Back-alley Sustainability and the Role of Environmental Education

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ABSTRACT Environmental education can be a catalyst for sustainable development in local communities as long as it is recognised that communities have different challenges and needs. From a perspective of social change and sustainable development, environmental education can be broadly defined as the process that enables students and teachers to participate in the planning, implementation, and evaluation of educational activities aimed at resolving an environmental issue that they themselves have identified. What an ‘environmental issue’ is, then, depends on the perceptions and earlier experiences of the learner as well as the context in which education takes place. An illustration of such a participatory approach to environmental education is provided by the case of Pistons Middle School in Detroit, Michigan where teachers, students and outside facilitators combined action research and community problem solving.

Introduction

Environmental education is nowadays regarded as an essential element of sustainable development strategies. The seeds planted in the 1970s in Nevada (IUCN, 1970, 1980), Stockholm (United Nations, 1972), Belgrade (UNESCO, 1975) and Tbilisi (UNESCO, 1978) by some of the pioneers in this developing field, found a fertile soil of broadly based mutual concern for the environment in the 1980s and early 1990s. At ‘The Earth Summit’ special attention was given to the theme of environmental education. Agenda 21 contains chapters on the role of youth and children in sustainable development and on education as a means of implementing sustainable lifestyles (United Nations, 1992). Many educational policies of a variety of governments both in the North and the South call for the integration of environmental education into the formal education system.

Indeed, contemporary education should reflect a society which increasingly demands the integration of environmental and other issues which have a global and local expression. However, at the same time many learning psychologists, perhaps most notably constructivists, plead in favour of a curriculum that is rooted in the everyday lives of young people. Inevitably meeting both criteria will cause a degree of friction because some environment and development issues are not always existentially relevant to the life world of the students. How can we expect youth to take an interest in problems that seem physically, socially and psychologically remote? Or, more specifically, how do we design learning activities that move students from passive detachment to active involve-
ment in contemporary issues that ultimately will affect us all? I wish to explore this core question by discussing a participatory model of environmental education which has been developed in the Detroit Public School system.

Environmental Education for Sustainability

The first presupposition in this paper is that environmental education should lead to the development of autonomous thinking about issues that affect the quality of life of humans and other species. An emphasis on autonomous thinking about environmental issues, or any issue for that matter, implies that it would be wholly inappropriate to prescribe behavioural outcomes that a learning activity or sequence of activities needs to foster. Jickling (1992, 1994) for example, writes that he would not want his children to be educated for sustainable development, because it goes against the idea of education: (1) it suggests that education then becomes training which is the acquisition of skills and abilities, implying instrumental connotations, and can technically occur through repetition and practice without leading to understanding; (2) the concept of sustainable development is contested, which makes teaching for it doubtful at least; and (3) the prescription of a particular outlook conflicts with the development of autonomous thinking. This is not to say that we should not educate for something. Educating for the environment, for instance, is needed to prevent the planet from deteriorating. The issue here is: how do we go about teaching for something and who decides what we are for? In schools, are teachers, students and community resources involved in deciding what is good for the community and the local environment or are those decisions made by so-called experts? This brings me to the second presupposition.

Schools should involve young people in the challenges of our time. ‘If the school does not develop the debate [that results from] the doubts raised by [the criticism of the] technical rationality in our way of life, then we will fail to involve children in the biggest political challenge of our time.’ (Bondergaard, 1991, p. 6). Nobody knows the right ethical lifestyle yet, but we all have to be responsible for seeking a world which is built upon human equality and the sustainable sharing of natural resources, not only between members of the western world, but the world as a whole.

Bearing in mind the presuppositions above and the perspectives of social change and sustainable development, environmental education can be broadly defined as the process that enables students and teachers to participate in the planning, implementation, and evaluation of educational activities aimed at resolving an environmental issue that they themselves have identified (Wals et al., 1990; Wals, 1994a; Stapp & Wals, 1994). What an ‘environmental issue’ is, then, depends on the perceptions and earlier experiences of the learner as well as the context in which education takes place. The problem-solving dimension of environmental education requires that emphasis must be placed on useful and practical knowledge (Bardwell et al., 1994). Such an approach to environmental education demands acknowledgement of the high epistemological value of students’ own beliefs, ideas and alternative conceptions (see also: Driver & Oldham, 1986; Wals, 1994a).
The argument for including problem solving and action taking in environmental education is threefold. First, one could argue that many young people, as is the case with many adults, are overwhelmed by environmental and social problems as a result of their personal exposure to these problems in real life through the media. It is important to help students explore environmental issues and to provide them with an understanding of their nature and complexity. However, environmental education should not be limited to this for it could then easily feed feelings of apathy and powerlessness. It would be dangerous if environmental education became a repetition of what many of us already know: the environment is in a bad shape, our (comfortable) lifestyles make it worse and the complexity of environmental issues makes them hard to solve (Monroe, 1990). By bringing in the action-taking component students can, under certain conditions, begin to take charge of some of these issues and develop a sense of power and control.

