Educating for Thinking about "A Good Quality of Life" and Qualitative Research Outcomes

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Abstract

In environmental education the construction of critical ways of thinking about ecologically relevant questions is fundamental. An undoubtedly significant issue to be raised is that of "good quality of life." The aim of this study was to investigate the evolution of the idea of "good quality of life" in the context of an educative process which values both firsthand experiences of nature and the engagement to think on the experiences and on one's ideas, both individually and in group discussions.

I have assumed that in order to promote the evolution of ideas exerting a strong performative power on one's existence it is necessary not only to transform the class in a community of discourse, which stimulates thinking together in order to match one's opinions and beliefs and to critically evaluate them, but also to provide meaningful experiences around which we can "think together." The findings show that experiencing nature can transform our ideas when the subjects are engaged in a metaconceptual work aimed at monitoring the evolution of ideas while staying embedded in the experience.

Résumé

En éducation relative à l'environnement, le développement de modes de pensée critique sur les questions de pertinence écologique revêt une importance cruciale. Un des enjeux primordiaux à soulever est celui d'une « bonne qualité de vie ». Cette étude explore l'évolution du concept de « bonne qualité de vie » dans le cadre d'un processus éducatif qui valorise à la fois l'expérience directe de la nature et une réflexion sur les expériences et les idées personnelles, tant individuellement qu'au sein de grands groupes de discussion.

Je postule que pour promouvoir l'évolution d'idées exerçant un fort pouvoir performatif sur l'existence d'une personne, il faut non seulement transformer la classe en une communauté de

discours, pour stimuler la réflexion collective afin de comparer ses opinions et croyances à celles d'autrui et en faire une évaluation critique, mais aussi favoriser des expériences signifiantes autour desquelles peut s'articuler une réflexion collective. Les résultats indiquent que l'expérience de la nature peut transformer les idées lorsque les sujets participent à un travail métaconceptuel leur permettant de suivre l'évolution des idées tout en demeurant parties prenantes à l'expérience.

Theoretical Presupposition

Environmental education is not a precise concept and requires deep examination (Jickling, 1997). Yet, we can affirm that one of its fundamental aims is to promote an ecological way of thinking, by shifting from a worldview based on exploitation of nature to one based on respect and care. In order to reach this aim it is necessary to gain a deep knowledge about environmental issues and to develop skills of reasoning consistent with an ecological epistemology: reasoning within context, setting up relationships, paying attention to qualities, and giving value to the empathy linking us to the external world as a way of knowing (Bateson, 1979).

Yet, even if necessary, ecologically-oriented scientific expertise is not sufficient to develop ecological thinking, because the way in which people come to terms with the environment also depends on ideas outside scientific competence. These are ideas which constitute answers to questions which are fundamental for the human being: "Who are we?, What is our place in the natural world? What is "the good" for the human being? . . . ."[1] Since these ideas deal with existential questions, they structure the core of the life of the mind exerting a strong performative power over one's project of life, and affecting the way we relate to nature.

One of these ideas is that of the "good quality of life." "What constitutes a good life?" and "Where (in what environment) do we want to dwell, in order to live a good life?" are fundamental questions, with strong ecological implications. If what is at risk to both environmentalists and industrialists is the possibility of leading a good life, then the debate must focus on "*what constitutes a good life*" (Evernden, 1992, p. 5). Thus, if we want to challenge the cultural roots of the ecological crisis, reflecting on this question must become a task of education. The commitment to think about it is necessary because the criteria by which we judge and conduct our lives depend ultimately on the outcomes of this apparently profitless mental undertaking (Arendt, 1978, p. 71).

The idea of good quality of life is ecologically relevant in the sense that it can generate attention or disregard for the natural environment. On the basis of the current debate in environmental philosophy (Callicott, 1989; Devall, 1990; Evernden, 1992; Fox, 1995; Shrader-Frechette, 1993), it is possible to assume that the idea of good quality of life leads people to care about nature if this idea implies the belief that nature is a value to preserve and that living in direct contact with natural environments, preserved from ecologically damaging human actions, is fundamental for a good life.

If we look at western culture, where an anthropocentric, utilitarian outlook prevails, we can presume that the concept of good quality of life is not ecologically oriented, since nature is understood not as a value in itself, but as a storehouse of resources. On account of this devaluation of nature, the idea that staying in contact with nature is fundamental to lead a good life is scarcely present in our culture and, when it is, it seems to be only a trendy claim and not a significant idea deeply-rooted in our outlook. Consequently, in order to change our culture, moving from an anti-ecological to an ecological worldview, education must promote the construction of ecological frames of ideas, and these must be vital ideas in the sense that they should have the power to provoke considerable changes in our way of inhabiting the earth.

