew 6, 26; 28-30).

Using of various aspects of nature as a support of the use of intuition is found in the writings of St. John Chrysostom. The Biblical metaphor of the tree in the path of the storm is used to highlight the role of the patience to acquire true faith: "*We need great patience, my dear, this virtue is formed and grows in us, when word of God planted its roots in our hearts, and, like the wind with all its violence and fury, can not uproot a tree that has roots deep in the earth, so no one can overthrow a soul that fears God bound tightly. For, to be nailed is much harder than being rooted*" (St. John Chrysostom, 1998, p. 263). In this text we find presented in a very

intuitive way the similarity of God's attachment and love with the way in which a body can be linked to one another or fixed by a nail.

J.A. Comenius uses intuition with a skill that shows not only strong anchor in daily life, but also the understanding of nature as a book by which God speaks to us and He may be known. To illustrate the importance of early education in shaping the human soul, he uses gradually three examples from nature: the wax modelling, the mobility of young trees and of the strings wooden: "*Soft wax leaves modelled and remodelled, while the reinforced one cracks very easily. The little tree allows gently be planting, cutting and bending up and down, but the strong tree doesn't allow. Who wants to twist a rope from a tree, has to take a green and fresh one, because the dried one doesn't allow being twisted*" (J. A. Comenius, 1970, p. 35).

For St. John Chrysostom, the care for the natural world is linked to the attention to the social environment, both founded on strong moral and religious education. In the advices offered to parents regarding how they can perform their duties related to spiritual training of their children, he resembles their soul with a fortress: "*Consider that you are a king who tapped a fortress: your child's soul; his soul is indeed a fortress. And as into a city some steal, and others are right, some work and others do everything anyway, so there are good thoughts and bad thoughts in a soul: some struggle against those who do wrong, that some soldiers in a city, some take care for all, body and home, that those administering the cities, while others give commands like dignitaries, some talk shamelessly as the dissipated people, other speak decently as the wise people*" (St. John Chrysostom, 2000, p. 109). The increased urbanization and the reduction of the students' interest to the nature activities in the favour of the virtual world brought by new technologies, will lead, in our opinion, to decrease the possibilities of using intuition starting from different aspects of nature, with an equal impact on the relationship between man and nature and on the social climate. Hence, the decisive role that Religious Education can play in helping young people to form a correct attitude towards the environment, based on revealed values.

2.2. The description

One of the most used methods in all sciences is the description, this consisting in the direct observation of external features, characteristics of objects, processes, events, places etc. (E. Voiculescu, D. Aldea, 2005, p. 92).

The using of this method in the Religious Education on issues related to the description of some aspects of nature is in direct relation with the specification and the knowledge of their characteristic aspects, as they appear in the Sciences: Biology, Geography, Ecology etc., which involves interdisciplinary approaches on different levels (M. Opris, 2004, pp. 114-127).

Even if the description of certain aspects of nature is not a concern in itself in Religious Education, the aim of this teaching action is one that prepares the explanation of some religious concepts, promoting their understanding. Jesus Christ presents in this way the image of God's kingdom: "*How shall we liken the kingdom of God or what parable shall we think? Like a grain of mustard seed which, when it is sown in the earth, is less than all the seeds that be in the earth; but, when it is sown, it grows up and becomes greater than all herbs, and its large branches may lodge the fowls of the air under the shadow*" (Mark 4, 31-32).

In the teaching of Religion, we can use this method in all classes. For example, to understand that the resurrected body of the man is deified, we can use the description of a caterpillar's metamorphosis which undergoes to the stage of butterfly: the caterpillar crawls on the ground, eats leaves, damages, but it becomes butterfly after a time when it is cocoon and it is flying in the sky, it feeds on pollen and has a beauty that delights our eyes.

To use the description of some aspects from nature means to go over the natural and material reality, being a step in the contemplation of the creation.

2.3. The direct observation of some aspects of religious reality

The Orthodox Faith knowledge has two ways in which God is made known to the people: natural revelation and supernatural revelation and the role of the divine grace in understanding the religious reality: "*There are certain realities which exceed our understanding; they are too great and unfathomable for the weaknesses and the limits of our minds. We can understand the meaning of these realities only through the endless grace of God*" (Origen, w.y., p. 19).

The direct observation of the religious reality is the method which utilizes the religious contemplation of the creation as a way of knowing God (S. Sebu, M. Opris, D. Opris, 2000). "*The true relation to God's creation is born by contemplation. Only then it can be born the experience of living contact with the world and in the same time with God, expressed in the Psalms of praise. In the Christian tradition, a cosmic spirituality is maintained, according to the types and locations (if not always with the same intensity), attested by a greater continuity of Orthodox tradition. After the teaching of the Holy Fathers, through the Cross of Lord, the new creation is glorious and transfigured and it receives the source of resurrection*" (Thecla Vetrali, 2007, pp. 122-123)

The opening of the students' sensitivity to approach the contemplation of creation is a very difficult fact, because, on the one hand, it involves high religious experiences and, on the other hand, it involves a complex and intellectual activity, employing representations, thinking, memory, voluntary, attention.

Starting from the idea that the creation is an open book that talks about her Creator, the use of direct observation of religious reality during teaching activity is justified in particular by its important role in strengthening the faith in God, who has created the world of love and has offered to the people the opportunity to enjoy by the light of His glory: "*God has ordained the man to come into the world, first as a viewer of so many wonders, and secondly as their own master, so that using them to realize Who is who gave them, and by the beauty and the majesty of all the sights to be guided to follow the unnamed and not described power which has made him*" (St. Gregory of Nyssa, 2004, p. 21).

2.4. The religious meditation

In religious plan, the meditation is a spiritual work by which the man has the opportunity to reflect deeply on religious issues in his attempt to strengthen the religious life, which brings inner peace and quiet. The moments of silence are chosen by each person, according to inner anxieties and aspirations. However, there may not be missing the reflection on some fundamental

problems of existence: to the Christian life, God's goodness showed repeatedly to people, the way in which we live the God's commandments.

The approach of confrontation with his own conscience by the religious meditation can lead to clarify some inner anxieties, to make spiritual the religious life and to know God. To achieve this goal, the school use of meditation as a method of religious knowledge of reality which can form religious and Christian attitude towards the environment, requires compliance with a set of conditions: the careful preparation, in relation to the level of students' knowledge and their spiritual age, making relevant links with different patristic and biblical models, the attempt to train the skill to observe the world, searching the answers to life's problems.

Classic, in his meditation on human destiny in the world, Prophet David exclaimed: "*When I consider the heavens, the work of your fingers, the moon and stars which you have founded them, I say: What is man, that you remember him? And the son of the man you visit him? For you have made him a little lower than the angels and you have crowned him with glory and honour. You made him to have dominion over the works of your hands; you have put all things under his feet. All sheep and oxen, all, and the beasts of the field, the fowl of the air and the fish of the sea pass through the paths of the seas. O, Lord, our God, how excellent is your name in all the earth*" (Psalm 8, 3-9).

The text quoted above, and other the religious literature available, may be used and linked to different religious events throughout the year such as Lent period, when students are invited to meditate on the Lord's Passion. St. Augustine offers another model of the religious meditation, in which students can better understand the relationship between the religious modelling and respect for world as a whole, redeemed by the Son of God: "*How much you loved us, O good Father, you who have not withheld your Son Yourself, but You gave Him to death for us, the sinners!* (Romans 8, 32) (…) *Behold, Lord, I give You my concern, to live. You know my weakness and ignorance. Teach me and heal me. Do not defy me those proud because I meditate on my ransom*" (St. Augustine, 1994, p. 327, 328) During the different stage of the lesson, students can be trained to form the skill of meditating on deeds committed on the day just passed, on different aspects more relevant to him and to the others, to the whole world.

Conclusions

Environmental education is a field which is approached increasingly by the professionals of education and the approach is justified by the many implications of this area in the formation of integral personality of children and young people, with a major impact on the society of tomorrow. The support that the Religious Education from school can bring to assure the success of environmental education is linked to the way in which it can help students to value the created world as a whole, based on the biblical message. In terms of teaching, the collaboration between school subjects covering different aspects of environmental education issues is required and more than possible, and in this context the Religion Education provides methodologically concrete ways to support students in the inner reflection on the value of life and of creation as a whole.

Bibliography

Bontas, John (1995), *Pedagogy*, Bucharest, ALL Publishing House.

Comenius, J.A. (1970), *Didactica Magna*, translate by Joseph Antohi, Bucharest, Didactic and Pedagogic Publishing House.

St. Augustine (1994), *Confessions*, translated by Nicholas Barbu, Bucharest, Biblical Institute and the Mission of the Romanian Orthodox Church Publishing House.

Ionescu, Miron (2003), *Training and Education Paradigms, Strategies, Guidelines, Models*, Cluj-Napoca, Garamond Publishing House.

Opris, Dorin (2012), *The Christian Dimensions of Modern Pedagogy*, Bucharest, Didactic and Pedagogic Publishing House.

Opris, Monica (2004), *The Interdisciplinary Organization of the Contents*, the "Education 21" coord. V. Kish, M. Bocos, C. Stan, I. Albulescu, published by the Centre for Research and Innovation in Curriculum, "Babes-Bolyai" Cluj-Napoca, No.1/2004, Science Books Publishing House.

Origen (w.y.), *About Prayer*, translated by Michael Vladimirescu, Bucharest, Herald Publishing House.

St. Gregory of Nyssa (1998), *On the Creation of Man*, in "Writings", Part II, trans. by Theodore Bodogae, PSB collection, 30 vols., Bucharest, Biblical Institute and the Mission of the Romanian Orthodox Church Publishing House.

St. John Chrysostom (1998), *Commenting on the Gospel of John*, trans. by George Babut, Oradea, Romanian Pilgrim Publishing House.

St. John Chrysostom (2000), *On the Education of Children*, in Mother Magdalene, "Tips for Orthodox education of children today", trans. by John I. Ica jr., Sibiu, Deisis Publishing House.

Sebu, Sebastian; Opris, Monica; Opris, Dorin (2000), *Teaching Religion*, Alba Iulia, Reîntregirea Publishing House.

Vetrali, Thecla (2007), *Una spiritualita' Della creazione in *** The Cosmos, between beautiful and apocalyptic. An ethical appeal on ecology*, Alba Iulia, Reîntregirea Publishing House.