A second argument for including action taking in an environmental education project has its roots in experiential learning theory: one never comes to understand a problem fully, with all its nuances and complexities, until one fully immerses oneself in the problem, identifies all the players and begins to work within the 'force field' or field of interferences towards a joint solution. By the same token one could say that we may never really understand the problem until we start to actually implement some potential solutions.

Finally, it could be argued that without the ability and willingness to act, it is impossible to participate in or, rather, to contribute to a democratic society. As Jensen & Schnack (1994) point out, a concern for the environment should be connected to a concern for democracy.

In summary, environmental education should be a learning process that seeks to enable participants to construct, transform, critique and emancipate their world in an existential way. Construct in the sense of building upon the prior knowledge, experiences and ideas of the learner. Transform in the sense of changing, shaping, influencing the world around them, regardless of scope or scale. Critique in the sense of investigating underlying values, assumptions, world-views, morals, etc., as they are a part of the world around the learner and as they are a part of the learner him/herself. Emancipate in the sense of detecting, exposing and, where possible, altering power distortions that impede communication and change.

**Action Research and Community Problem Solving**

In 1985 the University of Michigan's School of Natural Resources and Environment developed, in conjunction with Deakin University (Australia), an approach to education that takes the world as perceived by the students as the starting point of their learning: Action Research & Community Problem Solving (AR&CPS). I will first discuss the two main components, before describing the result of their synthesis.

*Action Research* (AR) is both a methodology and a way of thinking. Lewin (1946) is generally considered to be the founder of the approach. Action research can be described as 'a form of self-reflective inquiry undertaken by participants
in social (including educational) situations in order to improve the rationality and justice of their own social or educational practices, their understanding of these practices and the situations in which the practices are carried out’ (Kemmis, 1985: 42). Action Research is rooted in ‘praxis’, the process of reflection and action, and is a means for teachers to improve their own practice, to help students acquire knowledge and personal empowerment, and to adjust administrative policies to improve the learning environment (see also: Carr & Kemmis, 1986; Corey, 1953). In education, the approach has a dual purpose: the improvement of the learning environment and the empowerment of teachers and students. Hence, its overall purpose is the enhancement of the quality of education itself. Applied to environmental education, action research enables students to participate more fully in the learning process. They come to assume greater responsibility for learning as they become engaged in tackling and acting upon an environmental issue that they themselves have identified and recognised to be important.

Community Problem Solving (CPS) describes the realm in which action research can be employed in the context of environmental education. Lewin’s methodology, adapted for schools, revolves around articulating and acting upon a local environmental issue in co-operation with students and other affected people. Important elements of community problem solving are: recognising a problem; collecting, organising and analysing information; defining the problem from a variety of perspectives; identifying, considering and selecting alternative actions to take; developing and carrying out a plan of action; and evaluating the outcome and the entire process (Wals & Stapp, 1988). In all steps the human and material resources present in the community are utilised whenever possible. The synthesis, AR&CPS, represents an inquiry process that enables teachers and students to participate more fully in the planning, implementing and evaluating of educational activities, aimed at resolving an environmental issue that the learners themselves have identified. The definition of an environmental issue largely depends on the perceptions and experiences of the learner and on the context in which education takes place. Throughout the process members of the school community ideally come to interpret their situation as requiring intervention, especially their own intervention. During AR&CPS university participants play the dual role of external researcher and facilitator. AR&CPS was developed in the late 1980s and early 1990s in Junior High Schools in the Detroit Metropolitan Area, a number of them located in some of the poorest areas of the city itself.

