‘Quality systems’ for Sustainable Education as tools for quality enhancement and participation.

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Introduction

‘Quality systems’ and quality evaluation are still inspired by the myth of progress and control, therefore aiming at reducing the quality of the educational systems to quantity. Instead, many research projects in Environmental Education and in Education for Sustainability, carried on in the last years, show that quality evaluation can also be conceived as an instrument for reflection and research, aimed to quality enhancement and consistent with the vision and values of an education oriented to a sustainable future.
This paper will present one of these projects, developed as a participative action-research, that involved about 30 regional officers of 13 Italian regions for one year, reflecting together on the ‘quality’ they want to achieve through the programmes supported by their own Environmental Education Regional Systems.

Quality evaluation in Environmental Education

The demand for educational evaluation over the last 20 years has changed radically: from evaluation as a judgement made by those with the position or authority to do so – teachers, school heads or inspectors – we have moved on to data gathering, description and interpretation that require research, in-depth study and reflection.

Four rather different forces have shaped the recent rapid growth in demand for evaluation (Norris, 1998):

1. the need to control public spending and thus to develop an information gathering system to support decision-making,
2. the ‘educational market’ needs that impose the necessity to establish parameters of efficiency (and not necessarily of effectiveness!),
3. the will to understand changes due to the increased autonomy in school development and the need to cope with the unpredictability of innovation outcomes,
4. the need for all organisations, and thus educational institutions as well, to become ‘more adaptive’ in face of the complexity and unpredictability of the real world and of the educational processes. “*Institutional reflexivity and the learning organisation lie at the heart of this impulse toward evaluation*” (Norris, 1998).

The presence of contrasting forces highlights how, even in the field of the evaluation of education systems and programmes, we are faced with a crisis of values and a need for change, which is all the greater and deeper when we deal with issues concerning Environmental Education (EE) and education for sustainability (EfS). The world of an expanding economy, of a secure job for life, of scientific and technological solutions for all problems and of undisputed moral superiorities is over for good. From the world of security and predictability, promoted at the end of the 19th century, the 20th century has instead led us to a world characterised by uncertainty, complexity, and the interdependence between all components of a system whose ultimate limit is the whole planet.

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[1] The research described in this article has been carried on by the regional officers in charge of EE and EfS in 13 Italian Regions. The research, wanted by the Tuscany Region and coordinated by the Regional Agency for the Environmental Protection, ARPAT, was leaded by the author of this article together with 3 other ‘experts’ in the field of EE and of SD: Stefano Beccastrini, Giovanni Borgarello and Rodolfo Lewanski .

Yet, the most widespread proposals for the evaluation of education systems run the risk of stopping to defend positions that other sciences have already abandoned: in particular, the illusion – pertaining to a positivist paradigm – of objective knowledge based on facts, immune from prejudice and thus from cultural contexts and value decisions. Rejecting the idea of educational evaluation as an "objective measurement of results" does not mean to say we should give up the need for evaluation. Instead, it means recognising evaluation as an intrinsic part of the processes for building new knowledge, attitudes and behaviours. The fact that EE and EfS are at the centre of the discussion add a further element of complexity to the problem. Both in the environmental and the educational fields, the awareness of the limits of our knowledge, of the unpredictability and uncertainty concerning future developments force us to evaluate as accurately as possible what we are now trying to do.

In the last ten years EE and EfS have gone a long way in looking for deep changes in the conception of knowledge and in methodologies, and because of this the need for research and evaluation is increasingly important every year. The evaluation of quality offers a challenge to EE. Awareness of the limits of our knowledge, of the unpredictability and uncertainty of future development, forces us to evaluate as accurately as possible what we are now trying to do. But research and evaluation that we need for EE and for EfS must be oriented both to the complex and dynamic nature of education and to the complex and dynamic nature of environmental issues, in a search for consistency between what we preach for the environment and what we practice at school.
A culture of complexity calls for a kind of evaluation that takes this complexity into account and that does not limit itself to 'measurements' - which are often impossible in this field - but focuses the attention on 'emergencies'; an evaluation that gives up the illusion of scientism, that goes beyond the idea of evaluation as assessment and keeps instead to a meaning of evaluation as "*assigning value*" and of '*bringing out'* the strengths of a project, of an initiative, or of an educational programme. (Mayer, 2001).
Evaluation in education cannot be a neutral process which guarantees per se the objectivity of the results, but it is – like any technique or scientific theory – a theory-laden operation, full of values and consequently "ideological". In fact, the very concept of evaluation in the field of education has, in recent years, undergone a very critical analysis and has assumed different characteristics according to different cultures and different values systems, but also according to the different conceptions of knowledge.