This theoretical presupposition is grounded on a constructivist epistemology, which assumes that with words we construct worlds. Common sense treats the experience as an encounter with an object out there in the world; instead, we are inevitably immersed in a symbolic reality, socially constructed by minds engaged in elaborating frames of meanings. If this is the power of words and if, as the linguistic turn suggests, we inhabit language—and thus we do not stay in contact with nature in itself but with the idea we have of it—then the task of constructing an ecological world requires the construction of a symbolic world which is ecologically informed. If we assume that in the construction of an ecological frame the concept of good quality of life plays a relevant role, then environmental education must provide learning contexts where students can reflect on this pivotal idea.

Pedagogical Frame

Assuming this theoretical presupposition as a starting point, the pedagogical key-question that frames the research is the following: "How can we reach an ecological idea of good quality of life?" That is: "What educational process can give children the possibility of restructuring the concept of a

good quality of life so as to encompass an awareness of the value of nature and then of the necessity of taking care of it?"

With this question, we presumed that it is possible to reach an ecological interpretation of the concept of good quality of life through processes of learning which:

- make room for *firsthand experiences of nature*, and
- accompany them with activities aimed at *educating to think about one's experiences and one's ideas* in order to promote awareness of the life of the mind.

Experience of Nature

Experiences of nature, especially during childhood, can promote positive feelings and attitudes towards the natural environment (Chawla, 1998; Tanner, 1980). And a positive "taste for natural objects" is a necessary condition for developing an ecological ethical posture: "We can be ethical only in relation to something we can see, feel, understand, love, . . ." (Leopold, 1970, p. 251). On this basis we can presuppose that, in order to nourish ecological thinking, it may be necessary to experience nature aimed at developing a personal perception of the value of contact with natural elements, a value which is not only biological, but also cognitive, emotional, and spiritual.

To help students understand the significance of nature and restore the sense of connections with it is an important goal of "nature education" (Weston, 1994, p. 8). In order to live wisely on the earth we need a land ethic, which implies we must learn to appreciate nature (Leopold, 1970). Yet developing an ethical and aesthetical attitude towards nature is not like learning mathematics or economics; this attitude cannot be developed if one is separated from a natural setting: one must dive into the external, natural world to deeply understand and appreciate its significance. It is one thing to learn the value of nature from books, and another thing to reach this awareness through lived experience. While the first kind of learning runs the risk of remaining "inert," experiential learning is potentially meaningful because firsthand experience, which implies contact with the environment by an embodied mind, including both reasoning and emotion, can generate "vital" ideas.

We assume that an attitude to appreciate the natural world takes shape through a sensorial encounter with nature, where the subject contacts the natural elements "coming back to his/her senses" (Weston, 1994, p. 111). And following the phenomenology of Maurice Merleau-Ponty (1962),

where the body is the ground of experience, we should assume that only a sensory, incarnate encounter with the world can generate a meaningful experience. Making room for the experience of the body signifies to invite children to touch, to smell, to observe, and to hear (Abram, 1997).

Yet, in order to learn how to cultivate a full relationship with a place, it is not sufficient to activate a sensorial encounter with nature; there must be the quiet time of a silent and unintrusive presence. Anaxagoras, when asked why one should choose to be born rather than not, replied: "For the sake of viewing the heavens and the things there, stars and moon and sun, as though nothing else were worth his while" (Arendt, 1978, p. 133-134). The development of an allocentric disposition towards nature with the subject absorbed in the surrounding life (Schachtel, 1959) is a pedagogical intention which must drive the organization of the experiences of nature. From this perspective, outdoor experiences should also include moments of quiet inactivity, in which children are invited to observe the natural life flowing around them. Quiet observation implies learning to rest, to interrupt actions and in silence to pay attention to one's external and inner life. To experience an intense relationship with nature is a precondition for feeling a *sense of wonder*. And wonder is the fundamental disposition for appreciating the world around us.

But in order to have a meaningful experience, able to promote changes in our disposition to the natural world, it is not sufficient *to live* the encounter with nature; it is also necessary *to think about* it, to accompany each action with reflection. The encounter with nature must be enjoyed immediately, then savoured through later reflection (Thoreau in Oelschlaeger, 1991, p. 155): we need to think about what we are doing to construct the meaning of the experience we are having. Knowledge arises out of experience, but no experience yields any meaning or even coherence without undergoing the operations of thinking. Therefore, experiences of nature must be thoughtfully oriented.