All participants operate within a so-called action research triangle, which refers to research carried out simultaneously by students, teachers and outside facilitators/university researchers (Wals, 1994a). In the context of environmental education this means that students investigate a local environmental issue of their own interest (e.g. water quality, school beautification, school violence), teachers investigate ways to improve their own teaching (e.g. working in groups, utilising community resources, conflict management), and outside facilitators, who co-ordinate the research triangle, investigate contemporary issues in environmental education research (e.g. students’ perceptions of nature, student empowerment, curriculum design). Although the focus of the research varies
within the triangle, the research process is similar in that all parties are engaged in an inquiry process that at least contains the following elements: identifying issues of mutual concern, analysing one particular issue, generating potential solutions, implementing a selected solution in the real world and evaluating the results (Figure 1). This spiral is normally repeated until a situation emerges which is satisfactory to all participants. However, here I will limit myself to the route and perspective of students (aged 12–14) from the Detroit public school system. Elsewhere I have described the research process as carried out by teachers in the context of developing sustainable agriculture (Wais & Alblas, 1996) and by outside facilitators in the context of urban environmental education (Wals, 1991; Wals, 1993, 1994a, 1994b).

During the AR&CPS process, students are given responsibility in the planning of educational activities and are provided with the opportunity to take responsible action within their local environment (Bull et al., 1988; Wals et al., 1990). Several key assumptions underlie the AR&CPS scheme. First, it is crucial for society to solve critical issues with the full participation of its young members. Second, students need to know that they can be forces of constructive change, and that their involvement is needed in the world. In other words, education should be geared towards substituting feelings of apathy and ‘powerlessness’ with the feeling that as individuals or in a group, we can make a difference.

Therefore, AR&CPS emphasises that students must be given more responsibility in the planning of educational activities and should be provided with the
opportunity to take responsible action to improve the quality of their school and
local environment. Third, giving students a chance to investigate and act on a
problem of their own choice will increase their motivation to learn. Lastly, the
school and its community contain an untapped abundance of resources for
making education more meaningful to the students. These resources include
printed matter (newspapers, books, magazines), human resources (students,
teachers, parents and other community members) and equipment (chemical
analysis kits, water monitoring devices, computers).

Context

Immersion early on in an AR& CPS project in one of the Detroit schools revealed
that as outside facilitators we had little understanding of the way the students
experience their world. Freire once wrote:

It is not our role to speak to people about our own view of the world,
nor to attempt to impose that view on them, but rather to dialogue with
the people about their view and ours. We must realize that their view
of the world, manifested variously in their action, reflects their situ-
ation in the world. Educational and political action which is not
critically aware of this situation runs the risk either of ‘banking’ or of
preaching in the desert. (Freire, 1986, p. 85)

Freire’s warning tells us that if outsiders are to play a role in educational reform
at the school level and environmental and social change at the local community
level, they will have to be sensitive to all members of the (school) community.
A lot of time was therefore spent on getting to know the school community. Four
middle schools from the Detroit Metropolitan Area have piloted the AR& CPS
approach to environmental education. Because of the importance of context in
developing programmes such as these, I will provide a brief, and therefore
somewhat narrow, description of some of the schools, students and communities
that participated.

The four schools represent a range of different student populations, communi-
ties and physical locations. Socioeconomically, the continuum stretches from the
upper-class families who send their children to a private school, via the middle-
and working-class families at the other suburban school, to the working-class
and the ‘out-of-work’ class families in the two inner Detroit schools. One of
these is located in one of the poorest neighbourhoods of the city. Racially the
continuum shifts from the virtually all white schools in the two suburbs to
virtually all African-American schools in inner Detroit.

Physically the school buildings and their locations differ as well. At the one
extreme there is the private school which is located in a park-like setting on the
banks of the Rouge River, and at the other extreme there is one of the inner
Detroit schools which can be regarded as bunker in an urban war zone. The
organisational structures and the curriculum of the schools appear to be the
same, but the problems that permeate the neighbourhoods in the inner Detroit
schools force these schools to focus on safety issues, and to teach a double
curriculum which in essence includes performing many tasks that ordinarily are
considered to be the tasks of parents and/or guardians. Additionally, budget constraints, lack of equipment and a perceived need to teach students the basic subjects before they drop out of school put added pressure on the school and its curriculum.

When looking at the Detroit students' descriptions of their world, we see a dynamic world full of contrasts and extremes. On the one hand many of the students perceive themselves as being fortunate; they live on a relatively nice block, still have some parental guidance, are not involved in drugs and are still in school. On the other hand they find themselves in a community that is almost saturated with (often drug-related) problems such as street violence, teenage pregnancy, and what they regard as a failing justice system. To cope with the violence in their community they have developed a variety of survival strategies: they know what to do when they hear gunshots, are able to suppress their emotions and to ignore parts of their reality, know how not to draw attention to themselves, know what places to avoid, spend a lot of time indoors—mostly using the outdoors to get from one place to another—and they have developed their own dreams and fantasies which provide a mental shelter (Garbarino et al., 1991; Wals, 1994b).