The Italian research reported in this paper assumes as a point of departure the results of an European Network – the REVERE (*Reseau pour l'EValuation en Education Relative à l'Environnement*) network – and the distinction proposed by Liriakou and Flogaitis (2000), following a proposal by Robottom and Hart (1993), between various approaches to evaluation according to the different paradigms on which they are based. Each paradigm corresponds to a conception of the world and, even if it may correspond concretely to a variety of evaluation models according to the specific situation it is applied to, it indicates what in a certain research area may be considered as "*important, legitimate and reasonable*" (Liriakou and Flogaitis, 2000).

In this distinction EE and EfS, and consequently their evaluation methods, cannot follow the *positivist paradigm*, which corresponds to a reductionistic point of view, where every process or fact can be reduced to measurable quantities, and cannot follow a relativistic *intepretative paradigm*, where every subjective approach can be justified and where the evaluation is mainly a process of negotiation between different powers and points of view (Guba and Lincoln, 1989). Instead, the evaluation in EE must be inspired by a *socio-critical paradigm* where the knowledge which guides actions is socially constructed and functional to the changes underway in a society, and where evaluation is conceived mainly as one instrument of change. In this view the evaluation of the processes involved in EE and in EfS is itself a *participator process*, the evaluative approach

is that of *attention to emergencies* that are often not foreseeable in a complex process, the aim is to understand actions in order to change them by proposing changing scenarios, in line with the different values involved.

Even though outlines and schematisations are always reductive of a reality that is more fluid and complex, it is evident that the socio-critical paradigm seems to be the only one that is consistent with the needs of both rationality and respect for complexity carried on by EE. The main difficulty in its dissemination lies in the use of methods and the construction of instruments which, largely created within the positivist paradigm, need to be adapted and reinterpreted.

Quality indicators in the ESD International context

Quality indicators represent one of these instruments widely used in the educational field over the last 20 years. Since the 1990s and through national and international programmes, there has been the construction of programmes for identifying, collecting and comparing quality indicators – the OECD INES (Indicators for Educational Standards) project, the Education Quality Indicators Program (EQUIP) of Canada, the European proposal for a limited number of indicators to assist national evaluation systems, etc.
The use of the term 'quality indicators' in these programmes is an ambiguous one: we use a word, 'indicators', that derives from the positivist paradigm, that generally refers to statistics and standardised procedures, and relate it to another word, 'quality', that refers to another paradigm, to other needs and to another value scale. The tendency seems to be that of superficially accepting the problem of quality, to then try to reduce it once more to numbers and quantities; in these cases, and in keeping with studies on quality within firms, quality is taken to mean adherence to production parameters established by an unquestioned economic model, on the one hand, and 'perceived' quality, on the other: that is, the capacity to satisfy the "customer's" subjective perceptions, which can be influenced and which depend on many variables.
This trend may, however, be reversed by trying to "qualify data and statistics". As Aristotle said "quantity and quality are not contrasting terms' but this does not mean that 'quality can be reduced to numbers'. In his novel, '*Zen and the art of motorcycle maintenance'* well-known in the 80ies, Robert Pirsig, while narrating his quest for quality, makes a distinction between 'static quality', the one which pushes a system to perform at its best, to achieve defined benchmarks and standards, and a 'dynamic quality', the quality that a system needs when something new happen, when it is necessary to proceed in uncertainty where standards doesn't exist. Static and Dynamic Qualities are both relevant and necessary: "*without dynamic quality an organism cannot develop, without static quality it cannot last*".

This is especially true for EE and for ESD, where 'the journey is part of the goal', and uncertainty and precaution are an important part of the game rules. The challenge is the one of reversing the tendency to look for numbers 'simples to obtain', often of marginal utility, and enlarge the very idea of indicators by conceiving them as traces, as clues, to recognize the emergences and to forecast the unexpected. For us Italians, the words 'indicators' recall the proposal made by the historian Carlo Ginzburg (1986) of a 'circumstantial paradigm' (*paradigma indiziario*, in Italian) as opposed to the 'Galilean paradigm' of hard sciences. In a circumstantial paradigm what matters are the differences and not the similarities: small differences, small signs and clues, allow the researcher to reconstruct the case (Mayer, 1994).