Environmental pedagogy must outline the need to learn the practice of reflexive and critical thinking, a thinking conceived as a reflection on "presence" and as a cognitive commitment to construct from within oneself horizons of meaning in order to avoid becoming simple consumers of the worldviews of others. Embedding this assumption in the phenomenology of Merleau-Ponty (1962) means to promote embodied thinking, which maintains links with emotive, incarnate life and with the soul, and through it, with the biological life in which humans are immersed. We can presume that incarnate cognition, that is thinking based on embodied experience, can generate vital ideas, which have the power of provoking

considerable changes in our worldviews and, thus, in our way of inhabiting the earth. Therefore, an ecological disposition towards nature develops through a diligent emotional and cognitive practice which requires:

- enacting a careful *observation*, searching for an intense *sensory relationship* with the lifeworld,
- *reflecting on the sensations and emotions* that the direct experience of outside nature produces in the mind, and then
- *voicing our experiences*, what we have felt and thought in the encounter with nature.

The "Laboratory of Thinking"

We argue that having significant experiences of nature, and feeling the pleasure of entering into relationships with it, do not predict any ecological changes in our ideas, in the sense that there is not a deterministic relationship between having experiences and modifying ideas. In order to promote an experience which activates the evolution of an idea, we must create learning environments which stimulate children to think. They must be invited to reflect on their experiences, but also on their ideas, those affecting the construction of meaning of experience.

Indeed, what is fundamental from an educational starting point is to promote not only changes in thinking, but above all the awareness of the changes occurred. The goal of education cannot be only that of leading children to acquire knowledge, but also of developing metacognitive competence (Bruner, 1996). If we agree with the assumption that environmental education must promote critical thinking and the attitude to examine ideologies, then reasoning on our own idea of good quality of life and setting up relationships between the conceptual changes and the lived experiences has to be considered a pivotal aim of ecological learning. Therefore, it is necessary to construct a learning context having the shape of a "laboratory of thinking" where children can reflect on their mental landscapes. This kind of laboratory is a place for educating to reflect on ideas; its aim is to develop the capacity to self-analyse one's cognitive processes, to understand what makes us think, and to unveil the implicit assumptions affecting our thinking.

There are ideas with strong performative power, tacitly acting on our conscience and affecting our thinking. Hence, we may say that the subject of thinking is often possessed by his/her own thoughts. We frequently talk about education for freedom, qualified as the capacity of freeing ourselves from external ties; but we forget freedom is above all a cognitive issue, it is freedom from ties in which mental life is tacitly implied (Mortari, 1994). There is

cognitive freedom when the subject develops the metacognitive capacity of self-understanding. Thus, from a pedagogical standpoint, it is essential to learn to identify the key-questions driving the thinking and then to develop the disposition to examine the ideas constructed around these questions.

Specifically, to reinforce the pedagogical significance of the commitment to think about questions which have nothing to do with traditional curricula we must consider the distinction Hannah Arendt made between "knowing" and "thinking" (1978, p. 14). While knowing aims at knowledge, thinking is concerned with meaning. Different also is the object: the scientific questions raised by our curiosity about the world are the object of knowing, while thinking deals with questions of meaning—unknowable and unanswerable. Because this second kind of question is of the greatest existential interest, if human beings were ever to lose the disposition for raising and investigating them, they would lose the capacity of constructing the frames of meaning upon which every civilization is founded.

Our schools are mostly engaged in knowing, while there is little time for educating to think. A school authentically aimed at educating, however, cannot withdraw from leading students to critically interrogate the questions of meaning, those that, even if they seem entirely idle, are essential to the construction of the humanity of everybody. To think is tiring work; but this metacognitive activity is necessary in education because we belong to the realm of thinking. Therefore, it is vital to pay attention to what occurs in our minds, both when we think on our own and when we share our thoughts with others.

This pedagogical thesis is framed in a constructivist paradigm (Steffe & Gale, 1995). Generally constructivism is used to substantiate the importance for teachers to know students' pre-conceptions, because, if they constitute a factor influencing learning, then identifying them and teaching accordingly is fundamental (Ausubel, 1968). In this research, it has also been assumed important that children too must know their thoughts. Consequently the objective of a laboratory of thinking based on a constructivist epistemology is that children:

- become aware of what ideas they held about key-questions, because these ideas condition the process of making sense of the experience; and
- learn to observe the life of these ideas, in order to understand if they change and why.

Only recently—as testified by a tiny number of research studies—the constructivist paradigm in empirical research in the field of environmental education is gaining ground (Robertson, 1994). This kind of research is

generally aimed at examining the conceptual maps framing the process of learning in school and at verifying the conceptual change occurring in relation to specific training processes. A limitation of these studies is that of focusing mostly on the kinds of concepts that are fundamental to the disciplines structuring the curriculum, and of leaving out ontological and ethical concepts that have strong existential relevance. Starting from the presupposition that existential ideas play an important role in the way people inhabit the earth, it becomes necessary for educational research to investigate the construction process of these kinds of ideas.