School is important to many of the inner Detroit students who took part, but not for school learning which appears to be mostly irrelevant. School instead performs many other functions for them: it brings some stability to their lives, it provides a shelter in a troubled neighbourhood, it is a place where groups of students can socialise—something which they can hardly do outside—and, finally, it provides the education needed, if not to fulfil their dreams, then at least to keep them out of the cycle of drugs, gangs and violence. So, even though many students criticise some of the content of the subjects they are taught and the way some teachers teach, they still value school. They are definitely at an advantage compared with their peers who already have left school.

The students from the north suburban schools have different concerns and a physical environment that is more inviting than that of the inner Detroit students. Unlike the inner Detroit students, many of the suburban students have not been deprived of a basic right of childhood: the right to experience and explore the world around them safely, spontaneously and on their own terms (Berg & Medrich, 1980). Their lives are not influenced existentially by neighbourhood crime, violence and drugs, although these problems can be found in their communities as well.

Physically, the surroundings of the suburban students are different from those of the inner Detroit students, but more noticeable than the physical differences—although less bright and green, the inner Detroit students also have parks, back yards and playgrounds in their neighbourhood—are the social differences that determine the degree to which the physical surroundings are used and the extent to which they form an integral part of the community and the lives of the children. For various reasons, many of the suburban students have been able to leave their own neighbourhoods to visit other places either with school, friends or family, while many of the inner Detroit students have hardly ever left the city.

In summary, we have a mosaic of different contexts with overlapping elements which makes it difficult, if not impossible, to establish any causal
relationship between any one variable and possible differences among the students. It is assumed that the context as a whole influences the way students interpret and make sense of their experiences and not any one element or variable in isolation. What follows is a description of the basic steps undertaken in AR\&CPS, which took place in one of the inner-city schools.

**Pistons Middle School: a case study**

Although an AR\&CPS project can be undertaken in any setting—rural, suburban, and urban alike (for examples see: Bull et al., 1988; Stapp et al., in press)—the city environment is especially fertile ground for such a project to take place. City residents live with some of the most pressing problems our society faces: crime, drugs, poor housing, pollution, poverty, homelessness and sanitation problems, among others. Urban dwellers who are victims of these social ills often feel powerless to change them. At the same time the schools are trying hard to redefine their role in educating young people in an attempt to fill the gaps created by the unstable local environment in which the students grow up.

Pistons Middle School is located in inner Detroit, a city rich in cultural and ethnic diversity, but burdened with many of the problems listed above. High school and junior high school drop-out rates rank as some of the highest in the USA. Infant mortality rates are comparable to those of developing countries. Much of the financial community has moved to the suburbs along with most of Detroit’s white population.

The eighth-grade students (13–14-year-olds) at Pistons Middle School are acutely aware of many of these community problems. They express frustration and anger at having to deal with them, and do not seem to have much hope that things could get better. Few feel they can do anything about these pressing problems (Wals, 1991; 1994a; Bull, 1992). Meanwhile the Detroit Board of Education and the administrators and teachers in its schools have been trying for years to better accommodate the needs of the children and to improve their learning environment by trying innovation after innovation. AR\&CPS represents for many Detroit schools yet another innovative approach, this time one that specifically aims to include community issues in the education of the children in an attempt to make their education more meaningful and empowering. This case should not be regarded as model of a successful AR\&CPS project, but rather as a point of reference that can be useful when developing similar programmes.

**Steps in the Pistons Middle School Project**

The steps below describe the project at Pistons Middle School in an orderly fashion. Most steps occur simultaneously throughout the project and not necessarily in the order given here. It is important that the participants can cope with the non-linear nature of AR\&CPS in order to assure a more natural learning process. By this I mean a learning process in which students and teacher continuously re-evaluate the course and direction of the project, the information needed to continue, the scope and limitations of potential actions taken by the
students, and the definition of when the project can be considered a success. This is not to say that the AR&CPS project is open ended—it has a beginning and an end—but rather that participants have to be able to cope with uncertainty. Uncertainty about when exactly the project will end, uncertainty about the topic of investigation, uncertainty about what the students will learn and uncertainty about what will happen next week.

**Planning the Process**

After the Detroit Board of Education had identified Pistons Middle School as a try-out school, and the principal had approached a Science teacher and a Social Studies teacher who expressed interest in the project, the outside facilitators set up initial meetings with the administrators and the teachers involved. These initial meetings focused not so much on the question ‘What exactly is AR&CPS?’ but rather on ‘What are some of the shortcomings in our educational programme and how can we address them?’. During the discussions, the underlying principles and guiding assumptions of AR&CPS emerged and were adapted to the special needs and requirements of the school and its community.