A review of the '*approaches towards the evaluation of ESD'* conducted by Victoria Coleman (2002), offers a broad and reasoned overview of the use of the term '*quality indicators*' and the term '*quality criteria*' in the education field. In her opinion, only the latter can be considered consistent with the principles of EE, and of ESD, in a socio-critical paradigm. But not all indicators

are ‘measures or statistics’ in the narrowest sense, and not all necessarily simplify systems. Even economic indicators, which are also based on statistics, are trying to grasp the needs of the complexity of society.

In effect, part of the approach suggested by indicators seems to be consistent with the requests for evaluation presented by EE programmes and projects as regards certain characteristics:

1) Firstly, resorting to indicators means accepting that an educational process – be it a large scale project or a process involving just one teacher in only one class – is too complex a process to be ‘measured’ only by short-term outcomes.
2) Indicators do not, in fact, necessarily propose the ‘measurement’ of a result or the adoption of a linear input-output model, nor is it necessary, even if it is the most common situation, be they numbers or statistics: “*In my view, indicators are only information considered important for some or as a basis for decision-making, or simply to increase understanding*” (Eide, 1989, p. 87).
3) Indicators should also never be used alone but be correlated within a system (Nuttal, 1992) in which the relations between the components also go to make up an evaluation element. The indicator approach to evaluation is systemic and, as with EE, the information provided by the whole system is greater than that provided by the sum of its parts.
4) An indicator system must have its own logic and ethic, should be based on a model and on values that must be explicit, and in which the importance of the various indicators is stressed (Oakes, 1989). The values and models will differ according to the cultural context and to the project elements to be evaluated. Differences and similarities between models - and thus between indicators - will also provide an element of comparison and evaluation.
5) Indicators not only accept updating, but need to be continuously updated: they do not constitute a static system, but a continuously developing dynamic one.

In the recent 1° European Conference on ESD, held in Vienna in March 2006, a working group was dedicated to ‘Quality indicators’, and the following conclusions were agreed and presented to the public:

- *In the field of Education, ‘quality’ is related more to ‘processes’ than to ‘products’. Educational processes cannot be captured in strict standards.*
- *ESD asks for a mind shift about what is needed in quality evaluation, from ‘accountability’ to evidence based quality development.*
- *We accept that ‘numbers’ are often not meaningful, other ways of evaluation such as ‘examples’, good practices, descriptions are more underpinning the evolving concepts of ESD.*
- *ESD will contribute to the changes of behaviors needed for SD. It is an important component of the complex approach that is needed but cannot be evaluated by the attained changes.*
- *The outcomes of ESD are ‘education as such’: more critical thinker, more action competences…*

(Mayr & Schratz, 2006)

In a socio-critical paradigm, it is the definition of common values, reached using a participatory process, that allows a community to negotiate and define common ‘quality criteria’ and ‘quality indicators’, correlated into dynamic systems, where continuous updating and changes are possible.

This is the challenge faced at present by two international networks involved in preparing systems of indicators usable for evaluate the effectiveness of the UN Decade for Education to Sustainable

Development (DESD) in different world Regions: the European Region, under the leadership of UNECE, has prepared a proposal of indicators for the evaluation of the UNECE strategy (2005) for the realisation of the Decade, while the Asia-Pacific Region, under the leadership of UNESCO and IUCN, is preparing guidelines (Tilbury et al., 2006) for helping Asia Pacific countries to build their own national indicators systems .

The context of the Italian, inter-regional, research

In Italy, throughout the 1990s, the Ministry of the Environment, sometimes together with the Ministry of Education, had supported the initiatives of schools, EE centres and local authorities for EE, which since 1997 has been defined as "oriented towards sustainable development". Due to the coming into force of an "agreement" between the national government and regional governments signed in 2001, the regional governments have received considerable funding from the Ministry of the Environment for the years 2002-2004 in order to finance actions in the field of Environmental Information, Education and Training - the INFEA Programme -.