Voiculescu, Elizabeth; Aldea, Delia (2005), *Handbook of Contemporary Pedagogy*, Part II, Cluj-Napoca, Risoprint Publishing House.

Promoting education for the environment through integrated and complex educational therapy with pupils suffering from sever mental deficiency

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PROMOTING EDUCATION FOR THE ENVIROMENT THROUGH INTEGRATED AND COMPLEX EDUCATIONAL THERAPY WITH PUPILS SUFFERING FROM SEVER MENTAL DEFICIENCY

Abstract

Owing to a sustained economic activity in the recent years the environment has suffered from the increasing rate of polluation. In addition to this there is a lack of education concerning the protection of the environment. Consequently this poper tries to promote education for the environment with pupils suffering from servere mental deficiencies throngh integrated and complex educational therapy. Through these activities that have been suggested as part of programme aiming at promoting the education for the environment we wish to make pupils conscions of the importance of the environment as well as to give reasons for keeping it clean and taking care of it. All this will increase the quality of their health and life on the whole.

Key words: education for environment, educational therapy, sever deficiencies, games.

Zusammenfassung

Wegen des intensiven Umfeld umgeben ulimii Jahres-Wachstumsrate Schulden litt seine Verschmutzung. Hinzu kommt die mangelnde Ausbildung in Bezug auf Umweltschutz aufgenommen. Deshalb Dieses Dokument soll die Umweltbildung unter den Studierenden mit schweren geistigen Behinderungen zu fördern durch umfassende und integrierte Bildungs-Therapie. Der Vorschlag für das Arbeitsprogramm der Umweltbildung ist es, Bewusstsein für die Umwelt sein und zu motivieren, Studenten zu halten, die Umwelt sauber und Behandlung all ihrer avieții Steigerung von Qualität und Gesundheit im Allgemeinen.

Schlüsselwörter: Umwelterziehung, Bildungs-Therapie, schwerwiegende Mängel, Spiele.

Promoting education for the environment through integrated and complex educational therapy with pupils suffering from sever mental deficiency

I. Introduction

In the context of a society permanently in progress and changing, in a full crisis of time and seized by everyday stress, people often forget about the importance of keeping the environment clean and unpolluted. It is a matter of education, whose task is that of calling on specialists and promoting, among pupils, the education for the environment taking as an example a clean and preserved environment.

In the recent years, the education for the environment and ecological activities have become very popular among extracurricular activities in different schools. In spite of that, the education for the environment does not have to be thought in terms of different activities of cleaning or preserving this one. It must become the real link between pupils and the environment These activities aim at teaching them love for a clean, preserved and unpolluted environment. The education for the environment deals with increasing love for nature in order to involve pupils in activities of preserving and taking care of the environment (such as cleaning parks, looking after the plants in their school garden or classroom, recycling plastic products, paper and glass) and to give them information about the consequences that a polluted environment could have on people`s health.

During the time within specialized books there have been presented and tested series of examples and theories that could really help to promote the education for the environment. The theory of behavioural planning is a cognitive theory that explains the forming of proper or risky behaviour by its three constituents: attitude towards a typical behavior, subjective standards, towards the behavior and perception of behavioural controlling (internal or external) (Băban, A . 2001, p.118). This theory is useful when the ecological habits and a positive attitude of the pupils towards the environment are built up. The theory of self-efficiency emphasized the individual`s

ability to summon up as to his conscious mental process and motivation for taking a suitable conduct (towards the environment in this case). This Theory represents an important part in the process of building up the pupils` motivation to show and take as well a suitable conduct towards the environment where they live.

In schools programs of preventing pollution and those for environmental education are essential in order to develop a positive attitude towards the environment. Prevention is focused on three constituent parts: primary (emphasized the decreasing risk of having a polluted environment), secondary (takes into account the decrease of risky factors as to environmental pollution) and tertiary (it is designed to increase the quality of life for people living in a polluted environment, following the lake of environmental education).

Considering the specific nature of pupils having sever mental deficiency it is necessary to draw up some educational courses according to the objectives of environmental education, this opposing the influence of primary instincts by which this sort of pupils are led in showing their attitude towards the environment. So much the more, these pupils need a chief reasons in the process of developing their ecological habits that will be required later when they are integrated into society. Integrated and complex educational therapy aims at stimulating pupils` real experiences by reinforcing their knowledge and habits acquired within the learning process, promotes the total approach of the pupil and a permanent evaluation of this one`s development in accordance with the five competences: mobility, language, setting up and developing communication, self-awareness and socio-emotional maturation (Vlad, M. 2007, p.7-8). Thus by its modules: work therapy, cognitive stimulation, ludotherapy (game therapy), developing self-awareness and socializing , this kind of therapy gives the possibility to promote the education for the environment among pupils suffering from severe deficiencies. By means of each module of this kind of therapy we can approach various subjects typical to environmental educational, offer information relating to the environment, developing attitudes, abilities and habits that will be practiced later. All these matters results in acquiring the necessary parts to promote the education for the environment as follows:

1. Developping the ability of observing and exploring the environment through the senses;
2. The ability of identifying plants, animals and what they are useful for;
3. The ability of understanding nature changes;
4. Practical skills and habits for everyday life;
5. Abilities for becoming familiar with the needs of the group and for team-work;
6. Civic and entrepreneurial habits and abilities . (Vlad, M. 2007).

II. The specific nature of pupils having severe mental deficiency

A short classification divides mental deficiency into: mental deficiency of the first degree, of the second degree and of the third degree. Severe mental deficiency joins to the second degree, the subjects having an IQ between 20/30 and 35/40. The pupils belonging to this disabled group acquire few abilities of communication in their early life, but later as adults, they will carry out a series of easy tasks being monitored. Thus, the deficiency in mental capacity keeps the disabled pupils from judging the limits, between taking a positive attitude towards the environment and a negative one. At the same time he is deprived of predicting the risks of taking an inadequate behaviour towards the environment, being unable to understand the importance of a preserved and clean environment and the bad consequences of a polluted one.

According to the objectives aimed by the integrated and complex educational therapy we wish to build up and practice the devices in making a decision by the severly disabled pupil by using his stored knowledge acquired habits and creating operative means of integration. Following those, the severly disabled pupils will be able to take a positive attitude towards the environment to be concerned with loving it and ready to look after it in order to keep it clean and unpolluted.

Besides the education for environment may be an opportunity for such a pupil to be integrated into society to put to work his abilities acquired during his school years and why not to practice a monitored job that could help him to support himself after finishing classes.

III. The presence of environmental education within integrated and complex educational therapy

The achievement of the objectives for environmental education will be done by proposing a planning of required matters to the pupils:

1. On the environment
2. The plant world
3. The animal world
4. Pollution (water, soil, air)
5. Nature friends
6. The little ecologists

These matters will be fitted to the personal peculiarities of each pupil while the teacher will determine relying on necessity the number of classes allotted to each matter. Once these matters and the time necessary for them to be debated are fixed , there will be identified the necessary methods and means to achieve the suggested objectives and drawn up strictly speaking, a planning of promoting the education for the environment to the disabled pupils. Concerning the methods to be used, there are suitable narration, role game, demonstration, teaching game and any other active method provided that it fits to personal peculiarities of the severe disabled pupils. As to the means to be used they have to be the more diverse as possible known by the pupils in order to set them to work and real (we use a shovel not its picture). After fixing all these, we will go on to draw up a programme for promoting the education for the environment with the mentally disabled pupils which will be carried on stages we will focus on building up developing the behavior in taking care of the environment. The pupils are given some ideas about the environment, the animal and plant world. They may learn some things concerning animals and plants, even to see them in their natural environment (this being possible through activities within the typical socializing module. Once the pupils will master these ideas, we will go on to make use of them so that they could name animals and plants link the animal to its environment or to its specific food as well as to look after plants in the classroom. In the second

stage of the programme the pupils are told about the good effects of a clean environment, the causes and consequences of pollution as well as ways of keeping the environment clean. These matters will be tackled in an active and interactive manner , without giving a lecture in order to observe the learning characteristics of the disabled pupils. They will be followed by practical activities . The third stage of the programme will give to the pupils the possibility to apply the knowledge on protecting the environment they have acquired. This kind of activity will take place in the open air and the pupils will be given clear orders as to the minimal rules for labour protection. In this stage of the programme the pupils will be encouraged to suggest solution for protecting the environment. All of them will be involved in ecological activities.

When planning an activity regardless of the stage of programme he is dealing with, the teacher will take into account:

1. *Learning task*. This will be drawn up in noticeable and measuring terms considering the personal peculiarities of the pupils. When drawing it up the teacher will have in view: who will achieve this task? what this one consists of? how will he achieve it? How successful will it be?

2. *Predicting pupils behaviour when applying the programme for promoting the education for the environment.*

3. *Analysing the learning task as part of an activity.* It consists in dividing task into several stages that the pupil has to learn in order to carry out the task.

After setting up this programme, there will be done an evaluation of it in order to take the real decisions and measures to improve the programme and of the impact it has on the severly disabled pupils.

Considering the same objectives and observing the same framework of the programme for promoting the education for the environment we will propose some other examples of activities being carried out with all the modules of integrated and complex educational therapy.

A. Promoting the education for the environment with the ludotherapy will be achieved by some sorts games.

1. *The pouch with surprises*: this game aims at identifying and naming some plants,

animals or the necessary objects for protecting the environment. The teacher will put , for instance some animals, into a pouch. Each pupil will stuff his hand into it without taking out the animal and name it. Then he will show it to his classmates and try to tell them many things as possible about it (where he lives, what he feeds itself on, what it is useful for, size, colour).

2. *The nature wheel*: each pupil will get a card on which there will be a picture of an animal or of its food. The pupils will join into pairs according to the link between the animal and its food (for instance hen-grain). Finally every pair will hold their hands and make the nature wheel.

3. *Where does it live?* The pupils will be placed in a circle. One of them having been chosen by the teacher will stay in the middle having a ball in his hand. He will throw it to one of his classmates and utter one of the following words: water, air, land. The pupil who will catch the ball will have to name an animal living in these environments (dog-land). Then that one will take the place of the pupil in the middle of the circle and throw the ball to another classmate.