It must be noted that constructing an educational process around existential ideas, such as good quality of life, is a very delicate issue requiring an ethical posture both from the teacher and from the researcher. In the field of scientific concepts, the goal of education is to promote a conceptual change from prior misconceptions to scientifically founded concepts. But with existential ideas, there are no well-defined misconceptions nor truths to learn; thus, both the researcher and the educator have the responsibility to avoid promoting particular ideologies. Our task is not that of promoting the learning of a precise view, but rather that of educating children to reflect on their views, to question themselves, and to engage in critical dialogue with others, so they may become aware of their own "point of observation" and, starting from a multivaried experience, engage in a continuous evolution of their existential frame of ideas. Learning to think about what we are doing and to reflect on ideas encompassing the process of the construction of meaning is the pedagogical imperative which constitutes the backdrop of this research.

A Qualitative Research Study

Research Structure

Based on the above, an educational experience in environmental education was organized, and it constitutes the subject of the research explicated here. The subjects involved were 104 third graders (53 girls and 51 boys), aged between 8 and 9 years,[2] attending five classes in public elementary schools in north-eastern Italy. Three classes were situated in urban schools and two in rural schools. There were five teachers involved. They were not selected by the researcher, but spontaneously participated in the research after two years' training in environmental education. The research lasted two school years.

The educational experience was structured along two kinds of activities: *experiencing nature*, and *reflecting on the idea of "good quality of life."*

Experiences of nature were organized as follows. During the school year, the teachers frequently took the children to natural setting: the woods or an urban park. (It is necessary to specify that the research was developed in an area of the north-eastern Italy where it is difficult to organize excursions to a natural forest because there are very few and they are far away from the schools). Once in the woods, children were encouraged to move freely for some time in order to become familiar with the surrounding world, and then they were invited to participate in sensorial activities. Each outing was focused on one single sense: touching leaves and flowers, rolling on the grass, climbing up trees, and then writing personal sensations; hearing the sounds of the wood and writing poems; "collecting colours" and painting; searching the smells of the wood and voicing them; inventing "rituals," games, etc.

During the first outdoor experience, the children were asked to find a "personal den." They all chose it either near a bush, or under the branches of a tree. During subsequent outings they would go back to their private places to spend 15 or 20 minutes in silence. After being silent in their dens, the children freely wrote reflections in their logbooks.

Being silent and alone is conducive to learning the pleasure of tranquillity and relaxation, and the disposition to heed external and internal life with gathered attention. It will also inspire fundamental questions: "The silence asks us who we think we are, what we think we are doing, where we think we are going. In this earth-silence the world and our place become present to us, the lives of water and trees and stars surround our life and press their hidden demands" (Maly, 1992, p. 63-64). Heeding, that is gathering ourselves in heedful attentiveness, is a way to care for things. Therefore, ecological living on the earth begins with education to heed.

The laboratory of thinking started in the first part of the school year (before the experiences in the woods), and went on until the end of the following school year.

Initially the children were asked to investigate the question: "What constitutes a good quality of life?" Later they were invited to write their own thoughts (called "pre-ideas"). Individual pre-ideas were collected on a large sheet of paper and the whole class examined the different points of view. Every student read the ideas of their fellows, and then, on the basis of the question: "Are we sure we have understood the ideas of our fellows?," they could ask for explanations of the different points of view. This conversation was aimed at developing dialogue with the way of thinking of the others. It was assumed the shared analysis of the different ideas emerged in class would broaden and enrich everyone's pre-idea.

Later, in class discussion, an epistemological question was raised: "Do ideas live? And if they do, how do they change?" Speculating about this epistemological question was a necessary condition to conduct the metaconceptual monitoring about the evolution of the idea of good quality of life. The aim of this discussion was to understand that the mind constructs ideas not only through hearing, reading, and participating in social interactions, but also through thinking about personal experiences. The pedagogical presupposition was that an awareness that thinking nourishes itself on lived experiences would induce children to reconstruct their idea of good quality of life starting from their experiences of nature.

Once established that one's concept of good quality of life can change and grow, the decision was made to keep a logbook where the children were could record changes in their ideas and the reasons for such changes. This logbook was called: "The diary of the idea's life." Periodically the children were invited to reflect individually on their idea of good quality of life and record any possible changes. This conceptual monitoring was developed in conjunction with the experiences in nature.