In this time period, all of the 20 Italian regions succeed in having a 'Regional centre' coordinating the INFEA programme, and financing initiatives fostering EE and EfS, in formal and non formal education. In many regions the INFEA programme included the definition and evaluation of *"quality indicators"* for the EE centres and/or for EE projects or for EE school initiatives.

During the same time period, 3 'inter-regional' projects were launched, with the aim to improve the national network by comparing and confronting the regional initiatives. One of these Interregional Projects was the Project on "Quality *indicators to apply to regional INFEA systems*". The process was proposed and guided by the Tuscany region, and partially funded by the Italian Ministry of the Environment. The project was characterized as a ' participative research' project, whose fundamental goals where those of identifying : "*common areas of certification, and the identification within them of a minimum set of 'quality indicators' for the regional systems, together with methodological guidelines for the creation of local regional indicators.*" The general aim was the achievement of a 'national common agreement' on the quality characteristics of 'systems' that pretend to support not only Environmental Education but a general change toward a 'Sustainable Education', in the meaning proposed by Stephen Sterling (2001).

At the basis of the research project there was the awareness that, as we cannot ask students to change individually their behaviors/attitudes/visions without changing 'a bit' the future vision and the lifestyle of the whole society, it is difficult to build changes that are not acknowledged by accepted evaluation methods, and that we cannot hope for a permanent change in the educational system without changing accordingly the related quality control system. This means that in order to be effective EE (and EfS) cannot involve only the educational system but must 'touch' also policy makers and administrators, and between them an important group is the one of 'institutional officers'.

All the 30 participants in the research[2] were institutional officers or regional consultants, with key role in the organisation of the regional systems for EE and EfS. Their initial expectations were strongly oriented to build common tools for the 'control' of the quality of projects and products of the different subjects working within the systems (Environmental Education Centres, Schools, Natural Parks teams, museums,…), even if in some regions (as Umbria, Tuscany, Liguria …) some

[2] Thirteen over twenty regions participated to the project: Tuscany, as the group leader, Abruzzi, Basilicata, Calabria, Campania, Emilia Romagna, Friuli-Venezia Giulia, Liguria, Lombardy, Piedmont, Puglia, Sicily, Umbria. The remaining regions were 'external observers' and all regions participated in the final step of discussion and approval of the outcomes.

experiments have been made for building indicators oriented to the ‘quality enhancement’ and not to the ‘quality control’ (Borgarello, Mayer, Tonucci, 2000). In the first of the 4 seminars organised by the project, the experts charged to guide the research project, shifted the regional officers attention from defining common rules to reflecting on common meanings, and from a top down process to an action research cycle, where bottom up and top down approaches can be integrated, and where ‘national’ common interests can coexist with regional differences and local traditions.

The participants in the seminars were asked to involve other locally active subjects, in order to collect images and representations of their own system, their own local organisation, the quality they want to achieve, in a kind of ‘planning for future’ methodology. Different models of regional system were collected: from very directive top-down to more de-centralized systems, from systems limited to environmental offices and parks to systems trying to connect the regional educational office with the environmental one, from systems focused on the formal school level to systems more open to non formal and informal education.
The method adopted promoted the active involvement for the entire group, creating a true participatory planning laboratory that gave to all participants the possibility to express and compare their practical experiences and ideas. The main result of the whole research was a process of reflection and participate construction of meaning, and the process and the final products appeared to be truly shared by all people involved.
The title of the book published at the end of the participative process - *To learn how to see ourselves* (Beccastrini et al, 2005) - clearly represents this change.

A shift of the evaluation focus, from ‘subjects’ to functions and from quality ‘indicators’ to quality ‘criteria’.

The initial exchange and reflection on the perceived characteristics of their own organisations helped the group to re-orient their interest toward a reflection concerning the mission of their own systems, shifting their interest from the different ‘subjects’ and ‘structures’ who are involved in the regional activities to the different ‘functions’ the system should perform if the aim is to build an integrated and effective system. No more, indeed, specific quality indicators for eco-schools or for Environmental Education Centres or for effective eco-museums, but general quality ‘criteria’ for the functions the regional systems have accepted to fulfil.
This shifting from subjects (or structures in some regions) to functions, and from quality indicators to more general quality criteria, was an important step for the group and for the conception of a regional environmental education system: it is the system, and not the single actor in charge, that has the responsibility to provide the citizens, of all ages and professions, of a consistent education offer for EE and EfS.
Six functions were identified as necessary to every regional system:

1. **environmental education** oriented to educate (and not only to inform) the general public (not only children) for a sustainable society,
2. **environmental training** aimed to build the general and professional competences needed for building a sustainable society,
3. **support and enlivening** of local development processes oriented to a sustainable society, as local Agenda 21, city mobility planning, etc. Here the learning point was in recognizing that all these processes are true, non formal, educational processes, needing special educational competences,
4. **information and communication on EE and EfS,** planned as ‘informal’ educational processes, taking care of the needs to develop critical thinking and to enhance the participation of the citizens

5. **research and evaluation**, considered as the main tools for the continuous 'quality enhancement' of the whole system,
6. **networking**, as a diffused function, oriented to promote and maintain the consistency between different actions and the coherence between goals and actions.

In a regional system these functions are carried on at different level: at a **micro level** we find the single actors (a school, a Natural Centre, an EE Centre) running a locally based initiative; at the **meso level** there are the locally working institutions (a municipality, a Protected Area, an educational local authority), and at the **macro level** we have the Region based institutions (Regional Offices for education, for environmental protection, for consumers rights,…). At all these levels it was agreed that quality must be first conceived and then described, in such a way that it would be possible, even for an external evaluator, to recognize and to evaluate the described features.

Then the main aim of the working group becomes the construction of a common 'reference framework', where the main shared principles and values regarding EE and EfS will be synthesized. This kind of process could be long and tiring but is the only one that assures at the end a shared understanding of terms that are often ambiguous and with multiple meanings. The construction of a common reference framework is the way to assure the validity of any evaluation process, as in the case of traditional evaluation projects (the IEA or the OECD assessment projects, as TIMSS or PISA have always a reference framework as point of departure), and in more socio-critical evaluation processes, as the one proposed for the evaluation of the UNECE strategy for ESD.

The common framework built for the Interregional evaluation project was based on 6 main '**quality criteria'**:

1. the **central role of the learner**. If we accept a constructivist approach to education, then the learner in his/her social context must be the starting point of every educational process. Education is conceived as a dialogic process where learners are asked to confront their expectations/ideas/conceptualizations with the local real contexts and with the 'others' living in the same community. The EE projects are aimed to build 'educational contexts' where learning is often a 'peer learning' and where the learning steps are very often not determined in advance;
2. the **complexity** not only of our environment but also of our thinking. The epistemological point of reference was Edgar Morin and his book - *Seven complex lessons in education for the future*', written in 1999 for the UNESCO international programme '*Education for a Sustainable future***'**. The idea is to face the dominating 'separating and simplifying thoughts', born with the XV century scientific revolution, and accept that, when EE and EfS are at stake, we cannot really separate the observer from his/her observations, or the local system from the global one. What we need are '*methods of grasping mutual relations and reciprocal influences between parts and the whole in a complex world*". A different way to look at relations and to search for explanations must be constructed, in the awareness of the limits of our planet and of our knowledge;
3. a '**g-local'** awareness of the planetary level of every present problem, and at the same time the awareness of the importance of 'local' situational knowledge, and that we cannot derive neither local applications from general principles nor generalizations from single, context based, experiences. As Pascal wrote: '*all things being caused and causing, assisted and assisting, …all of them joined by an intangible natural bond that connects the most distant and the most variant, I hold it is impossible to know the parts without knowing the whole, or to know the whole without individually knowing the parts*";
4. to be '**oriented to change'**, flexible and aware that **uncertainty** is a general, not modifiable condition, that we must take into account in every action and in every proposal. "*The*

expected doesn't occur and [the gods] open the door for the unexpected", wrote Euripides in the V Century B.C., and after one century of illusions regarding the human control of the planet and of the human future, we must turn back and recognise that the future is largely unpredictable and that we only can prepare our minds to expect the unexpected and confront it. In EE a large literature is claiming for assuming uncertainty and complexity as values and possibilities and not as obstacles (Mayer 1995, Sterling 2001), because the awareness of our ignorance is the first step for wiser behaviours: "*A significant aspect of environmental education must be teaching that, although we can widen the scope of our forecasting, some area will remain unpredictable. To forget this would be yet another sign of the dangerous technological pride which is currently costing us dearly: remembering this means having the foresight to remain constantly on our guard so that we can recognise the unpredictable as soon as it appears* (Conti, 1991)";

5. the search for **integration**, of subjects and disciplines, but also of methodologies, good practices, politics… Integration means to recognize the importance and value of differences – biological, social, ethical, political… - and try to make the best of it, facing conflicts and accepting mediations. Integration means also to accept to 'share power', between institutions, between social communities, constructing partnerships;
6. a vision of the mission of regional systems as a mission to "**construct meaning and build participation".** The participation process is not a matter of techniques, but a matter of 'listening' and of accepting that every group and every citizen needs to reconstruct his/her own meaning of the process in which they are involved. Participation means to recognise the right to think differently, and to work together for finding shared meaning and shared strategies to find solutions.

