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ABSTRACT In this contribution I discuss Action Research & Community Problem Solving (AR&CPS) as an approach to environmental education. From the perspective of an outside facilitator I will illustrate the learning process with the case of Pistons Middle School which is located in the city of Detroit, USA. Environmental education here is defined as the process that enables students and teachers to participate more fully in the planning, implementing and evaluating of educational activities aimed at resolving an environmental issue that the learners have identified. What an 'environmental issue' is then depends on the perceptions and the experiences of the learner as well as on the context in which education takes place. Given that the educational activities are aimed at resolving an environmental issue, students and teachers actively seek to improve the (local) biophysical and/or social environment while engaged in an interdisciplinary learning process (DiChiro & Stapp, 1986).

Part I: Action Research and Community Problem-solving

Introduction

The Action Research & Community Problem-solving (AR&CPS) model for environmental education provides some bridges between: natural and social sciences, learning and doing, and school and community. Developed at the University of Michigan, in collaboration with Deakin University (Victoria, Australia), the AR&CPS approach to environmental education has been implemented at various grade levels in the Ann Arbor (Michigan) and Detroit (Michigan) public school systems. Whereas action research in education usually takes place in the realm of teacher practice (e.g. Corey, 1953; Hustler et al, 1986; Carr & Kemmis, 1986; Elliott, 1991; McKernan, 1991), it here applies to student practice as well. Through AR&CPS students too
reflect critically on their own learning and are give opportunities to shape their own education in a meaningful way.

Action Research

Action research as it is used here was coined and developed as a methodology by Kurt Lewin in the 1940s. Lewin, a social scientist, was interested in improving people's work and living conditions. He believed strongly in democratic decision-making, a more equitable distribution of power, and that practical problems were a never-falling source of ideas and knowledge (Lewin, 1946). Rather than asking for 'outside' expertise to resolve existing disputes, Lewin involved the affected target group itself in articulating, discussing and eventually acting on a particular problem. Through analysis, conceptualisation, fact-finding, planning, execution and evaluation – and then a repetition of this whole circle of activities – participants become engaged in a spiral process of task resolution, marked by critical reflection and action.

Action research is carried out in a series of repeated steps that can be diagrammed as a spiral (Figure 1). The process begins when participants (such as a teacher or a class of students) decide to address problems that affect them. By exploring, discussing, and negotiating with each other, action research participants isolate one environmental problem for study. They then work to come to understand the problem, to recognise the possibilities for resolving it, to explore the opportunities for taking action, and to identify the potential constraints that may impede their efforts.

As participants begin to generate ideas, they enter the first loop of the spiral. They develop a plan (P) that will help them solve their problem, implement that plan (I), and evaluate its effectiveness (E). Evaluation of the plan leads to the development of another plan, which takes them into the second loop, and the spiral continues. (The acronym for this spiral of repeated steps is PIE.) Loops generate more loops until the problem is resolved to the satisfaction of the participants. Throughout this process, participants reflect upon their learning and the evolution of the project. By doing this, they can incorporate new information into their action strategy so as to better address their problem or to adjust their plan to a changing situation.

This approach differs from the standard way of solving a problem, which is to first thoroughly understand the problem and then to consider what actions, if any, to take. Evaluation is normally carried out only after a plan is implemented. The drawback of this method is that it tends to delay action while endless study is done, and it fails to recognise that one often comes to really understand a situation only through taking action and evaluating the consequences of that action.
Community Problem-solving

Community problem-solving describes the realm in which action research can be employed in the context of environmental education. Lewin's methodology, adapted to schools, centres around articulating and acting upon a local environmental issue in cooperation 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 (Brody, 1982; Wals & Stapp, 1988). In all steps the human and material resources present in the community are utilised whenever possible.

Students are often dissatisfied with their education and unmotivated in the classroom because they feel that what they learn is removed and not useful or valid in the 'real world'. Community problem-solving can help to avert this discrepancy by addressing problems that students are confronted with on a daily basis. Combined with action research, community problem-solving takes students' experience and perceptions of the world as the focal point of their learning.