The teachers participating in the Pistons Middle School project, perhaps conditioned by past experiences with outsiders bringing a new approach to the school, expected that the facilitators knew exactly what would happen and that all they needed to do themselves was implement the programme. The first hurdle for the facilitators was to change this image of outsiders by making clear that by its nature an AR&CPS project is developed by the teachers themselves with the help of the facilitators and other resources, including the students. Once the teachers became aware of their key role in developing the programme—as opposed to implementing it—they had to decide whether they had the time, energy and desire still to be a part of it. The Pistons Middle School teachers, partly driven by their eagerness to try something new and with the knowledge that they could count on the outside facilitators and the support of the school administration, decided that they would go ahead with the project.

The group decided to have a one-day workshop in which past AR&CPS projects were shared and related to the context of Pistons Middle School. The teachers and the outside facilitators, the school librarian, the principal (on and off) and a parent (all parents of the selected class were invited to attend, but only one showed up) participated in the workshop. The workshop culminated in several decisions that the teachers felt needed to be made before going into the classroom. These decisions included: a rough time line (the teachers decided to work on the project in two-hour sessions twice a week for initially a period of 2–3 months) with the elements they considered crucial to the project (faculty orientation, parent notification/involvement, community walk, topic generation and selection, investigations, action taking), evaluation tools, the number of topics students would investigate (they decided that for practical reasons, one topic would do), and how to introduce the project to the class.

Prior to starting the project in the classroom and during its course, the teachers assessed the students’ information-gathering, communication and group-process skills. The students would need these skills throughout the project. The teachers
pointed out that it would be problematic to work in small groups and to ask the students to reflect on their learning experience in a journal. Special activities were introduced at various points in the process to work on specific skills needed for environmental problem solving.

After redefining the AR&CPS process with members of the school community and assessing the various skills students needed to develop in the project, the actual classroom work could begin.

Step 1: identifying issues of mutual concern

The teachers and students at Pistons Middle School agreed that a community walk would be the best way to generate ideas for a research topic. One of the teachers provided a map of the neighbourhood and the students split up in five small groups that were familiar with a particular area within the school’s surroundings (usually the blocks they themselves lived in). Each group was accompanied with an adult, for obvious reasons. The adults and in some cases the students took pictures of points of interest encountered during the two-period walk. One group consisting of students who had not obtained parental permission to leave the school building explored the school and school grounds. All students had brought notebooks to write down their observations. From our past experiences with community walks we learned not to focus solely on the negative aspects of the neighbourhood, so students were encouraged to write down things they liked as well.

Naturally there was some concern about the idea of going around the neighbourhood taking pictures, making observations and interviewing people on the street. One of the teachers feared that the walk would lead to conflicts with gangs. It is a sad observation that going outside the school building leaves one so vulnerable to the ills of the streets, and to realise that the students have to do this every day. Some of the students expressed concern about going on a community walk (Table 1) and the teachers and facilitators had to take several precautions to assure some kind of safety.

Fortunately it has been our experience that the students know best where to go and where not to go, and that many of the community residents—especially the elderly—are eager to talk about the neighbourhood and how it has changed. Many of the students expressed feelings of empowerment in their journals after the community walk and enjoyed leaving the building tremendously.

<table>
<thead>
<tr>
<th>Table 1. Journal excerpts from Detroit Middle School Students (literal transcriptions)</th>
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<tr>
<td>I think that when we go on our trip for a walk, someone is going to get hit by a car or is going to get into a fight, may be even get lost. That’s what I think is going to happen. Or somebody might snatch us little people off, or shoot us or something. That’s why I am glad we have guardians and teachers walking around with us.</td>
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<tr>
<td>... If we go out and ask people questions about drugs people will get hurt. My uncle’s hand was cut off by a dealer ’cause he couldn’t pay him. We are just kids.</td>
</tr>
</tbody>
</table>
community walk energised the participants and formed a great starting point for soliciting ideas for a topic. Back in the classroom the students of all groups reported their findings. A long list of problems/issues appeared on the blackboard varying from aids, drugs, prostitution, violence and gangs, to toxic waste, air pollution, health care and homelessness. The teachers asked the students to reflect on the topic that concerned them most in their journal. In the next session, students were asked to share their journal entries with each other. This sharing led to a discussion about why certain topics were more pressing than others. Unlike some of the other AR&CPS projects, the students were able to reach a consensus about a topic in a relatively short time period (two weeks into the project). Unanimously they decided to investigate the issue of school safety or lack thereof. In their eyes the school was no longer the safe haven it used to be and was threatened by outsiders coming in with violent intentions.