4. *Save the water:* three pupils will hold their hands and imitate the flow of a river water. Two others will mime the fish swimming into it. Another two pupils will have on their chest some cards with pictures of some bottles, garbage, packaging, chemicals that pollute the water. Once these are in the river, they become ill, crouch and do not swim any more. Then another pair of children come and clear the river of rubbish. The fish recover and swim into the river (the pupils may change the role among them).

5. *Ecological relay race*: the pupils are divided into two groups, one behind the other. In front of each group there are two waste paper baskets two meters away. Bothe groups will get some packaging. Each pupil will take a piece of them and throw into the basket while running. The team that will put first all the pieces into it, will be the winner .

B. Promoting the education for the environment through the cognitive stimulation module will be achieved by:

1. *Protecting the nature competition*. The pupils are divided into two groups. The competition will consist three trials. In the first one the pupils will get a set of ten pictures. They will have to arrange them into two categories: ones illustrating the protection of the environment while the others its damage. The team that will finish first will be winner. In the next trial the

pupils will have to make up sentences by using a set of given words relating to the protection of the environment. The team that will finish first by doing it correctly will win. In the third trial they will have to list as many ways of protecting the environment as possible.

2. *Answer properly game*. It applies to each one. The pupils will have in front of them a panel with pictures illustrating the environment of some animals. Each of them will take a card picture of an animal from the small table next to the panel. The pupil will have to name it and point to where this one lives. Finally, he will make up a sentence about the animal or its environment.

3. *Answer and win.* It is a team game. The pupils will have to answer some questions about protecting the environment as well as its polluting agents. The team that gives the largest number of right answer will win (this game is suitable for the end of programme on promoting the education for the environment).

4. *That`s right, that`s wrong.* This is an activity of reinforcing knowedge concerning the environment the pupils have acquired. All of them will make up a panel with pictures on protecting the environment and its pollution.

C. Promoting the education for the environment through the socializing module will be achieved by:

1. *Ecological activities:* "My friend … the three". One day while walking into the park the pupils will be advised to chose a tree to look after and to make it his friend (they will be explained that this is not a real one but existing only in their mind and they will look after the tree as they do regarding their real friends).

2. *Going on a trip into the forest*. The pupils and the teacher will go together on a trip into the forest nor far from the town. The pupils are given the opportunity to look at the trees, to breathe fresh air. During the trip the teacher will tell them about the importance of green forests and the necessity of keeping them clean.

3. Within this module the pupils will take part together with their mates from others schools in contests and ecological activities.

D. Promoting the education for the environment through the Work therapy module

will be achieved by:

1. The pupils will be encouraged to take care of the plants in the classroom. They will water the flowers, will clear them of day leaves, will add earth and dust their leaves.
2. Besides, the pupils will carry out ecological activities in the school yard at times. They will gather some rubbish, will sweep the ground, will plant flowers, will clear and cover with lime the trees.
3. Drawing some pictures and posters on different matters: the education for the environment, its protection and pollution. Representing the environmental elements on a small scale.
4. Moreover each pupil will plant different seeds in a flower pot and look after his plant during the year.

E. Promoting the education for environment through the Developing self-awareness module will be achieved by:

1. Making some albums with pictures representing animals and plants.
2. Activities on noticing some polluting materials: plastic, waste, packaging, bags.
3. Reading texts about strange facts in the animal and plant world.
4. Doing experiments in order to prove the importance of water and soil for the living beings.

IV. Conclusions

The activities being carried out within the integrated and complex educational therapy help the teacher to promote the education for the environment among the severely disabled pupils. These ones will be able to learn as many information as possible concerning the environment, animal and plant lives, the importance of protecting nature its polluting agents as well as ways of preventing pollution of the environment. Besides, the practical activities being carried out within the work therapy and socializing modules will also play a part in developing self-awareness with these pupils. The successful outcome of these activities hangs on the pupils continued

involvement in carrying them out and pointing out constantly their practical aspect. The programme for promoting the education for the environment will certainly result in training the pupils having severe mental deficiency on both educational and personal levels.

Bibligoraphy

1. Băban, A. (2001), Consiliere educațională, Imprimeria Ardealul, Cluj-Napoca;
2. D'Hainault, L. (1981), Programe de învățământ şi educație permanentă- colecția Pedagogia secolului XX , Editura Didactică şi Pedagogică, Bucureşti;
3. Dinca, C. (2009), Şcoala verde-şcoala viitorului. Parteneriat în educația pentru mediu, vol I, Editura: Decesfera Media, Bucureşti;
4. Dumitru, C. (2003), Management şi Marketing Ecologic (O abordare strategică), Editura Tehnopress, Bucureşti;
5. Muşu, I., Taflan, A. (coord), (1997), Terapie educațională integrată, Editura: Pro Humanitate, Bucureşti;
6. Vlad, M. (coord), (2007), Terapie educațională complexă şi integrată, Editura: Spiru Haret, Iaşi.

Some concepts of environmental education and values

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SOME CONCEPTS OF ENVIRONMENTAL EDUCATION AND VALUES

Abstract

In this article, I will try to make the analysis and to exemplify educational as well as teaching theories of the specific and more difficult issues of scientific education concerning ecological aspects. I will point out similarities, differences as well as different positions in detail.

The role of schools would be to acknowledge the importance of studying environmental education. This is a process comprising several factors: political, social, economic. Moreover, school must implement this Environmental Awareness.

Key words: cooperation, quality instead of quantity, awareness,

Zusammenfassung

In diesem Artikel wir versuchen zu präsentieren eine Analyse zur die schwierige Frage zwischen Bildung und Lehr-Theorien in Bezug auf Ökologische Aspekte. Ich werde darauf hinweisen, Ähnlichkeiten, Unterschiede sowie unterschiedliche Positionen in Detail.

Die Rolle der Schule wäre es die Bedeutung des Studium der Umwelterziehung zu Bestätigen. Dies ist ein Prozess auf mehreren Faktoren: politisch, sozial und wirtschaftlich.

Darüber hinaus muss Schule implementieren diese Umweltbewusstsein.

Schlüsselworte: Bildung, Zusammenarbeit, Umweltbewusstsein, Studium, Ökologische Aspekte

Some concepts of environmental education and values

Introduction

In the period following the 2nd World War, in Europe, there have been set up a big number of universities. Therefore, we can notice not only a great number of universities but also a great number of students.

Between the years 1938-1939 a number of 56.000 women and men attended to the academic studies, which represent less than a half of the people studying at the Universities of Berlin or Munich, Cluj, Bucharest. In many European countries, more than half of young people are university graduates, and the number of female graduates is higher than of male graduates. A symposium was organized at Berlin on this topic with the participation of various university teaching staff. This symposium was aimed at making clearer the future of European universities as well as their future responsibilities and attributions. I decided to participate in the symposium as I was convinced that the issues of environmental education in the European Universities would become a hot topic for debates in the future.

I tried to exemplify this discourse in 7 theses.

First, I will try to outline environmental community, the changes that occurred in the course of time as well as the role of university. The other 2 theses refer to the essence of university. These 5 and 6 outline university modernization by means of the line of reasoning imposed by Humboldts, while the 7th thesis refers to own experience and opinions about this symposium.

Material and method

In Germany, starting from 1979, when KMK[1] has produced the policy document on environment and teaching, the preservation of the man - nature relationship became imperative. In this relation, man will be responsible for existential problems. Man should regard environment as something that is endangered by the man itself. These aspects will be outlined in ecology and criticized. The environment is exploited by human thinking because of its resources and will be regarded as an “array” of possible materials, which can be

[1] The Standing Conference of Ministers of Education and Cultural Affairs (KMK) is a joint coordinating body between Federal States in matters of education and culture (that are regulated by the Federal States). In the German implementation of the Bologna process it is the central body for national policy development.

exploited. Therefore, eco-pedagogy should regard this issue as a field of conflict of man against nature. It acknowledges the danger when nature will be regarded as an object to meet the needs of human survival (Frenz, 1997).

Therefore, the integration of these relations becomes essential.

As part of this ecological study, the relationship between man and nature will be explained from ecological perspectives.

The ecology must be understood as a complex science covering all the changing relationships between man and environment.

In the description of man – nature – environment relationship, we must start from the way each particular man understand nature. Thus, nature appears as a result of a process over years of human influences, that is the result of various historical processes. In the different aspects of life, new concepts on nature will be discovered, various perspectives in different periods.

This is why, many times, in special literature, the ecological study, the system in which the ideal on nature corresponds to several forms of alternative life, will be criticized.

If we consider this man – nature – environment relationship from the point of view of professional environmental education, it should be also analyzed from the aesthetic, symbolic point of view during a certain period of time. The more we find various points of reference in our own field (ego) the easier will be for us to establish the relationship between various components, specializations or environment.

Sustainability will be regarded, in scientific education, as a reflection point, as a flexible instrument in the environmental policy. A point of view will be this strong interdependence between nature, economy, and community. This is why the role of sustainability becomes here a decisive factor in explaining the man – nature – environment relationship.

A debate on general and professional education focuses on making clear the relationship between man and environment. Remarkable in this respect should be the exemplification of the model (A, B, C) of Nitschke:

A – Organization of professional work

Should we analyse the integrant relation, the various topics, issues, questions concerning the nature of environment in professional education - we shall see that environmental topics which not be seen as auxiliary to the educational process, but evident, as a prevailing component.

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From the point of view of socio-ecological study, we encountered a strict rejection of industrial structures. As professional training requires sometimes these structures, the person who makes the study will take into consideration a great number of requirements, which are necessary in the living system and to fight against them accordingly.

The central aim for the reform of professional environmental education will be that to discover and impose subjective elements in the work, which is required for environmental protection.

The three elements: reason, aesthetics and symbolization shall be those by means of which the man will put into motion the new trends in the field. Through work, man shall automatically make a material exchange with nature. Work will be regarded as an environment in which the three elements could be found on a regular basis. Therefore, profession becomes, more or less, a good or bad type of work organization - being regarded as an engine for stimulation of work.

This is why a control over this engine is very important in order to decide as far as specialization rhythm and direction are concerned.

As far as A-B-C according to Nitschke is concerned, the key for success will be the use of traditional methods, of protection of relationships between various specializations, problems, professions, or between man, organizations and environment. This is why the personality of each particular man becomes and holds a central role in educational system.