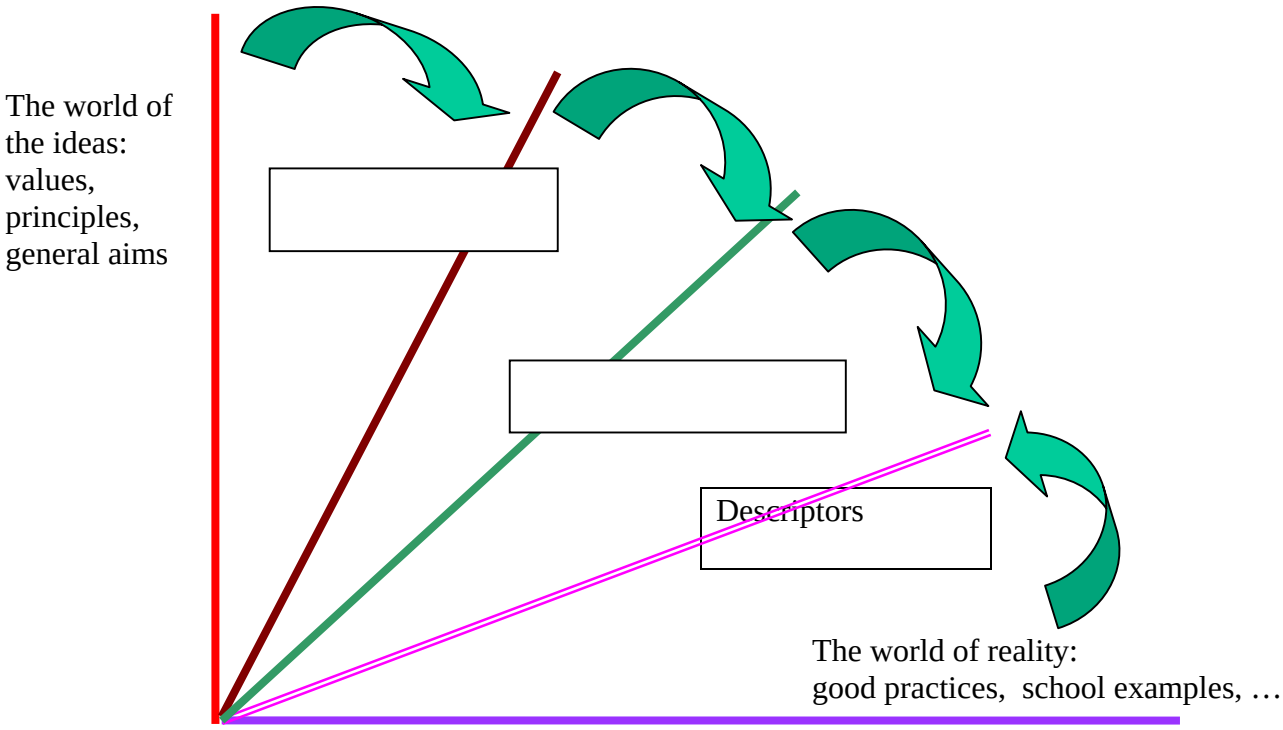
Cooperation and useful confrontation should be created not so much with respect to problem-solving, but to problem-construction: the whole process of the construction of the framework was conceived as a practical example of an 'educational context' in an action oriented working group. We tried to put in practice what is often preached as one of the conditions for constructive cooperation, that is

> *"a shared representation of problems, i.e. a common representation of the things that need to be solved. It is not enough to share the solutions to certain problems. The problems themselves need to be perceived in the same way by all those involved. This, too, most of the time, is the result of work to be carried out and not a lucky starting condition … the time-saving in quickly defining solutions is actually something that has its drawbacks later when a difficult agreement must be found on the way to implement those solutions … the world is full of solutions seeking a problem"* (Donegà, 1998).