Interestingly enough the students’ concern about school safety was trivialised by the principal when they interviewed him. Disappointed by his lack of support for investigating the issue, the class decided to survey a sample of students, teachers, administrators and parents, to find out whether his point of view was shared. One of the teachers pointed out that the information obtained through the survey would give them power: ‘Mr Johnstone cannot deny something is a problem when eighty percent of the students, teachers and parents think it is!’ The students, excited by the prospect of setting the principal straight, became energetically engaged in several sessions of generating survey questions and surveying the school community. The results strengthened their conviction that school safety is an important issue. They showed the results to the principal who then had to acknowledge that indeed it was a topic worth investigating.

**Step 2: analysing a particular issue**

After the final topic had been selected, the first problem the group encountered was defining the issue of investigation. The students had a tendency to define the problem in terms of seemingly short-sighted solutions. For instance, they would define the problem of lack of safety in the school building as ‘No metal detectors in the school to keep guns and knives out’ or ‘Students have no identification passes on them’. By doing so the students focused on the symptoms of the problem and not on the cause of the problem. At the same time they became fixed on *ad hoc* solutions (get metal detectors, get a student identification system to recognise outsiders coming in the building). Much time needed to be spent by students researching the topic in order to develop a problem statement that defined their project clearly. In order to avoid disappointment and find workable solutions it is important that the students research the topic to gain a deeper understanding of the problem. Yet in their minds they already knew what the problem was and they even thought they had the solution! It became clear to the teachers and outsiders that investigating the topic meant that the students needed to slow down.

Until the investigation phase, the students’ project moved along at a quick pace and peaked their curiosity; two essential elements of good education, but
now the teachers and facilitators slowed down the process thereby disrupting the flow of the project. This meant that students were asked to find information in the library, interview people and collect newspaper articles, yet many of them were not convinced of the need for this and lost interest in the project. Forcing the students to gather more information in order to define the problem was regarded by them as slowing them down and keeping them from taking action. The teachers and outside facilitators struggled with the question: do we let them go ahead and find out for themselves that they do not have enough information, with the risk of disappointing them, or do we slow them down until they have done ‘enough’ research before taking action, with the risk of losing many students in the process?

Within the small array of action-orientated environmental education approaches, proponents can be found of both the ‘information first’ side and the ‘experience first’ side. Our experiences with AR&CPS in Detroit schools have shifted our bias from favouring information gathering first towards emphasising the simultaneous occurrence of experiences and information gathering. When students take action in the early stages of the project they are likely to discover that they lack information or have set unrealistic goals. Although this might lead to feelings of disappointment, we have found that when students are truly concerned about the topic, they will have a true sense of purpose for additional information gathering. When taking a more linear approach which requires that students have all ‘the facts’ before going out to interview the principal, for instance, students may very well lack this sense of purpose.

Step 3: generating potential solutions

As a result of the ‘information versus experience discussion’ students were allowed to pursue some of the solutions they had come up with earlier. They investigated the pros and cons of providing everybody with identification passes. They looked at Detroit schools that already had an identification system. They put together recommendations for implementing a pass system and presented them to the principal, only to hear that they had not looked at the costs of such an idea and that there was no money for the plan. This inspired the students to find out what the costs would be and how to raise money for a pass system. Students went through a similar process while exploring the idea of having more and better security guards and student monitors.

Nonetheless, as the students pursued possible actions they came to realise that the issue of school safety was directly related to safety in the community. If the neighbourhoods were safe, the school would be safe too. So the attention shifted from looking at ad hoc solutions to the roots of the problems: Why do people become violent? Why are conflicts ‘resolved’ with violence? Are there other ways to resolve conflict? What happens to those students who get in trouble with the law? The class decided that they needed to spend more time on finding answers to these questions. Two mothers who had sons who had been killed by guns came to the school to share the trauma and situations that led up to their deaths. A speaker from the Center for Peace and Conflict Studies came to the school to talk about alternative ways to deal with conflict. The class went to
court to see for themselves what happens to those who have committed violence. They also interviewed a judge. As a result of their experiences the project was gradually redefined by the students. No longer was the goal to get metal detectors or an identification system (something the administration took under advice); they wanted to find a way to teach students at the school about the destructiveness of violence to the community and about alternative ways to deal with conflict.