Therefore, sustainability becomes necessary in manifestation of current structures, especially those of professional training. Due to the certainty of division in Sustainability Development of living opportunities, the development model, the man – nature, economy – community interdependence, this whole system will be regarded as a reflection over professional specialization.

It will bring about the need to change certain aspects such as work, life, consumption, spare time and it will bring about adaptation, discoveries regarding the relevant environmental issues (Nitschke, 1998).

B – Scientific orientation

Should we refer to the discussion to understand community, in practical terms, in the educational system according to the criterion of Truth, the questions should be put as follows: what is the significance of science in making clear the ecological questions and which are the consequences of working together with these. The new orientation should point out that only by means of an exchange between economy and ecology, individual and general, what is

necessary and what is required to be used as a basic element of life – as guidelines of environmental education in schools!

As part of the position taken by educational science concerning environmental education we should notice that the differentiation between the causes and the measures taken in environmental issues plays a major role.

Bolscho's theories (1980) are remarkable in the special literature – it is shown here, on the first level, the need to create some life (living) spaces – the so-called ecological perspectives. Secondly, it is shown the possibility that results obtained from various disciplines be reunited. Thirdly, environmental education shall research which are the intentions and the results, which can define man's position in environment (past, present, future). This interdisciplinary relationship will be used together with sociological, naturalist knowledge.

On the other hand, we shall come across discussions outlining that environmental education needs globalization as a rational side of human kind, in finding a proper and real solution.

Finding common parts between various subjects should be relevant at the same time. Instead of trying an absolute domination, man will probably try, in a last giant experiment, a total domination of nature and future (according to Haan, 1984).

Building a (high qualified) profession becomes the basis of relevant environmental protections elements.

Ecological study, in opposition to environmental education, may bring about an integrant side – a decisive role in economy, technology and professional training – that can be achieved by means of a conscious policy in the field, in order to reach certain economic interests conscientiously!

This strict neutralization in ecological study should bring about the removal of dependency in all forms of life created in order to be responsible for our own state of health, to be able to build our home by ourselves, to be able to plant ourselves the necessary amount of green plants.

Within nature and with nature we should cooperate in a natural manner!

Therefore, in the educational system, the new orientation will focus on the description of scientific subjects and we will focus more on the practical side of life: man – nature, consumption, clothes, space, dwelling place … The new professional training will focus on the general and the basic elements as well as on their functioning.

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Both the ecological as well as the social study, the role of each individual shall become relevant for the changed occurred in industrial behaviour.

The main critics become also the main problem. It is not only about technical elements but also about the fact that natural life must also allow a natural study. If we accept that nature is the outcome of a long-term process of human interventions, this field must be carefully criticized.

In the subsequent cultural concepts of eco-pedagogy, we will notice that empirical studies will show that environmental risks depend on scientific (research) study. Men will be those who shall establish the contents, the mode of co-operation with science according to their cultural context.

Therefore, culture is not the idea of something immortal, eternal and general, but described as a phenomenon, within which certain groups of people impose their way of thinking, what they feel and their orientation in the field.

Economy could not take into account certain privileged situations or a position between past – future in which everything can be understood, everything can be explained.

The way in which the inner part of a culture can be understood, various aspects of science is: emotion, speculations, needs, time shall also play an important part.

Time becomes the point of reference in the cultural, eco-pedagogical side and the settlement of environmental issues.

As far as sustainability is concerned, it brings about new perspectives as compared to the traditional ones. The paradigm to create a long-term environmental education must comprise the following three starting points:

- environmental disturbances, natural disasters and hazards
- equity between the poor and the rich countries
- natural development, prosperity

Therefore, several basic concepts, basic sustainability -based guidelines could be expressed:

- constructivism in scientific orientation;
- analysis of proper tools
- establishing of all basic cultural and economic orientations
- inter-regional equity as cultural maxim
- individualization of cultural processes as trend;
- participation as trend (Nitschke, 1995).

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C – Possibilities in the field of environment

Here we should analyse what are the existing possibilities in environmental organization, from a theoretical perspective at the least. For environmental education we will find teaching modes in the completely educational system.

Economic growth and the development of techniques as well as a great differentiation of scientific system will not be taken into consideration.

Economy and technology should be regarded as a supplementation of an ecological crisis for the proper use of nature.

Similarly, in the case of integrant side of educational profession, this process will be regarded as a supplementation in order to be able to react to the existentialist questions of man as far as environmental issues are concerned

From the structural point of view, no change will be required, yet it should be used proper professional training (Ausbildung).

As part of environmental education – as an integrant aspect – there will be little possibilities to react against the ecological side.

The development of community in economy, science, technology as well as the institutionalization of education will be just accepted "external frameworks" in order to establish this system and supplement this curriculum.

In this respect, we could talk about a real catalogue of studies between teaching staff and students. Some teaching methods will become principles in this respect, to which the following should be added: a clear orientation of negotiations, sorting of experiences, creation of a network of connections….

The bases of educational organization should remain stable, unchanged.

In the desire to bring about a change in the field and obtain a success requiring that element of participation! – but also the possibility to take part in these changes. Some concepts such as "autonomous study" shall remain further unchanged in the special literature.

Man is not only a recipient of that something from exterior, but it is more about internal contents of the mode of cooperation, collaboration with nature in a given cultural context. Therefore, the behaviour of each individual becomes very important, of the way in which it is accomplished, of the way in which the individual behaves conscientiously on environmental issues.

As part of environmental professional education, besides the basic principles such as: orientation, negotiations, experiences, orientation of the people concerned, as well as the

creation of relations – the principle of getting own person involved in the debate of a natural conflict will also be required, for instance, fight against, cooperation.

The contact with own environment will become very important. This principle should not act solitarily but in cooperation with other principles.

The possibility to study, to learn through the method of Edu – Kinesiology, that is by means of an internal image in the form of some views of the image of own profession shall bring about a success in the field, it may bring about a balance of needs (internal image) with the external one by means of which study potential will remain strongly motivated.

According to Nitschke, there will be two bivalent sides: on the one hand, traditional line in environmental education is preserved; on the other hand, new, open, discursive methods are proposed which no longer focus on internal, professional structures (Nitschke, 1991).

On the other hand, in the polarization of the pedagogical system by Heiden (1992), we shall notice that we cannot assert that certain direction, a certain purpose is correct or not as a model.

Therefore, those who are interested should participate themselves in discourses, to involve themselves politically in order to be able to take ecological decisions and thus obtain, in practice, a recognition from the part of community.

Individualization and participation become, in practice, necessary items for the general teaching methods of educational system.

Values are conceptualized as guiding principles important in a person's life. Similar values are referred to as value types. Value orientations are defined as clusters of compatible values or value types. For example, the value type’s benevolence and social justice are related to social-altruistic value orientation while the value types achievement and power are associated to a pro-self, egoistic value orientation.

The development of values is primarily a socialization process (UNESCO, 1987). The influence of society upon the individual determines the proliferation of values. Thus, it is not surprising that the modes of life deemed desirable by individuals are the modes of life approved in the culture to which they belong.

An individual's socialization has a strong influence on how his or hers values form, being derived from experiences at home, school, religion and others. Society does not, however, imbue each of us with identical values. We are all individuals and each of our personal experiences is unique. Values are dynamic through life. Social support is a crucial determiner of a person's commitment to values and modes of conduct.

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Abraham Maslow (1964) identifies the human bent towards a preference for "grown-values" and behaviors – those that help us to become the best that we are capable at becoming. Depending upon whether their most basic needs are met, people will move up the hierarchy of growth values, from physiological to safety needs – then seeking love, esteem, and self-actualization. People tend toward a self-actualization, making full use of their own talents, potentials and capabilities (Heid, 1999).

Maslow's ideas are crucial in considering values education and he points out that it is the task of education to ally them to being conductive to individual growth.

Results

- *Universities are wonderful examples* of an urbanization process and reality, which resemble an open process and the desire to preserve it, on a long-term. They provide in Europe a community mirror. The expansion of university study cannot be prevented.

Universities appear where cultural, political and community's problems as well as the whole complex issue of knowledge and practice can no longer be controlled and which require a scientific solution.

Just one example – the problem of transports, we could notice the diversity and complexity of methods, relations which go beyond boundaries and which shall bring about the communication as well as getting acquainted with several problems. Gradually, various Cities should come together for this purpose (political, economic, and cultural) and shall bring about a number of cultural and family standards. Political, economic, structural, regional, family, elements of differentiation between East and West will be added to these. …

All these problems, questions, critics should bring about the need for specialists which should be well trained both theoretically and practically. Therefore, the teaching staff in 1200 different cities developed cooperation relations intended to certify a certain university study and their study certificates should be recognized all over Europe.

Opening the negotiations, broadening of experience horizon intensified both historically, physically and biologically but it also went deeper.

The "literacy" as well as "money" item, which, in the middle Ages, were mainly owned only by wealthy people, becomes gradually a social and a generally valid need.

The process of urbanization in the whole world shall extend into Europe the issue of ecological and cultural differentiation from town to village. Rationality, communication,

information, techniques shall determine the basic modern community elements. Being opened to other cultural forms shall become a hot issue in the coming future. And this is how I get to -*Europe needs education*, as the greatest part of the community, to participate in scientific knowledge not only for its use as a profession but also for a better understanding of scientific world".

Until the 2nd World War we could encounter specializations in agriculture, industry, trade …Currently, modern community requires more (e.g. master's degree).

Therefore, after 1950 the number of universities has greatly increased. It means that the spectrum of theoretical knowledge of some problems has increased, specialists are born, teaching staff is provided support for their research, and they further acquire the status of "universities".

The expansion of universities after the second World War should bring about not only the increase in the number of study offers but also of places of study.

Some of them have immediately become universities, other have started as vocational, technical and poly-technical schools providing with a higher level of knowledge.

E.g., see Turkey after 1982, Great Britain, 1992 …

- *Research-type education* shall have not only the role to bring light over these unknown and unfamiliar aspects (through research), but also to allow making a decision for the public interest. This shall depend on the personal education of every individual, on relations, situations, consequences which make a research a useful one (Sinn) and which will increase the degree of responsibility for mankind and environment").

This thesis is a real synthesis of this article!

I would like to bring into light these aspects through my own experienced feelings.