The laboratory activity involves children in both shared and solitary thinking. The recent statement of social constructivism in the educational field invites teachers to promote discussion in class and thus to transform the class into a community of discourse, where students compare and negotiate their ideas. To promote the social dimension of thinking is fundamental, but this must not let us forget the individual, solitary dimension of thinking, the soundless dialogue of the *I with itself* typical of the philosophizing. It is a vital need for the human being to *stop and think* (Arendt, 1978), to interrogate one's ideas and dialogue with the *other* who is in us. If we do not develop reflexive thinking, in which I keep myself company, voicing the duality inherent in the life of the mind, we run the risk of living fragmented, lost in the thoughts of others. Consequently, the duty of education is also that of helping students to construct a place of inward mental activity. If in a Vygotskian perspective we presume that one learns the capacity to think as an interiorization of a socially shared thinking, we should also consider that social reasoning nourishes itself with individual, solitary thinking.

The idea of the learner, which is at the basis of this research, is that of a subject able not only of germinal philosophical work, but also of epistemological work, which realizes itself in the activity of metaconceptual monitoring. Bruner (1996) affirms that children can begin to reflect on their thoughts and about the ways in which they take form; just as young epistemologists, children are invited to reason about the life of their ideas.

With reference to the constructivist paradigm it has been argued that educators must penetrate the minds of children to understand their preconceptions (Ausubel, 1978). The laboratory of thinking changes the role of the student: instead of making students the object of the educators' epistemological inquiry, it asks students to become the subjects of the inquiry. We suppose, indeed, that children, no less than adults, are able to reflect on their own thinking and to elaborate theories on the working of the mind. On the basis of this assumption the more recent pedagogy argues that the student must become aware of their processes of thinking and, therefore, the teacher must predispose the conditions encouraging the development of metaconceptual capacities. The laboratory of thinking is, therefore, a community of discourse engaged in metaphysical conversations and epistemological discussions.

Research Questions

Two presuppositions underlie this research:

- *Presupposition 1*. Children can become aware of the value of staying in contact with nature through firsthand experiences aimed at encouraging a sensory and thoughtful encounter with the life of the natural world in a relaxed and quiet context, and
- *Presupposition 2*. This kind of experience should affect the evolution of the concept of good quality of life in an ecological way if the children are engaged in a laboratory of reflective thinking aimed at developing a metaconceptual awareness.

Thus, finding an answer to the following questions was the objective of the present study:

- *Question 1*. Are experiences of nature, aimed at developing the attitude to appreciate the natural world, perceived positively by children?, and
- *Question 2*. Can this kind of experience ecologically affect the idea of good quality of life when this idea becomes the object of metaconceptual monitoring?

As regards the first question, we must examine the meaning the children attributed to their experiences, and as regards the second and key question, we must analyse the evolution of the concept of good quality of life and investigate if there are changes in the initial idea that are meaningful from an ecological point of view, and if any influences of experiences in nature can be traced in these changes.

Data Collection and Analysis

Data were collected through:

- written texts individually elaborated by every single child, before, during and at the end of the educational activity; some texts were written in class and others in the woods, and
- class discussions both in the class and in the woods. Every discussion was taped and transcribed verbatim.

The data underwent a qualitative analysis aimed at examining:

- what significance children attributed to their experiences of nature,
- the initial and final individual conception of "good quality of life," and
- the linguistic elements which can mark a positive correlation between the experiences of nature and the evolution of the idea in question.

The following were quantified:

- how many subjects showed a change in the idea under reflection,
- how many changes in the idea were ecologically informed, and
- how many changes were to be ascribed to the experiences of nature.

Moreover, in order to test the efficacy of the laboratory of thinking in promoting an epistemological competence, it was necessary to evaluate the expressed metaconceptual awareness towards the evolution of their own idea. To this aim the awareness of the conceptual evolution was ranked at three different levels (from 0 to 2 points):

- No awareness of the change (0 points),
- Explication of a change and awareness of this change (1 point), and
- Explication of a change, awareness of this change and of the underlying reasons (2 points).

A Condition for the Reliability of the Research

In order to evaluate the impact of the experiences of nature on the evolution of the concept of good quality of life, a methodological precaution had to be taken. This consisted in not informing the children about the educational significance of the outdoor experiences before they had them and, secondly, about the connection between the excursions and the laboratory of thinking. Indeed, we can state we have tested the second presupposition

if, and only if, we have set the conditions allowing us to affirm that. When we record traces of the lived experiences in the final idea of good quality of life, these traces can be considered the outcome of a process of elaboration of meaning autonomously developed by the children, and not ideologically induced by the teacher. Consequently, the outdoor experiences were simply motivated by saying that we were going to carry out activities which were impossible in the classroom. In order not to risk the reliability of the research, as a researcher I participated in the experiences of nature with only two classes I had already known through other activities. As regards the "laboratory of thinking," we motivated the commitment to metacognitive reflection by saying that it was important to think about key-ideas for our life without referring to the contemporary outdoor experiences.