The construction and use of quality indicators

To concentrate our attention on general criteria and not on the definition of specific indicators facilitated our work. In our proposal, quality criteria may be viewed as an instrument which summarises and in some way specifies the *educational philosophy* with respect to sustainable development: the criteria provide indications, as yet general descriptions that help to turn values into educational actions, behaviours and choices. The criteria thus bring theory – utopia – closer to practice, as may be described by those experiencing it, and can be used as 'bridges' for moving from ideal values to the reality one wishes to change.

The following figure shows the shifts we considered necessary for moving from an abstract idea of quality, consistent with the principles of EE and of EfS, to a description increasingly closer to the multiplicity and diversity represented by the concrete real actions undertaken.



Once the list of 'quality criteria' was prepared, discussed and agreed together with the system functions list, the definition of quality indicators was a matter of sharing experiences and reach consensus: a 'matrix' was prepared and for every function the characteristic of quality of the system, at macro and micro level, were described following the 'compass' given by the quality criteria and by the shared set of values they represented. For every indicator, more precise 'descriptions' were added of what it was considered 'desirable to find' as evidence that the indicator has been taken into account. Descriptors were considered as 'examples' that can change easily from context to context, and from region to region; their importance was in showing that was possible, starting from the very general statements given by quality criteria, to go through the indicators to realistic descriptions of something that was very similar to the actual practices and experiences of the stakeholders involved in the regional EE systems.

Just to give an example: for the function 'information and communication' and taking care of the criteria concerning the 'readiness to change' and the 'awareness of uncertainty', the following indicator ad descriptors were defined at **macro** level:

> Indicator: *During information and communication initiatives, the Regional System guarantees the confront and debate possibilities among different information sources, different data basis, different points of view*
>
> Descriptors:
>
> 1. *When presenting data or information, the regional system stresses the limits of the measurements and the uncertainty elements, and if available, presents different sources of data, discussing the points of consensus and the ones of contrast.*

2. *The regional system promotes debates and confrontations related to different sources of data and information on the same problem, debating the validity of methodologies and interpretations, always in the respect of different points of view.*

And at a **micro** level:

Indicator: *The materials and tools produced in order to support information and communication initiatives make a point in stressing the character of 'work in progress' and the un-completeness of every information concerning EE and EfS, presenting proposals for further investigation and suggestions for personal reflections.*

Descriptors:

1. *The information tools are accompanied by 'lecture and interpretations keys', useful for building an autonomous and responsible interpretations of data*
2. *In the communication of environmental problems and of EE, diverse and creative styles of data presentation are used, also in order to stimulate reflections and questions on facts and statements often given for granted.*

The final produced book (Beccastrini et al, 2005) contains an accurate description of the process, and of the common shared framework, with a discussion of the meanings of the functions and of the quality criteria proposed. The last section offers a complete list of possible indicators – both quantitative and qualitative, as the ones proposed above - with examples of possible descriptors. Of course, the indicators and the descriptors agreed and published are not 'exhaustive' and the participating regions were invited to construct their own, looking at the interregional research work as an example, and taking into account the shared 'functions-criteria' matrix.

Conclusions

The importance of this research was not only in the outcomes – a 'guide line' publication and a number of regional systems developing their own quality indicators - but mainly on the systemic participative approach. A reflection on the quality of a system allows to involve different levels of decision makers and to connect them in a consistent and coherent network, where all local stakeholders can learn from the process itself: if you change the agreement around the purpose, and the quality, of an organisation, everything else tends to change.

What we discovered together was that a 'good evaluator', either internal evaluator or external, is above all a 'good listener', and that for developing a good evaluation process we may use the same set of rules that Marianella Sclavi proposed for her 'good listener' and explorer of possible – future and sustainable – worlds:

- *Don't hurry to reach a conclusion. The conclusions are the 'ephemeral' part of the research.*
- *What do you see depends on your point of view. If you want to see your point of view you must change point of view.*
- *If you want to understand what another person is saying you must assume s/he is right and ask to be helped to assume her/his perspective.*
- *Emotions are an important part of the knowing process: emotions don't inform you on 'what' you see but on 'how' you see.*
- *A good listener is an explorer of 'possible worlds' ……..*

(M. Sclavi, 2003)

References

Beccastrini S., Borgarello G., Lewanski R., Mayer M. (2005) *Imparare a vedersi. Una proposta di indicatori di qualità per i sistemi regionali di educazione ambientale*. Firenze: Arpat

Donegà C. (1998) Lo spazio locale nell'azione dell'agente di sviluppo, in De Rita G. e Bonomi A., *Manifesto per lo sviluppo locale*, Torino: Bollati Boringhieri.