I acquired the basic element of an Environmental Education from parents. To throw away a piece of bread was regarded as a sin in my family. Waste (such as paper, plastic) was to be reused.

Packages of various objects were used for other purposes. Then the compost (household waste) elements will be separated from those of a different nature. Even the words used, I was not allow to make them "dirty", to use dirty words.

This type of Environmental Education is to be found and is clearly mirrored in Germany!

The fact that water, light, heat could not be maintained and surveyed without the help of man is now a certain fact. This is why, the fact that environmental education must start from family shall not be regarded as a naïve attitude and it shall be the basis for a future trade!

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Environmental Education is, first of all, a Social Duty which, by and through the family or by playing (which, at the beginning, has nothing to do with school, study, research – turns subsequently into a serious thing!

Conclusions

This is what we should do with Environmental Education too!

From this example, the following 5 necessary elements can be distinguished for a successful environmental education.

1- uncertainty, anxiety of the people who are directly involved become a critical issue.

2- research (which has not been yet acknowledged in public) will be regarded as a problem

3- the ethos of the members of the teaching staff will be important, that is the way they will convey and impose this respective knowledge;

4- the ethos of the members of the teaching staff – the way they get and pass on knowledge and inform on facts;

5-the quintessence of study: to help students acquire knowledge and negotiate in a correct manner, based on this knowledge, and thus become responsible towards people, getting also citizens involved in this process.

The representatives of environmental education argue the need of conscious, responsible cooperation with nature in the relation man – nature-environment.

Special literature mentions a case of a case of constellation of debates.

The purpose to make the environment become compatible with human world will be not described here.

This idea of an “enclosed autonomy” must disappear, environmental education must be reformed and the starting point will be not a certain professional work but the man itself within his possibilities to cooperate with nature and, at the same time, man’s needs and desires as against what is strictly in a professional environment.

It is here where sustainability occurs. Besides the traditional form allowing the observation of the “endangered” environment, a number of supplementations are required in the field. For instance the way to understand the problems in a given period of time, by a certain group, organizations, individuals – which depend most of times on emotional state, speculations.

This is why Haan’s view (1987) on environmental education in the field (even though we do not possess much knowledge) is more important than prevarication with no perspectives at all

of some trials of this “unawareness”. To discuss, to debate, this is the key-element! Each individual must be given equal chances in order to overcome these differences between poor, rich (in various countries) in imposing certain priorities concerning natural disasters, hazards and damages.

The key for development in economy must consist of the following: man must provide himself with an environment, which could allow him to develop in a healthy manner to the extent to which man needs it. Economic, ecologic negotiations must be created in this respect in pedagogy; sustainability itself will contain critics concerning the reflection of the relation between man and education. To study, to learn ecologically should bring about the political organization, within its own environment, be tightly connected to the purpose to the goal, proposed where participation, as a rule, should be developed and necessary changes be imposed.

In eco-pedagogy, it was decided that the functioning between education and learning for political work should be argued on an individual basis. Differences between negotiations will be pointed out here.

People should not be regarded as simple recipients of something external but also of the way to behave with knowledge and science in the cultural context.

References

1. Frenz, Martin, (1997), *Globales und ganzheitliches Denken als immanenter Bestandteil beruflicher Umweltbildung – Konsequenzen für die didaktisch-methodische Gestaltung von Umweltbildung an berufsbildenden Schulen im gewerblich-technischen Bereich*. In: Bernard, Franz; Bauer, Hans (Hg.): Kooperatives Lernen in der Berufsschule, Metalltechnik, Elektrotechnik und Bautechnik. Frankfurt am Main u. a. p. 182 – 264
2. Hann, Gerhard, (1987), *Erziehung am Ausgang der Industriegesellschaft,* In: Becker, Egon;
3. Ruppert, Wolfgang (Hg.), (1987), Ökologische Päadagogik – Pädagogische Ökologie. Frankfurt
4. Heid, Helmut, (1999), *Theorien der Berufsbildung,* In: Kaiser, Franz-Josef; Pätzold, Günter (Hg.): Wörterbuch Berufs- und Wirtschaftspädagogik. Bad Heilbrunn, Hamburg: 1999, p. 371 – 373
5. Nitschke, Christoph, (1991), *Berufliche Umweltbildung – Umweltgerechte Berufspraxis,* Grundlagen einer theoretischen Konzeption. Berlin, Bonn.

6. Nitschke, Christoph, Anfreunden, Bewegen, (1998), *Collagen schaffen – das neue (und alte) ABC der beruflichen Bildung,* In: Die berufsbildende Schule. 50:4 (117 – 121).
7. Nitschke, Christoph (1995), *Berufliche Umweltbildung – wo steckst Du? Überblicke, Einblicke und Ausblicke auf Grundlage einer Untersuchung in 28 Institutionen*; Endbericht des Forschungsvorhabens „Berufliche Umweltbildung als Erfolgsfaktor für betrieblichen Umweltschutz“. Bielefeld.
8. UNESCO-UNEP (Hg.), (1987), UNESCO-UNEP Congress Moskau, *International strategy for Action in the field of Environmental Education and Training for the 90´s*, Paris.

Environmental education and Eco-pedagogy

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ENVIRONMENTAL EDUCATION AND ECO-PEDAGOGY

Abstract

One of the new components of the education is the environmental education, a new education which is seen as an act of diversion by human society today, a more rational use of the natural resources for a smooth coordination of the scientific data's to establish more lasting bonds between science and education, so that human needs to be adequately satisfied without causing disruptions.
Always, from its first beginning, man was formed and developed along with nature. Along the road of its development, the man interrelated with the natural environment enjoying his generosity, but also intervened more or less consciously in its balance, the changes that influence and determine the environmental disasters and changing the Earth totally.

Key words: Environmental education, interdisciplinary education, respect, involvement.

Zusammenfassung

Die Frage nach dem Verhältnis des Mensch zur Natur ist eine der elementarsten Fragen des menschlichen Seins.
Niemand kennt heute einen wirklichen Ausweg aus den fundamentalen Umweltproblemen. Auf jeden Fall sollte man vor historische Sündenböcken, nach verpassten Alternativen und intakten Vorbildern in der Vergangenheit hüten. Ein wesentlicher Schritt in Richtung auf eine Erklärung des aktuellen Umweltproblems liegt dagegen in der Erkenntnis, wann und durch welche Prozesse genau die Schwelle überschritten ist, jenseits deren das gesamte System Umwelt-Mensch- Beziehung in Richtung auf einen Gleichgewichtpunkt zu kippen beginnt.
Wenn wir über das Verhältnis zur Natur in Beziehung zur Pädagogik setzen, dann, man muss sich erinnern was in der Pädagogik „Bildung" heißt. Eco-Pädagogik ist nicht anders als nachdenken über den Umgang mit der Natur.

Schlüsselworte: Umwelterziehung, Respekt, Natur, Eco-Pädagogik

Environmental education and Eco-pedagogy

Introduction

Environment – as a subject of environmental education, includes not only the nature but also the society, culture, economy and policy, environmental education is therefore related to the ecological education.

In delivering environmental education, we have to respect the following principles:

- Addressing the environment in its totality: natural and artificial, technological and social, economic and political, cultural and historical.
- Considering environmental education as a continuous process, beginning at preschool and continuing through all formal and non-formal stages;
- Exploration of the major environmental problems from local perspective, regional, national and international, so that students to know the environmental factors also from other geographical regions;
- Focus on current and potential environmental problems, taking into account their trend in history;
- Promoting values and local needs, national and international to prevent and resolve environmental problems;
- To discover symptoms and real causes of environmental problems;
- Promoting cooperative learning.

Material and method

The eco-pedagogy is an outgrowth of developments in critical pedagogy. In order to understand the educational ideas which eco-pedagogy presents, one must first discuss and introduce the critical pedagogy approach.

With roots in Marxist and neo-Marxist critical theory, critical pedagogy represents a transformational educational response to institutional and ideological domination, especially under capitalism. Burbules and Berk (1999) define critical pedagogy as "an effort to work within educational institutions and other media to raise questions about inequalities of power, about the false myths of opportunity and merit for many students, and about the way belief

systems become internalized to the point where individuals and groups abandon the very aspiration to question or change their lot in life".

The leaders of the movement, including Freire, Giroux and McLaren, insist that education is always political and that educators and students should become ***'transformative intellectuals***, ***'cultural workers***' (Freire, 1998) capable of identifying and redressing the injustices, inequalities and myths of an often oppressive world. In fact, the works of Paulo Freire, a Brazilian teacher, who was arguably the most celebrated critical educator, heavily influenced critical pedagogy. According to his writing, Freire deeply endorses ability to think critically about the educational situation; this way of thinking allows educators to "recognize connections between their individual problems and experiences and social contexts in which they are embedded" (Freire, 1998). Realizing one's consciousness ('consientization') is a needed first step of 'praxis', which is defined as the power know how to take action against oppression, while stressing the importance of liberating education.

"Praxis involves engaging in a cycle of theory, application, evaluation, reflection and then back to theory. Social transformation is the product of praxis at the collective level"(Freire, 1998). For Freire, critical pedagogy begins with recognizing that human beings, and learners, exist in a cultural context:" People as beings 'in a situation', find themselves rooted in temporal-spatial conditions which mark them and which they mark. They will tend to reflect on their own 'situationality' to the extent they are challenged by it to act upon it. Human beings ***are*** because they are in a situation, and they will not only critically reflect upon their existence, but critically act upon it" (Freire, 1995).

This passage taken from Freire's book "Pedagogy of The Oppressed" demonstrates the importance of space, or place to critical pedagogy's origins. Being in a situation has a spatial, geographical, contextual dimension.

Reflecting on one's situation corresponds to reflecting on the space(s) one inhabits. Acting on one's situation often relates to changing one's relationship to a place.

The purpose of critical pedagogy is to engage learners in the act Freire calls 'conscientizacao' which has been defined as "learning to perceive social, political and economic contradictions and to take action against the oppressive elements of reality"(Freire, 1995). Fassbinder (2009) claims that Freirean Pedagogy offers several advantages to the teacher of environmental stewardship:

1. It suggests the ***possibility of social changes***, as Freire said before his death" the future does not make us; we make ourselves in the struggle to make it" (Freire, 2004). Thus,

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Freirean Pedagogy offers an open-ended model in which the Freirean teacher can argue that learning is not merely something we do to get a better job, but something we can do to assert our rights within society and to participate in the trajectory of history (which is not preordained).