Avoiding preconceived meanings of an experience is an important condition for both the reliability of the research as well as from an educational standpoint. An educative learning context implies experiences not previously codified, where the students can construct meaning starting from themselves. Authentic education does not exist if students are not freed to independently elaborate upon the meaning of their experience. Thinking capacity does not develop when educational subjects are asked to assimilate a worldview codified in advance; in this case subjectivity remains outside, and students cannot become architects of their thinking because they are compelled to keep within given worldviews. However, while it is difficult to deal with the development of young minds without slipping into an ideologically-oriented formative process, the educator has the responsibility to create space where students can become the most significant architects of their worldviews.

Epistemological Approach

Robottom and Hart (1993) note that research in environmental education tends to be "instrumentalist, objectivistic and divisive" (p. 598). Such educational research instrumentalizes school and is divisive when it is conceived and planned by the academic researcher alone, outside school life. In order to avoid this positivistic approach and to make this research a context able at provoking real change in educational settings, a participatory methodology was adopted (Carr & Kemmis, 1986). The teachers and I collaborated through each phase of the research, planning, monitoring and evaluating the educational process. After six months of discussions on environmental education, together we identified the pedagogical framework of this research. Then we planned the educational experience to be flexible, that is with room for the unforeseeable elements emerging from the process taking place.

Adopting a critical interpretive method, we also defined a way to collect the data; the teachers and I kept a research journal. Periodically my journal entries were analysed and compared with those of the teachers with the intention of reaching a shared-understanding of the process taking place.

Findings Concerning the First Question

One year after the first outdoor experience, when the metaconceptual monitoring was over, each class went back to the woods and here, after repeating the "ritual activities" of the past experiences, the children were asked "if those experiences had been enjoyable" and "why." The conversations took place while sitting on the grass in circle, attesting that children appreciated these kinds of experiences, and above all while staying in direct contact with some animals and the pleasure of the silence.

T.: I like observing animals.
A.: The green makes me feel good.

D.: In your den you feel free.
Researcher: why?
D.: Well, because you are free in a large green area, and then you feel even better and then because, well, here there are only sounds of animals, of falling leaves, well, there are not all the noises of cars.
Mi.: I would say we feel good here because we are in the green with animals.
Mo.: The animals make me feel good, and even the sight of the falling leaves and, in our dens, of leaves forming leaf-beds.

K.: I've kept the fragrance of the green and of the grass inside me.
L.: I still feel the sensations that I had.

Mar.: It would be great to have woods in the schoolyard.
Man.: But it is not the same thing.

We thought that children accustomed to a frenetic life, and attending a school that encourages a sort of hyperactivity in the sense that people run from place to place, activity to activity (Jardine, 1996), would have difficulty appreciating the silence. Instead the pleasure of it was expressed in many individual reflections and in all conversations:

D.: I like to be in peace here, it is a small place but I can be alone . . . here we feel better than in our homes, because I already live in a village where many trucks pass by, especially in the afternoon; therefore, there is not much quiet-

ness to study. Here there is more silence, there is fresh air, so we feel better.
Teacher: But is it really necessary to come here to stay in peace?
S.: Here tranquillity is different from when we are at home on our own, because at home even if there is silence, you cannot concentrate very well, while here nature and the chirping birds make you feel better.
C.: I don't like silence at home either, because there is that sensation of void, and I feel afraid; here, instead, I feel I am in company thus I am very well.
L.: It seems a different tranquillity to me, here we hear almost only the sounds of the birds.

We can presume that children appreciate the quiet time of silence and reflection because normally they are overloaded with engagements that do not allow the mind to breathe:

Researcher: but is tranquillity really important?
C.: We are always busy, we must go to school, we have many engagements, we are never calm; so, when we can have some time in peace then we are also carefree, we have not thoughts and we can rest.
L.: I think it is important to be calm, because tranquillity is a pleasure that we can have few times.
Researcher: What kind of pleasure is it?
L.: A pleasure of the mind.
Researcher: What do you mean by "a pleasure of the mind"?
L.: because, . . . I want to say that we let ourselves go.
T.: For me tranquillity is important because in certain moments we have too many engagements stressing us, or we have problems that we are unable to solve, then we need a little relax, we must rest, which means to put the soul in peace.
G.: We are used to having many many thoughts in our head, we are overloaded, instead, when we breathe fresh air then we relax.