Borgarello G., Mayer M., Tonucci F. (2000) Indicatori di qualità per i Centri di Esperienza, *Spazio Ambiente*, Regione Umbria.

Coleman, V. (2002). *Quality indicators versus Quality Criteria: reviewing approaches towards the evaluation of education for Sustainable Development*, Sydney-Australia: Graduate School of Environment, Macquarie University.

Conti, L. (1991). "The environmental perspective". In CERI-OECD. *Environment, schools, and active learning.* Paris: OECD, pp. 104-114.

Eide, K. (1989): The need for statistical indicators in education. OECD Washington Conference on Educational Indicators. *Scuola Democratica*, Vol. XII, n. 1-2, 87-93.

Liriakou, G. and Flogaitis, E. (2000): Quelle évaluation pour quelle Education relative à l'Environnement?. *Education relative à l'Environnement, RegardRechercheRéflexions*, Vol. 2, 13-30.

Guba, E. and Lincoln, Y. (1989). *Fourth Generation Evaluation*. Newbury Park: Sage.

Mayer, M. (1994). "L'action de l'école en faveur de l'environnement: évaluation des résultats". In OECD Documents. *Evaluating Innovation in Environmental Education*. Paris: OECD, pp. 89-105.

Mayer, M. (1995). "Quality indicators and innovation in environmental education" In CERI/OECD. *Environmental Learning for the 21st Century*. Paris: OECD, pp. 31-46.

Mayer, M. (2000). Indicateurs de qualité pour l'ERE: une stratégie évaluative possible?, *Education relative à l'Environnement, RegardRechercheRéflexions*, vol. 2, pp. 97-118.

Mayer, M. (2001) "Complexity, quality and evaluation: a challenge for Environmental Education", in UNESCO, *New proposals for action*, Proceedings International Meeting of Experts in Environmental Education, Santiago de Compostela, 15-24 novembre 2000, Xunta de Galicia, pp. 157-177.

Mayr K., Schratz M. (2006) *Education for Sustainable Development toward Responsible Global Citizenship. Conference Report*. Vienna, March 13-15, pp. 12-13.

Morin, E. (1999), *Seven complex lessons in education for the future*, Paris:UNESCO.

Norris, N. (1998): Evaluating Environmental Education Initiatives: issues and strategies, in Elliott, J. (Ed.) *Environmental education: on the way to a sustainable future*, Report of ENSI Conference in Linz, pp. 72-77.

Nuttal, D. (1992) : "Les indicateurs internationaux de l'enseignement: leurs fonction et leurs limites". In CERI/OECD. *L'OCDE et les indicateurs internationaux de l'enseignement. Un cadre d'analyse*. Paris, OECD, pp. 15-25.

Pirsig R. M. (1974) *Zen and the Art of Motorcycle Maintenance*,

Robottom J. and Hart P. (1993): *Research in Environmental education. Engaging the debate*. Victoria: Deakin University.

Sclavi, M. (2003) *Arte di ascoltare e mondi possibili*, Milano: Bruno Mondadori,

Sterling, S. (2001) *Sustainable Education: revisioning learning and change*, Schumacher lectures, Schumacher Society

Tilbury, D., Janousek, S., Elias, D., and Bacha, J. (2006) *Asia Pacific Guidelines for the Development of Education for Sustainable Development Indicators*. Bangkok: UNESCO Asia and Pacific Regional Bureau for Education

UNECE (2005), *UNECE Strategy for Education for Sustainable Development*, adopted in Vilnius, 17-18 March 2005, www.unece.org/env/esd/Strategy&Framework.htm

UNESCO (1997) *Teaching and learning for a sustainable future*, www.unesco.org/education/tlsf/

UNESCO (2004) *United Nations Decade of Education for Sustainable Development. Draft Implementation Scheme*, http://portal.unesco.org/education/en/