2. It suggests a ***dialogic approach*** to the exercise of teaching, in which, as Freire said "it is not our role to speak to the people about our view of the world, not to attempt to impose that view on them, but rather to dialogue with the people about their views and ours"(Freire, 1995). Freirean Pedagogy therefore seeks to find the language of the people in topics such as environmental crisis, and thus learn to talk with people in their own language, rather than in the scientific language of the specialists.

3. Freirean Pedagogy consciously sets to place the teacher as a "teacher-student" and the students as a" student-teacher", ***making the classroom situation into a co-investigation of reality***. Just as teachers must understand the student body ethnographically, as conditioned by capitalist discipline but open to ecological discipline, thus also the students have the privileged position of being able to show what "saving the earth" means to them.

4. Freirearn Pedagogy ***emphasize both action and reflection*** thus both students and teacher can be led to focus upon what sort of action will be efficacious in bringing about a sustainable world society.

The Freirean Pedagogy is meant to underscore one major point: the ecological crisis is fundamentally a social crisis, a crisis stemming from work and from labor discipline and so teachers focusing upon it will have to teach about society as it is, not as it should be.

In his book Kincheloe (2008) explains the central dynamics of critical pedagogy:" advocates of critical pedagogy are aware that every minute of every hour, that teachers teach, they are forced with complex decisions concerning justice, democracy, and competing ethical claims."

Kincheloe (2008) lists the basic concerns of critical pedagogy:

- All education is inherently political and all pedagogy must be aware of that condition.
- A social and educational vision of justice and equality should ground all education.
- Issue of race, class, gender, sexuality, religion, and physical ability are all-important domains of oppression and critical anti-hegemonic action.
- The alleviation of oppression and human suffering is a key dimension of educational purpose.

- Schools must not hurt students – good schools do not blame students for their failure or strip students of the knowledge's they bring to the classroom.
- All positions including critical pedagogy itself must be problematized and questioned.
- The professionalism of teachers must be respected and part of the role of any educator involves becoming a scholar and a researcher.
- Education must both promote emancipatory change and the cultivation of the intellect –these goals should never be in conflict, they should be synergetic.
- The politics of knowledge and issues of epistemology are central to understanding the way power operates in educational institutions to perpetuate privilege and to subjugate the marginalized – "validated" scientific knowledge can often be used as a basis of oppression as it is produced without an appreciation of how dominant power and culture shape it.
- Education often reflects the interests and needs of new modes of colonialism and empire. Such dynamics must be exposed, understood, and acted upon as part of critical transformative praxis.

The task of accomplishing the above goals falls to a particular role-player, the 'committed intellectual'. McLaren (2005) expresses the role of the teacher as the 'committed intellectual' – someone for whom the end of all forms of exploitations is the focal point of her or his commitment to transform the world. The teacher is seen as an intellectual activist changing the world through the dissemination of knowledge. This notion of the teacher-activist, whose function is that of being a change agent, is meant to thrive in an environment, which needs help from activists.

Fritjof Capra (1997) suggests a definition to the term 'eco-literacy':" The great challenge of our time is to build and nurture sustainable communities - communities that are designed in such a way that their ways of life, businesses, economies, physical structures, and technologies do not interfere with nature's inherent ability to sustain life. The first step in this endeavor is to understand the principals of organization that ecosystems have developed to sustain the web of life. This understanding is what we call ecological literacy. Teaching this ecological knowledge – which may be called 'principles of ecology,' 'principles of sustainability," principles of community,' or even the' basic facts of life' will be the most important role of education in the next century".

Capra's definition wishes to answer to three major questions regarding ecological literacy: why? what? and how? (Capra, 1997).

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Why? – Context: Presently humanity's ecological footprint exceeds its regenerative capacity by 30%. This global overshoot is growing and ecosystems are being run down as wastes (including greenhouse gases) accumulate in the air, land, and water. Climate change, resource depletion, pollution, loss of biodiversity, and other systemic environmental problems threaten to destroy the natural support systems on which we depend.

What? – Systems, Networks, and Values: Problems cannot be understood in isolation but must be seen as interconnected and interdependent. We must learn to engage with complexity and think in terms of systems to address current ecological, social, and economic problems. Images can be useful tools to help with the learning process.

How? – Transformational Learning: The value-action gap (presented in sec. 2.2) permeates education for sustainability and is obvious in environmental coverage in the media. The gap between our ideas about what we value and what we are actually doing to address the problem is the notorious value-action gap. Transformative learning enables to move from values to action. This approach is integrated into cycles of action research, and practice based design work (Capra, 2008).

Transformative learning is a process of becoming critically aware of one's assumptions and then reworking the very basis of our belief systems, often to address a complex web of issues, or even an epistemological problem from a radically fresh perspective – and then to put this new perceptive into practice.

Transformative education also engages learners in constructing their learning process and is participative. Sustainability issues are deeply challenging problems and only by engaging with complexity can systemic problems be understood. Sterling (2003) explains that 'transformation learning' changes whom we are by changing our ability to participate, to belong, and to negotiate meaning.

According to Sterling (2003), the transformational learning is composed of three elements: values, knowledge, and skills. These correlate to three dimensions:

- ***Seeing (perception)*** - An expanded ethical sensibility or consciousness.
- ***Knowing (Conception)*** - A critical understanding of pattern, consequence and connectivity.

Doing (Action) - The ability to design and act relationally, integrative and wisely.

Conclusions

Obstacles in relation to a specific programme are always context dependant. However some common obstacles and barriers can be noted:

1. *Insufficient financial support* – the management of whole school based school has to lobby for support on an ongoing basis. These efforts consume much management time and prevent the schools from doing work that is more constructive. Research reveals that socio-economic class may facilitate or inhibit sustainability education efforts, because more funding facilitates greening of facilities (e.g. serving organic food, supporting clubs and field trips).

2. *Bureaucracy* – following EE programmes often means filling in many forms and doing a great deal of writing. This may cause some schools to lose their motivation and abandon programme.

3. *Teacher's training – a shift in the teacher's role* – adopting a whole school approach to teaching and learning is viewed by many as simply impractical given current constraints on teacher's time within already overcrowded curricula.

ESD continues to be conceptualized by many practitioners as an add-on, rather than a holistic change in teaching and learning practices. To obtain support from school administrators, governments and teachers alike, it is necessary to highlight the importance of curricula integration, rather than the creation of new courses.

A variety of teaching methods other than lectures should be introduced to construct teacher's EE capability. In addition, eco-environmental training should encourage teachers to become EE researchers. Carrying out research may promote teacher's interest in finding and solving EE problems.

4. *Difficulties in creating a meaningful participation* - obstacles in this perspective are connected to the participant's interpretation of the core issues in the whole school approach – developing the student's democratic decision making competencies may become an obstacle if teachers are pushing students towards predetermined environmentally friendly individual behavior given by them or others and not taking the student's ideas and suggestions seriously.

Chawla (2002) summarized some of the challenges that limit young people's involvement in authentic planning processes: time constraints, a poor understanding of child's capabilities, a belief that adult can adequately represent the perspective of children, a belief that children are unskilled and unreliable, a lack of understanding as how to facilitate participation and a fear of politicizing children.

5. *Getting the entire educational community involved* – whole school approach requires the involvement of the whole school community. Getting the entire educational community

involvement is not an easy task. EE is often seen as a lower priority or soft option in the total curriculum and something forgotten when mentioning major priorities.

Approval by all the staff is seldom a condition for enrolling a programme – which in many cases means that the project may become a responsibility of a smaller group. This can cause a refusal by the rest of teacher's staff to participate in the programme. The diversion of a school's programme from its normal function and the involvement of students in activities other than the traditional "subjects" of the curriculum, frequently create discord and arguments coming from educators and parents. Some of the promoted changes may also cause negative reaction of residents in the neighborhood or municipality.

References

1. Burbules, N., & Berk, R., (1999), *Critical thinking and critical pedagogy: relations, differences, and limits,* In:T. Popkewitz & L. Fendler (Eds.), Critical Theories in Education. NY: Routledge, p. 35.
2. Capra, F., (1997), The Web of life, Harper Collins.
3. Capra, F., (2008), The New Facts of Life, speech of Fritjof Capra delivered at a professional development institute, "Linking Food, Health, and the Environment," hosted by the Center for Ecoliteracy and Teachers College Columbia University in the summer of 2008. http://www.ecoliteracy.org/essays/new-facts-life
4. Chawla, L., (2002), *Toward better cities for children and youth*, In: L. Chawla (Ed.), Growing Up in an Urbanized World. London: UNESCO/Earthscan, p.15-34.
5. Freire, P., (1995), *Pedagogy of the Oppressed*, New York.
6. Freire, P., (1998), *Teachers as Cultural Workers*, Boulder CO: Westview Press, p. 48-53.
7. Freire, P., (2004), *Pedagogy of Indignation*, Boulder CO: Paradigm.
8. Kincheloe, J., (2008), Critical Pedagogy, 2nd Ed. NY: Peter Lang.
9. McLaren, P., (2005), Capitalists and Conquerors, Lanham MD: Rowman & Littlefield.
10. Sterling, S., (2003), *Whole Systems Thinking as a Basis for Paradigms Change in Education*, A thesis submitted for the degree of Doctor of Philosophy, University of Bath.
11. Stern, P.C., (2000), *New environmental theories: Toward a coherent theory of environmentally significant behavior*, Journal of Social Issues, 56(3), 407-424.