The research also implied the assumption that learning to be in silence and to reflect on one's own is an important aim, and that natural settings better encourage the development of this disposition, because they should be more conducive to reflection. Learning to raise questions in a Socratic view requires long periods of time and therefore we did not expect the emergence of this mental disposition. Yet the last conversations in the woods show unexpected outcomes, which support the assumption that relaxed isolation in a natural place encourages thoughtful thinking. What follows are the reflections spontaneously expressed by children and then problematized:

S.: here you can think quietly without being disturbed, you can reflect on something you have done . . . not as in school where when you think all the others make a row
Researcher: Why is it important to reflect?
F.: To me it is important to reflect and be on our own with our ideas to understand what we think. We often happen to say things about which we have not thought enough; instead, if you reflect then you say more right things.
Ma.: Here, where I felt as in my mother's womb, I began to think about a question I usually don't think about, that is "why does all this exist?, why does the green exist? why does the life of nature exist?"

On the whole, the children who showed a thoughtful disposition were few, but if we consider the young age of these subjects then this outcome constitutes a meaningful element for arguing that these kinds of experiences, encouraging embodied contact with nature, accompanied by thoughtful commitment, is an existential substratum able to provoke a reflexive disposition.

While most children appreciated this kind of experience immediately, others needed more time. Among children living in a town, some had difficulty relating with the lifeworld through their bodies: tasting things and rolling on the grass were too unusual for them. Many children are fond of computers and television, and not accustomed to being close to natural environments. Moreover in our schools children learn at an early age to consider the self as something incorporeal and to conceive of learning as a disembodied activity. The very difficulty for some children is to make the body the true subject of experience. Among children living in rural areas, nobody showed this uneasiness; instead some of them had difficulty in being in silence and thinking alone; they are accustomed to experiencing the woods as a place where one can freely run and jump.

The difficulty showed by some children in immediately appreciating this kind of encounter with natural settings can be explained also by the fact that these experiences propose an unusual way of coming into contact with the environment. School outings are generally regarded as occasions to learn scientific concepts and skills, according to a plan codified by the teacher. Moreover, our technical, utilitarian culture does not conceive as relevant those activities which do not produce useful and measurable outcomes, such as being in silence, savouring the pleasure of a disinterested observation, thinking by one's self, our own thoughts. Being relaxed to hear not only the life flowing in the woods but also one's cognitive and emotive life is an unusual task in terms of the technical rationality dominating our time. Also

at school the logic of efficacy prevails, that is, the logic of doing things which produce tangible outcomes. Therefore, it is an arduous pedagogical task to make an "out of the order" activity meaningful such as stopping and thinking about the present experience without any goal to reach.

Findings Concerning the Second Question

The analysis of the children's pre-ideas confirmed the initial presupposition according to which children tend to have a non-ecologically informed idea of the good quality of life. Indeed, only in few cases (17%) a single natural element, the clean air, appears as a component of a good life. Even this element cannot be considered as index of the appreciation of nature, as it was preserved as an index of the perception of air pollution.

As regards this initial situation, the sentences which document the monitoring of the conceptual evolution support the second presupposition, because the ideas of good quality of life changed and there are many elements for arguing that having experiences in nature and thinking about them affected this evolution. Sixty-one percent showed an ecologically marked evolution of the idea; of these, 59% make explicit reference to the experiences in the woods. A deciding factor was given by the frequency and regularity with which the children were engaged in the laboratory metaconceptual monitoring. Indeed, the lowest index of evolution of the idea occurred in the class where the laboratory experience was less frequent, while the class which shows the highest frequency of ecological conceptual evolutions is that which, the number of excursions being equal, was more frequently engaged in reflexive thinking. We produced three examples of pre and end-ideas attesting an ecological change and making explicit reference to the experiences in the woods:

K.: *pre-idea*: In order to have a good life I need to eat, to have friends, to go to school.

end-idea: In order to feel good I need to stay with animals, to roll on the grass, to get to the woods.

S.: *pre-idea*: In order to feel good I need a home, to eat, to have a family and friends.

end-idea: A good life is also to feel the same sensations I felt when I was in the woods.

G.: *pre-idea*: A good life is: eating, drinking and breathing.

end idea: What makes me feel good in life is the green, because I can breathe the clean air and smell the scent of the flowers, and also the sounds of the birds. Also staying alone makes me feel good.

Most metaconceptual reflections explicate a change and show awareness of it [level 1]. The pre-idea of a boy was that "To live well we need to eat, drink, go to school, be honest, have friends, help the others." After some excursions he notes: "My idea has changed: it is necessary also to take excursions, to listen to nature, to smell nature, and to pay attention to others." Another boy started from this pre-idea: "Living well is to go to school, to have a home, to play, to be free and to amuse oneself, to go out." Then in the last page of his logbook he writes: "In my idea I want to add *to smell scents* and *to observe*. Besides it is important to have experiences such as to make a den, where there is a kind of isolation." A girl initially believed that having a good quality of life meant having somebody with whom she could enjoy herself; then she affirmed that for a good life she needs also peace "as when we were in the woods and I felt certain sensations."