The Synthesis: AR&CPS

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 in improving the quality of their community environment. 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 for constructive change; that their involvement is indeed needed in the world. Third, giving students a chance to investigate and act upon a problem of their own choice will increase their motivation to learn. Last but not least, the school and its community contain an abundance of rich material for making education more meaningful to the students; rich material in terms of printed matter (newspapers, books, magazines), human resources (students, teachers, parents and other community members); equipment (chemical analysis kits, water monitoring devices, computers); and so forth. These premises are reflected in the goals of the AR&CPS model, which are summarised below:

- To involve students in the planning of their own education, and, as a result, shifting more responsibility for education to the students themselves;
- To place education in a meaningful context for students;
- To provide students with opportunities to apply acquired knowledge in improving a local problem that they themselves have identified and recognised to be important;
- To develop skills needed in environmental problem-solving, including: working in groups; gathering, analysing, synthesising, and interpreting information; clarifying norms and values; designing, implementing and evaluating a plan of action; and joint critical decision-making;
- To identify and utilise sources of information within the school's own surroundings for educational purposes;
- To link disciplines through focusing on a real world issue; giving teachers a chance to support each other in their teaching (and to actually get to know each other a little better ...);
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- To substitute feelings of apathy and powerlessness with the feeling that one, be it as individual or in a group, can indeed make a difference. (Wals et al, 1990).

AR&CPS is a systematic approach to learning that aims to equip students with the self-esteem and skills necessary for them to become confident and capable members of society. It results in a well-rounded, interdisciplinary, active learning experience that may serve as a model of how a group of people can work cooperatively toward a resolution in an issue of mutual concern.

Part II: Pistons Middle School: a facilitator's perspective

Background

Although an AR&CPS project can be done in any setting – rural, suburban and urban alike (for examples see Bull et al, 1988) – 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 environment in which the students grow up.

Pistons Middle School is located in 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 old) 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; Bull, 1992). Meanwhile the Detroit Board of Education and the administrators and teachers of its school have been trying for years to better accommodate the needs of the children and to improve the learning environment by trying innovation after innovation.

This case 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. In describing the Pistons Middle School case I will deal with some of the dilemmas that emerge when trying to implement an AR&CPS approach in an inner-city school, and summarise the major steps the students, teachers and administrators went through during this project. I should point out that to many of these dilemmas none of the people facilitating the project knew the answers. This case should not be regarded
as a model of a successful AR&CPS project, but rather as a point of reference that can be useful when developing similar programmes.

Dilemmas of Outside Facilitation

The Pistons Middle School AR&CPS project was initiated to a large degree by outsiders. The Detroit Board of Education selected the middle school and contacted the principal who then selected two teachers who he thought would be willing to participate in such a project. The teachers were therefore asked to participate and did not exactly volunteer to do so. This is important to point out for it contradicts the philosophy of action research in that the participants ideally are also the ones who initiate the process of change, in this case, educational and social change.

Outsiders have to be aware of the missionaries trap. I speak of the missionaries trap when outside facilitators consider themselves as the experts who have all the answers to today's flaws in education, who are on a mission to bring the new approach to the schools. This trap is likely to lead to distrust on the part of the school community and to an increased dependence on outsiders. In the worst case scenario the teachers are degraded to 'implementation instruments' without a personal stake in the educational innovation other than to avoid being reprimanded for a lack of commitment to the new approach.

This not to say that when outsiders play such a key role in the project it no longer qualifies as an action research project. Outside facilitators play an important role for they have to involve the parties (administration, teachers, students and, ideally, parents) in reflecting on the goals of education and developing an AR&CPS project appropriate for the context of the school and its community. They have to do this by sharing their own experiences with educational change in a way that does not impede communication. They have to acknowledge that any innovation is likely to fail when local knowledge and expertise are ignored. At the same time they have to think about what will happen when they leave the school: will the process come to rely so much on their presence that their absence will lead to a fall back into the old way of doing things, or will they no longer be needed after a while? Empowerment of the school community only occurs when the latter is the case. In order to become a successful outside facilitator one has to get to know the school community.

Getting to Know the School Community

Outside facilitators are at a disadvantage in that they easily come to see themselves as missionaries who bring a new, more promising approach to education. This perception of self easily blindfolds them for what's already in the schools. Every school is different, every teacher, student and administrator is different. To observe a school for a day, to drive around the neighbourhood and to talk to a few people will give you a snapshot of reality.
but not the full picture. To get the full picture, outsiders have to spend a
great deal of time immersing themselves in the school community.

The outsiders have to acknowledge that their knowledge of an
innovative educational programme may be great, but that their knowledge of
the school community is very limited. When taking the time to get to know
the school and its community they are bound to change their perspective of
themselves as well as the educational approach they endorse. It is crucial to
get to know the actors in an AR&CPS project. Not to allow teachers and
students to tell their stories or to ignore them after hearing them, will surely
lead to failure. At the same time outside facilitators have to be willing to
share some of their own feelings, experiences and philosophy. For it is only
through mutual sharing that a basis of trust, needed for a collaborative
educational project, is created.

What follows is a selection of the lessons learned by the outsiders
facilitating the Pistons Middle School project that influenced the course and
the nature of the project.