Environmental education in the context of the Romanian education reform

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Author note

The teaching and research activities carried out currently as a Lecturer Ph.D., on the major field of education sciences, materialized in teaching / evaluation educational actions (for the initial training of the future teachers), preparation of training materials (courses, guides, etc.), but also in designing and implementing research / development / training projects (especially sighting the continuous training, the primary and secondary education teachers' improvement), and in carrying out researches on topics directly related to certain issues of school education, and also in a scientific contribution materialized in a series of articles, studies published in famous national and international journals, are especially focused on the following *areas of interest*: *General Pedagogy, School Counselling, Curriculum Theory, Pedagogy of Extracurricular Activities, Classroom Management, Educational Communication, Educational Policies, Theory and Practice of Evaluation.*

Abstract:

Environmental education is not just a form of education, a tool for solving environmental problems or for managing natural resources. It is a process of an essential dimension in recognizing the environmental values and in defining the environmental concepts, aimed at improving the quality of life. This type of education aims at inducing, especially within the educational institutions, social dynamics of education (knowledge, skills, motivations, values), which to stimulate personal development, collaborative and critical approach, but also the assumption of responsibilities for the decisions taken for maintaining the environmental quality. Environmental education sets its sights on the formation and development of problem-solving capabilities triggered with the social-scale application of the industrial and post-industrial technologies, which have recorded many negative effects in the nature and in the human existence.

Among the directions envisaged in the Romanian education reform, the curricular reform is an essential segment, which is now a distinct theme in the sciences of education. The new approach to National Curriculum has generated a different type of curriculum culture characterized by inter and trans-disciplinary approach to school curriculum. An integrated approach to the curriculum, as an alternative or complementary method of the disciplinary curriculum, is a constant of the recent curricular policies. Environmental education's integration into school curriculum can be achieved by the following four steps of designing the training content: the infusional approach, the modular approach, the disciplinary approach, the trans-disciplinary approach. It is estimated that *environmental education* can not be integrated in a single area of knowledge, but for being a complex process requires the involvement of specialists and researchers from different fields, namely an interdisciplinary approach.

Key words: environmental education, Romanian education reform, the curricular reform, an integrated approach to the curriculum

Zusammenfassung:

Die umweltfreundliche Bildung ist nicht nur eine Art von Bildung, ein Instrument zur Lösung der Umweltprobleme oder der Verwaltung der natürlichen Ressourcen. Es ist ein Prozess von wesentlicher Dimension in Erkennung der Werte und Definierung der Konzepte betreffend die Umwelt und hat als Ziel die Verbesserung der Lebensqualität. Diese Art von Bildung verfolgt eine Induktion, ins Besondere in das Schulsystem, der sozialen Dynamik betreffend die Bildung (Kenntnisse, Fähigkeiten, Motivation, Werte) durch Stimulierung der persönlichen Bildung, den zusammenwirkenden und kritischen Ansatz, aber auch die Verantwortungsübernahme für die schon getroffenen Entscheidungen für Erhalt der Umwelt. Die umweltfreundliche Bildung verfolgt die Erfassung und Ausbildung der Fähigkeiten zur Problemlösung, ausgelöst durch Verwendung der industriellen und nachindustriellen Technologien auf sozialer Ebene, die zahlreiche negative Effekte im Bereich Natur und menschliches Dasein erzielt haben. Zwischen den betrachteten Wegen der rumänischen Bildungsreform, beträgt der Lehrplan ein zentrales Hauptsegment, der sich jetzt als eine distinktive Thematik in Bildungswissenschaft gründet. Die neue Vorgehensweise des Nationalen Lehrplans hat einen anderen Typ von Lehrplan generiert, charakterisiert durch interdisziplinäre und transdisziplinäre Vorgehensweise. Die integrierte Vorgehensweise des Lehrplans, als Alternative oder komplementäre Methode ist heutzutage eine Konstante der Bildungspolitik der letzten Jahrzehnte. Die Integrierung der umweltfreundlicher Bildung in den Lehrplan kann man durch folgende vier Projizierungen der Lehrinhaltes erreichen: Infusionsschritt, Modularschritt, Fachschritt und trans-disziplinarischer Schritt. Man geht davon aus, dass die umweltfreundliche Bildung in ein einziges Wissensareal nicht integriert werden kann, da es ein komplexes Prozess darstellt und benötigt die Verwicklung der Fachleute und Forscher aus verschiedenen Fachbereichen, nämlich eine Interdisziplinäre Untersuchung.

Schlagwörter: Umweltfreundliche Bildung, Reform des rumänischen Bildungswesens, Lehrplanreform; integrierter Ansatz der Inhalte.

Environmental education in the context of the Romanian education reform

Priorities of the Romanian education reform

The evolution and development of society, of the contemporary world, depends on the way in which the educational system meets the socio-economic requirements, through their transformation into educational approaches, and the extent to which it produces competences and develops human resources, both from the perspective of professional formation and the perspective of the development of creative, self-formative abilities which will allow the integration and continuous adaptation of the labour force to the scientific and technological evolution.

The conditions of the contemporary society, characterized by fast development of science and technology which results in a strong dynamics of world social life, calls for the necessity of education for stability and desirable social change that should give an answer to the challenges of the 21st century, education which is founded on: the real democratization of education, ensuring equal opportunities to education for all children, creation of conditions for educating all citizens, achieving a high quality education at all levels, affirming and respecting the principles of lifelong learning at all ages and all forms of education; cultivating sensitivity towards human issues, growing respect for nature and for environment.

After 1990, there have been a lot of changes within the Romanian educational system, which concerned the transition from a centralist and authoritarian educational system to an adequate system of a democratic society which should match the European educational system. Therefore, reform priorities after 1990 in the pre-university system, have focused on the following dimensions: curricular reform (focusing on skills, abilities and skills, flexibility and individualization of school routes, adapting the educational offer to individual needs, compatibility of content with social and economic needs); creation / development of continuous education for adults; restoring links between schools - community, school - the economic environment; improving access and quality education for groups at risk; increasing participation in education; linking education system in Romania with the objectives and standards; the development of guidance and counselling; decentralization.

The compatibilization with the European structures and systems involves the following courses of action (Marga, 1999, p.10): converting reproductive education into creative education; improving infrastructure and widespread electronic communications; educational management oriented towards competitiveness and performance; creation of productive partnerships between the

educational institutions and the economic, administrative and cultural environment; reducing the amount of information of the education programs in the European curriculum and their compatibilization.

The democratization of the Romanian education system, the improvement of the quality of education, the valorisation of the social role of education, the development of Romanian cultural values, the promotion of Romanian cultural identity within the world culture, the formation of active, responsible citizens, contributing to the development of a democratic society, are priority objectives of the Romanian education policy and these have been highlighted after 1990, being convergent with the objectives of the European dimension.

The Undergraduate Education reform program has provided: modern forms of a new National Curriculum (1998) for primary and secondary schools, implemented since 1998-1999, to review the list of subjects and optional subjects, development of new curricula; restructuring education and training of teachers in terms of introducing new curriculum and new textbooks, based on a rigorous methodology; development of alternative textbooks for all subjects and all classes; improving the quality and objectivity of the assessment and examination system by establishing standards for assessing and linking knowledge assessment with professional standards.

According to the reform articles, compulsory education aims to build the child's personality, highlighting and linking the four dimensions of personality: expressive, communicative, action-experimental and civic.

The expressive dimension involves: the knowledge and use of mind and body, mediated by expressivity; the knowledge and application of cultural, national and universal information.

The communicative dimension involves: the ability to communicate own thoughts and feelings in a certain social context; the ability to directly communicate with his/her natural and social environment.

The action-experimental dimension involves: the ability to creatively integrate in the environment, developing certain skills; the ability to initiate experiences in any daily situation and to appreciate the individual and social experience as they understand it; the ability to develop action and decision making models specific to an active man in a dynamic world.

The civic dimension insolves: the knowledge and application of a democratic society's rules and values ; the understanding of and the conformation to the fundamental human rights; the ability to initiate and to engage in social action; treating and maintaining a natural and social environment conducive to life; the ability to quickly adapt in a multicultural society.

Among the directions envisaged in the Romanian education reform, the curricular reform is an essential segment, which is now a distinct theme in the sciences of education. The Curricular reform program represents a coherent approach to the educational national policy, designed and developed in line with current European trends and practices.

The new approach to National Curriculum has generated a different type of curriculum culture characterized by: focusing the learning process on training skills, transformation of the teacher-cantered school to a student-cantered school by promoting student-cantered interactive learning methods, cultivating students' creative skills and the creation of various learning situations (the teacher is responsible for the way he/she organizes the learning syllabus, the students' performance confirming or infirming the efficiency of the didactic strategies) inter and trans-disciplinary approach to school curriculum, approaching the curriculum in correlation with the school performance issues and evaluation of initial and continuous teachers training (M. Korka, 2000, p. 35).

Environmental education - a way of ensuring an integrated approach of the curriculum contents

Environmental education was defined in 1970 at the conference organized by the International Union for Nature Conservation in Nevada (USA), as: *"...the process by which values are recognized and concepts* are *clarified in order to develop skills and attitudes necessary to understand and appreciate the relations between human, the culture he is part* of *and* the *biophysical environment*. *Environmental education also includes* the *practice of deciding and the formulation of a proper code of conduct concerning the environmental quality*".

The concept of environmental education is based on the following fundamental concepts: natural environment, environmental quality and degradation. Natural environment, as the fundamental concept underlying the ecology as a science is defined in the Environmental Protection Law no.137/1995, as being "the assembly of natural elements and conditions of the Earth: air, water, soil, subsoil, the landscape's characteristic aspects, all atmospheric layers, all organic and inorganic materials, and also the living beings, the interacting natural systems, including the items listed above, inclusively the material and spiritual values, the quality of life and the conditions that may affect human health and welfare".

The two terms, *environmental quality* (pointing its essential characteristics, in relation to the quality of natural conditions) and *environmental degradation* (defined as affecting the ecological balance and the quality of life, mainly due to anthropic pollution) interact, influencing each other.
During the development of the education system, environmental education has gone through several stages:

1. Conservative education: highlights the importance of intelligent use of natural resources and the need to prevent environmental degradation;
2. Progressive education: applies the "learn by doing" principle, leading to a curriculum reform that has holistically deepened the concept of learning;
3. Outdoor education: emphasizes the importance of the methods that encourage the use of natural space as an alternative to the classroom space.

Environmental education has three main approaches (Bucovală C., Cândea M., 2003). Education about the environment ensures the understanding of how natural systems work, of the impact of human activities on natural systems; it develops the investigative skills and the critical thinking; it underlies the formation of a cognitive support which to enable the participation in the environmental decision making. Education in the environment provides the learning practical experience through direct contact with the environmental components; it develops skills of data collection and field investigation, it stimulates the environmental concern. Education for the environment completes the education in and about the environment; it strengthens the sense of environmental responsibility, the motivation and the skills to participate in improving the environmental condition; it promotes the desire and the ability to address a lifestyle compatible with the sustainable development's concepts; it gives teachers the opportunity to help students with the proper management of natural resources approaching thus components of the moral, aesthetic and political education.