**Step 4: implementing a selected solution**

The students' shift from trying to implement ad hoc solutions to raising awareness among their peers meant that they needed an effective way to communicate their research findings. Inspired by rap music they chose a combination of rap and skit. For several weeks they worked in small groups on different skits that portrayed how a conflict starts, escalates and is resolved. They showed the drawback of resolving a conflict in a violent way versus the strength of resolving a conflict in a non-violent way in which both parties keep face. The process culminated in the entire class working on a 'Stop the Violence' rap/skit that was acted out in front of all the students in the school's auditorium. On an individual level several students participated in a march against violence in downtown Detroit that had been organised by a local group called Save Our Sons And Daughters (SOSAD).

It is important to emphasise that in most AR&CPS projects, the point is not that students actually completely resolve a problem (although this has been done) but that they take effective action to alleviate it. Taking action can be achieved in many creative ways; some actions that have resulted from AR&CPS projects are listed in Table 2. I should point out that the actions reported on here are the most visible outcomes of some of the projects. However, many actions need not be measurable or observable and may be postponed until later in life. The Pistions Middle School project illustrates that action taking can occur at several stages of the project and does not have to occur only at the end.

Teachers facilitating action taking should become familiar with some strategies that can provide students with an 'action perspective' or 'the perspective to act' as well as a sense of accomplishment. One strategy that might work is to investigate cases or examples of environmental problem solving carried out elsewhere. Careful investigation of such cases could reveal that resolving an environmental issue requires an amalgamation of a variety of smaller actions and a number of critical decisions (Monroe, 1990). Social psychologist Karl Weick notes that since smaller problems are more easily solved, framing an environmental issue in pieces may provide enormous psychological benefit (Weick, 1984). By providing students with examples of successful action taking, ideally involving students as well, they could become convinced that it is possible to change and shape their world and they could discover some critical steps in the problem-solving process. Some environmental education programmes have begun to collect examples of environmental success stories for educational purposes (i.e. Bull et al., 1990; Bardwell et al., 1994). Another strategy teachers
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Table 2. Some observable actions resulting from AR&CPS projects

<table>
<thead>
<tr>
<th>Grade level:</th>
<th>elementary school (6th grade)</th>
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</thead>
<tbody>
<tr>
<td>Setting:</td>
<td>suburban</td>
</tr>
<tr>
<td>Curriculum subjects:</td>
<td>social studies, language arts, mathematics</td>
</tr>
<tr>
<td>Project title:</td>
<td>Community Transportation</td>
</tr>
<tr>
<td>Time period:</td>
<td>20 Class sessions (2 sessions per week)</td>
</tr>
<tr>
<td>Project outcomes and community actions:</td>
<td></td>
</tr>
<tr>
<td>• students develop, administer and analyse a community transportation questionnaire</td>
<td></td>
</tr>
<tr>
<td>• students write a letter to the city planner giving an overview of possibilities for walking/bicycling safely from the students’ neighbourhood to the local shopping mall</td>
<td></td>
</tr>
<tr>
<td>• students arrange and participate in a question/answer session with the city planner and bicycle co-ordinator</td>
<td></td>
</tr>
<tr>
<td>• students attend a bicycle committee meeting</td>
<td></td>
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<tr>
<td>• students write and circulate a formal transportation position paper</td>
<td></td>
</tr>
<tr>
<td>• the local Homeowners’ Association responds to the recommendations of the students by constructing a bike path connecting two previously inaccessible neighbourhoods. This bike path completed the first phase of the recommended student plan</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade level:</th>
<th>junior high (8th grade)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting:</td>
<td>inner city</td>
</tr>
<tr>
<td>Curriculum subjects:</td>
<td>social studies and science</td>
</tr>
<tr>
<td>Project title:</td>
<td>School Safety</td>
</tr>
<tr>
<td>Time period:</td>
<td>48 class sessions (3 sessions per week)</td>
</tr>
<tr>
<td>Project outcomes and community actions:</td>
<td></td>
</tr>
<tr>
<td>• school survey on students’ and teacher’s perceptions of school safety</td>
<td></td>
</tr>
<tr>
<td>• students submit a plan to the principal for obtaining student IDs to keep outsiders from entering the school</td>
<td></td>
</tr>
<tr>
<td>• students arrange for the director of Save Our Sons and Daughters (SOSAD) and a representative of the Center for Peace and Conflict Studies to discuss violence in the community and conflict resolution strategies with the students</td>
<td></td>
</tr>
<tr>
<td>• students participate in SOSAD’s annual memorial service to remember Detroit’s slain children</td>
<td></td>
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<tr>
<td>• students visit court house, attend several arraignments and interview a judge</td>
<td></td>
</tr>
<tr>
<td>• students perform and video-tape a rap/skit on self-destruction in the black community in order to raise awareness in the (school) community about the dangers of violence</td>
<td></td>
</tr>
</tbody>
</table>

might develop is to help students build bridges with the scientific community, the local community, governmental groups and NGOs.