In two classes—and it is necessary to specify that these children were already educated to reflect and discuss together—the sentences are more complex; most of these express metaconceptual awareness not only of the changes but also of the underlying reasons [level 2]. A girl (pre-idea: "For a good life I need the love of my parents and to be in good health) notes: "My idea changed in the sense that now I have understood that for a good life it is important to breathe clean air and to respect nature. I have never thought of it before, but my idea changed after the outing in the woods." Another girl initially conceived the good quality of life only as a social question implying "to have good relationships, to have friends and to discriminate who are real friends"; but, then, in the last pages of her logbook she writes: "In my idea, after experiences in the woods, I would add it is important to savor the peace of the woods." Another girl (pre-idea: . . . to eat, to drink, to sleep, to have money, to have parents, to have clothes) in her last reflection writes: "My idea has changed now, because I must add that for a good life we need to live in green places. I have understood this because I have had experiences in the woods" (a painting follows where the girl portrays herself in the wood).

What follows are some reflections extrapolated from the pages of one logbook and meant to show an example of the whole evolutionary process of the idea:

- *pre-idea*: For a good life it is necessary to work, to have money, and to be in good health.
- *idea in progress*: After the experience in the wood now I want to add to my idea: to stay in a natural setting with my friends, because in the woods I felt very good. (12.3.97)

- *idea in progress*: To stay in contact with nature is a healthy way of living; one can breathe clean air, lie down on the grass, close eyes, and relax. I did all these things, also I sat by the little lake and I gave bread to the ducks, it is for this reason that I say that nature is very important in life. (20.4.97)
- *idea in progress*: I want to add to my idea that it is important not to lose your friends. (29.5.97)
- *end-idea*: In order to live well it is important to have some experience in the woods, because in my den I feel very well; here I feel the air refreshing my face, I smell the scent of the green and can be quiet . . . . (27.5.98)

From an analysis of the logbooks, few children changed their ideas right after the first experience in the woods; the majority modified their concepts towards the end of the educational process. We must note that one of the classes could not attend all planned outdoor experiences and it is not by chance that just among these children we noticed the lowest level (30%) of ecological evolution of the idea. Therefore, this research indicates not only that firsthand experiences, together with the commitment to construct meaning exert a strong transformational power on mental maps, but also that the experiences must be frequently repeated during the educational process.

Conclusion

The birth of a new ecological culture needs a new ethic, but this kind of ethic is not made of rules and codes; it is made above all by a new feeling and a new attitude: the feeling of the connectedness with the earth and the attitude to appreciate nature in itself. Indeed the disposition to perceive the significance of staying in direct contact with nature may be what leads people to care for earthly life. This research shows that an environmental education aimed at generating this disposition must value that kind of direct experience of nature encouraging a way of being there now lost in our technocratic life: weaving relationships through the senses, weakening the tendency engage in frenetic behaviour and developing a relaxed and silent posture, finding time for meditative thinking.

A new ethic needs not only a new disposition towards nature, but also a new way of conceiving life. As regards this question, the aim of education is not that of transmitting a new view of life, but of educating students to construct their own worldviews. This research shows that when children have ecologically-oriented experiences and are encouraged to practice a

deep-questioning, then they are able to reconstruct their ideas in the light of lived experience. On the basis of this research, we can conclude that in order to generate "meaningful learning," which de-frosts mental maps and permits the evolution of the life of the mind towards ecological inscapes, children need to take part in thoughtful contexts of learning supported by vital experiences in direct contact with nature.

Notes

[1] This kind of questions are defined "metaphysical" because they are "undecidable," in the sense that they are open to different answers (von Foerster, 1995, p. 64) While all decidable questions are already defined by the choice of the framework within which they are posed and thus require reasoning via compelling logical steps, when we think of undecidable questions "we are under no compulsion, not even under logic" (Ibidem), and with this freedom we assume the responsability for our decisions. Consequently, educating in critical thinking implies engaging students in reflection on undecidable questions.

[2] The experience involved children aged between 8 and 9 for two reasons: the profound sensory alienation from the lifeworld must be countered from the first phases of education, when children are still naturally curious and sensitive and there are no barriers to receiving information from the senses (Jardine, 1996); besides this is the age in which it is possible to initiate the young minds to the first experience of reflection.

Notes on Contributor

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