Environmental education is not just a form of education, a tool for solving environmental problems or for managing natural resources. It is a process of an essential dimension in recognizing the environmental values and in defining the environmental concepts, aimed at improving the quality of life. This type of education aims at inducing, especially within the educational institutions, social dynamics of education (knowledge, skills, motivations, values), which to stimulate personal development, collaborative and critical approach, but also the assumption of responsibilities for the decisions taken for maintaining the environmental quality.

Environmental education sets its sights on the formation and development of problem-solving capabilities triggered with the social-scale application of the industrial and post-industrial technologies, which have recorded many negative effects in the nature and in the human existence.

An integrated approach to the curriculum, as an alternative or complementary method of the disciplinary curriculum, is a constant of the recent curricular policies. While there is no general consensus on the definition of the curriculum integration, the majority of the authors who have addressed the issue of integrated curriculum, have revealed the following features: inter-relating school disciplines from the same domain or different domains, in order to harmonize, unify, establish cohesion; establishing relationships between knowledge, abilities, skills, values from different fields; linking the learning experiences with the everyday life situations, with the own needs and interests; organizing the contents on topics, issues, concepts, principles; managing school time and grouping students in a flexible way.

Summarizing the many approaches to curriculum L. Ciolan (2008, p. 118) gives the following meaning to the term: "... creating meaningful connections between topics or skills that are usually formed piecemeal in various disciplines. These themes or skills have a strong connection to students' daily life, and directly or indirectly aim at contributing to the formation of values and attitudes".

The arguments justifying the need for an integrated curriculum regard the following aspects: the lack of a correspondent in traditional disciplines, for many discoveries, new knowledge, new education issues (environmental, demographic, nutrition, etc..), the need to establish bridges, correlations between separate discipline departments to cover the breaks between them, the construction of mental structures, which are flexible, dynamic, integrated, able to support the most appropriate decisions in situations as diverse as problem-solving capacity, building of professional, social and personal life.

Intra-disciplinarity: it involves organizing the contents in different disciplines, by implementing the sciences panel in the curriculum. Interdisciplinary integration consists in "the conjugation of two or more interrelated contents within the same field of study, in order to solve a problem, to study a subject or to develop a skill" (R. Legendre, 1993).

L. Ciolan (2008, pp.121-122) examines two ways of achieving integration at this level: inserting a fragment in the content of a matter of study, serving to bring additional information, to clarify the issue, the problem addressed; harmonizing and linking different contents of a discipline, for a more complete understanding of the phenomenon, of the topic being studied.

Multi-disciplinarity (pluri-disciplinarity): it refers to the situations in which a theme, a problem (disciplinary) is analyzed, addressed from the perspective of several disciplines, while they remain independent of each other. It is a correlation, a juxtaposition of the efforts of several disciplines, for clarifying the theme. Each discipline will help, by its characteristic, to clarify the theme / issue under review. Pluri-disciplinarity alludes to correlate the efforts of related disciplines, and multi-disciplinarity – the juxtaposition of some disciplines which have no obvious links.

Inter-disciplinarity: it is also a thematic approach, as with the multi / pluri-disciplinarity, assuming, unlike them, a crossing of different fields of knowledge in order to clarify the investigated theme or problem, a higher level of contents integration. Approaching reality, the contemporary world's problems, and also the integration of all types of contents in lifelong learning perspective, requires an interdisciplinary approach.

D'Hainaut (1981), analyzing the problems of organizing contents, shows that inter-disciplinarity involves a degree of integration between the fields of knowledge and the use of a common language, fostering the conceptual and methodological exchanges. Inter-disciplinarity does not imply abandoning the notion of discipline, for the disciplines are necessary both for a systematic intellectual training, and for a better understanding of the world (UNESCO, 1975, according to M. Manolescu, 2004).

In essence, inter-disciplinarity is the selection from the natural and social environment of an area / issues / problem and grouping the relevant knowledge from different scientific disciplines for the full knowledge of the field / that theme and of the development of integrated skills, key skills.

L. Ciolan (2008) identifies and describes two levels in the application of interdisciplinary approach in education: structural inter-disciplinarity (integration is accomplished in the study programs' structure and organization) and functional or operational inter-disciplinarity (integration takes place in the curriculum implementation, in the learning activities' design and conduct).

Trans-disciplinarity: it is the highest degree of contents integration, making a particular change in the relationships between the learning content and student. Trans-disciplinarity approach puts in the center of the learning experiences the student's steps (cognitive, affective, and psychomotor) and not the matter, the contents, the disciplines. Placing students' individual learning processes in the center of the learning experiences determines a students' accountability in relation to their learning.

Trans-disciplinary approach includes other levels of integration (intra-, pluri-interdisciplinary), proposing an approach based on the interaction between them. The training

specific to the curriculum's trans-disciplinary approach is focused on the important issues of real life, of everyday life, on the contemporary world issues, and the learning results demonstrate their meaning and value by the contribution they make to the young's personal development and professional and social success.

Environmental education's integration into school curriculum can be achieved by the following four steps of designing the training content. *The infusional approach* involves the environmental education approach within certain school disciplines (for example, environmental education is simultaneously addressed in biology, chemistry, geography, physics, etc.) but also in the various dimensions of education (for example: in the intellectual - moral - technological - aesthetic - physical / sanitary education). This type of approach raises two important pedagogical and social methodological problems: the need to integrate the information brought from the "environmental education" in the curriculum structure and the need to effectively achieve a curriculum synthesis between the two categories of information.

The modular approach involves the environmental education approach within certain school disciplines, integrated in some educational levels and also in some dimensions of education (for example, environmental education addressed as a "module" within biology, in high school, with objectives specific to intellectual education's dimension). This type of approach raises the question of the correlation that exists between the different "modules" introduced in some education disciplines.

The disciplinary approach involves the environmental education approach as a distinct school discipline integrated in the curriculum. The methodological problem that the disciplinary approach raises, aims at the special status of school disciplines promoted in this way, which do not have the academic basis specific to particular sciences, which also give the title of most school disciplines. Their design involves overcoming the mono-disciplinary trends in favour of the pluri-disciplinary strategies simultaneously focused on the informative scientific contents, but also on the social effects, formatively processed in an intellectual, moral, technological, aesthetic and physical sense.

The trans-disciplinary approach involves the environmental education approach in some "scientific synthesis" annually or quarterly / half-yearly proposed by "teams of teachers" (for example, addressing the environmental education's global issues from the perspective of a team of biology, chemistry, physics, geography, economics, sociology, philosophy teachers etc., within some synthesis lessons, ethical seminars, thematic debates, school competitions, etc.).

The methodological difficulties inherent in this approach employ the educators' sensitivity and social responsibility: their ability to globally approach (moral, intellectual, technological, aesthetic, and physical) the formation-development activity of the educators' personality; their openness to the lifelong learning issues; their desire for continuous professional self-improvement.

Regarding the issue of professional education of those entitled to teach environmental education in primary and secondary education institutions, besides the teachers of natural sciences and geography thought to be specialized in this field, teachers from other specialties can also get involved (math, physics, chemistry, mother tongue, religion, drawing, sports, etc..) and also members of environmental NGOs, of some foundations or associations of environmental actions, who want and support the promote of environmental education. This process requires the knowledge and the acquisition of considerable *environmental* information, the understanding of the connections between circumambience, natural environment, surroundings and the influence (positive or negative) of the anthropic factor, the making of viable programs in order to support the environmental education.

Thus, it is estimated that *environmental education* can not be integrated in a single area of knowledge, but for being a complex process requires the involvement of specialists and researchers from different fields, namely an interdisciplinary approach.

The practical problems that today's society and humanity are facing: the limitation of natural reserves and resources, the environment's continuous deterioration, the global warming effects etc., have determined the outlining and the definition of the "problems of the contemporary world" concept, and they impose their approach by the whole community. Environmental issues are recognized as part of the contemporary world problems. In this sense, starting from the assumption that environmental education's aim is to prevent *environmental deterioration*, and that individuals should be educated to act consciously in order to continuously maintain and improve its quality, we believe that education at school made towards protecting the environment, would be a viable solution. Given these problems' system character, for their resolution is necessary to shift emphasis from the specific approach, to the global and interdisciplinary approach.

Bibliography

1. Bucovală, C., Cândea, M., (2003), *Metode moderne de educaţie pentru mediu*,. Ed. ONG Mare Nostrum, Constanţa

2. Ciolan, L., (2008), Învățarea integrată. Fundamente pentru un curriculum transdisciplinar, Ed. Polirom, Iaşi

3. D'Hainaut, L., Lawton, D., (1981), *Sursele unei reforme a conținuturilor axate pe educația permanentă,* în: *Programe de învățământ și educație permanentă,* coord. D'Hainaut L., EDP, Bucureşti

4. Korka, M., (2000), *Reforma învățământului de la opțiuni strategice la acțiune,* Ed. Punct, Bucureşti

5. Legendre, R., (1993), *Dictionnaire actuel de l'éducation*, Montréal: Guerin

6. Marga, A., (1999), *Educația în tranziție,* Ed. Dacia, Cluj-Napoca

7. Marga, A., Baba, C., Miroiu, A., (2005), *Anii reformei și ceea ce a urmat,* Ed. Fundației pentru studii europene, Cluj-Napoca

8. Manolescu, M., (2004), *Curriculum pentru învățământul primar și preșcolar: teorie și practică*, Ed. Credis, Bucureşti

9. Văideanu, G., (1988), *Educația la frontiera dintre milenii*, Ed. Politică, Bucureşti

***

***1998, MEN, Consiliul Național pentru Curriculum, *Curriculm național pentru învățământul obligatoriu. Cadru de referință,* Ed. Corint, Bucureşti

***2001, MEN, Consiliul Național pentru Curriculum, *Rezoluția "Școala la răscruce" – Schimbare și continuitate în curriculum din învățământul obligatoriu*, Sinaia, 22-24 noiembrie

http://eke.ro/document/Raport%20de%20cercetare_EDUCATIE%20ECOLOGICA.pdf