Step 5: Evaluation of Results

Evaluation of the project was an ongoing element of all phases at Pistons Middle School. During the meetings between the teachers and the outside facilitators the process as a whole was frequently evaluated and specific dilemmas, such as the ‘information or experience first’ dilemma, were addressed. The individual journals served as a medium for students to express their feelings and reactions to the AR&CPS process, which helped the teacher in modifying the project and assessing both their writing skills and commitment to the project. Of course, observation of students’ level of participation helped in evaluating the project.
and the students. In addition, so-called 'plus, minus, change' sheets were used periodically to find out specifically what the students liked and disliked about the project as well as to solicit their suggestions for change.

Discussion

Environmental education can be a catalyst for sustainable development in local communities as long as it is recognised that communities have different challenges and needs. The case of Pistons Middle School in inner Detroit, for instance, shows that lack of safety and a surplus of violence in the community may have a higher priority for young adults in the community than clean air. This is not to say that pollution is not a concern to them (see, for instance, Wals, 1992; Wals, 1994a). Environmental concerns and social concerns are often closely connected. Students from the same school working on the issue of water quality in the local Rouge River one year later discovered that, as you go down the river, the water quality decreases and the presence of heavy industry increases, as does the population of African-Americans and working-class people. There is research which supports the claim that many African-Americans and working-class people tend to live in areas that are more directly exposed to environmental threats (Bryant & Mohai, 1992; McCaul, 1976; Russel, 1989; West, 1992). If this is indeed the case then environmental education should also take into account the racial and class-related perceptions of environment and social change. One could argue that those who are most directly exposed and affected by environmental threats, whether because of race, class or both, are also the ones who receive very little environmental education or education for change. If this is true, then environmental education or education for sustainability could easily become an elitist form of education serving those who have the luxury (money, time, community support and resources) to spend time on resolving environmental issues.

The spin-off of the Detroit AR&CPS projects can be found at different levels. Although no systematic study has been conducted until now, anecdotal evidence suggests that the teachers involved have changed their teaching style to accommodate the ideas and experiences of the students and to allow for more community-based learning. At the level of the schools and the community many of the basic ideas of the AR&CPS model (most notably the utilisation of community resources for educational purposes and the focus on local environmental issues) are being used in ongoing projects such as the Rouge River Interactive Water Quality Monitoring Project and a community organising project called 'The Greening of Detroit'. Recently the various ways in which AR&CPS has been used in the North American scene have been collected and described in a practical guide for schools and community groups (Stapp et al., 1996). It is interesting to note that in Europe the OECDs Environment and School Initiatives Project (ENSI), which developed independently of the AR&CPS projects shows many similarities in philosophy and educational approach (OECD-CERI, 1994, 1995).

As far as the development and implementation of Local Agenda 21s is concerned, it can be argued that the AR&CPS model, and quite possibly
elements of the former OECD-ENSI project, which has not been discussed here, offers an educational strategy for involving schools in the process. AR&CPS's emphasis on simultaneous action research and community problem solving, linking schools with community organisations, local government and interest groups, and development of empowerment and action competence in learners without being prescriptive, could all be essential ingredients to the development and implementation of Local Agenda 21. Perhaps an important next step would be to study the potential of AR&CPS for the development of local environmental and sustainability policy, politics and action in situations where community groups and not schools initiate the process.

In conclusion it can be argued that environmental education can be a catalyst for community-based (and defined) sustainable development when environmental education is thought of not only as education about and in the environment, but also, and perhaps foremost, education for the environment (Lucas, 1980, Huckle, 1991, 1993). Education for social and environmental change requires an understanding of the way people 'define' their own situation. Hence, it is important to become critically aware of the way they perceive their world. Ideally, the learners come to interpret their situation as requiring intervention, especially their own intervention. If the change component of environmental education is ignored, for whatever reason, then the educational process will inevitably fall short in helping people understand the roots of oppression, inequality and environmental deterioration on the one hand, and in empowering them to becoming agents of social change and sustainable development on the other.

References


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