The Inner-city Environment is Fluid and Continually Changing

Twenty years ago the school virtually was an all white school as the year
book pictures clearly illustrate. Today the school is with the exception of
three students entirely African American. On an even shorter time scale,
teachers point out that there is a tremendous mobility among the students
in that they tend to move to different neighbourhoods within the city
(sometimes better, sometimes worse). At least two consequences are the
result of these changes:

- The culture of the community has changed dramatically in the course of
two decades, but the structure of the school has not changed accordingly.
  It is not within the scope of this article to address the question whether it
  should, but I will say that it causes friction.
- The school community is unstable. The make-up of a class changes
  almost on a weekly basis as a result of students moving or dropping out of
  school (see below). This makes teaching difficult and inhibits working in
groups. It also makes learning difficult for those students who have to
constantly adapt to a new situation.
- The streets are taking over the lives of many students.

The teachers involved in the AR&CPS project at Pistons Middle School
frequently expressed their concern about young adults leaving school. As
one of the teachers put it: "The neighbourhoods are falling apart and the
streets with the crack and cocaine and all the money that goes around, are
pulling at those kids". It is almost impossible for the students at Pistons
Middle School to escape the violence on the street. In the class involved in
the Pistons Middle School AR&CPS project, 18 of the 24 students present on
a particular day knew a family member who had been shot. Add to this that
many of the students live in an unstable household. Their mother often
works long hours while their father often has left the household. Many of the
students are left with the responsibility to take care of their younger brother or sister. It is clear that school is not likely to be the first thing on their mind.

Teaching subjects such as mathematics, English and science almost becomes trivial when growing up in such an environment. Yet, it would be a mistake to say that these students do not learn or don't have an interest in learning. To be able to survive in these neighbourhoods requires tremendous skill and many of the students express their desire to become educated in hopes of living a quality life in the future.

This has implications for teaching and learning:

(1) It becomes impossible to separate the content of education from the world the students live in. If education is to be meaningful, it will have to relate to the students' concerns. Unfortunately there seems to be a gap between the concerns of the teachers and administrators (teaching the basics, preparing for tests and disciplinary control) and those of the students (street survival). One of the teachers hoped at the onset of the project that AR&CPS would be able to do something about this gap.

(2) Given that the concerns of the students play a key role in an AR&CPS, it should be no surprise that the topics of investigation the students tend to choose are of a social nature. This reconfirms that 'environment' is taken very broadly in AR&CPS as a form of environmental education. It would be odd to find that students would choose topics such as acid rain, depletion of the ozone layer or water pollution. This is not to say that these problems are of no concern to them, but just that they have a lower priority (Wals, 1991).

The Structure of the School - unfit for an AR&CPS project?

This is a question that always comes up when trying to take a new direction in education. Rightfully so, for it would be naïve to assume that the structure of a school can be moulded to accommodate a new project overnight. The teachers in all the AR&CPS projects to some degree expressed their frustration with the structure of the school. As one teacher put it: "The school budget situation, the daily curriculum planner with its goals and objectives, the rules and restrictions that are there, are taking creativity out of teaching and are turning us into robots". These kinds of feelings make many teachers eager to try anything new that is being offered. A major challenge of any AR&CPS project is to make these feelings the subject of investigation, particularly the teachers' own investigations during the course of a project.

As outsiders we tend to have unrealistically optimistic view of how easy it is to change the school structure. So fluid as the community in an inner-city is, so rigid is the structure of the school. Ignoring this may at best lead to a successful, but incidental innovative educational project. We have found on several occasions that many school districts, as well as curriculum development units and educational research institutes, spend a lot of time developing universal goals and objectives, and ways to test the extent to which they are met, but relatively little time on changing the structure of
schools and redefining the goals and objectives with the school community in the specific context of each school.

If one of the teachers' and facilitators' goals is to change to structure of schooling so that it can accommodate interdisciplinary, cooperative and community oriented learning, then it is important that this goal is not only shared with the school and district administration, but also that it becomes part of the teachers' own investigation to improve practice. When teachers are given the opportunity to investigate their own practice and the possibility to share their findings with colleagues, they can gain critical insights that will help them become more effective teachers and more confident innovators (see also Kemmis et al, 1983; Robottom, 1987; Elliott, 1991). Up until now AR&CPS projects have not been successful in achieving this type of investigation.

Multiple Perspectives on School and Community

It is a myth to think that all teachers, students and administrators think alike. This notion led to the importance of facilitators getting to know the school community. In the case of Pistons Middle School, it is important to point out that:

- The principal had a very different notion of the school’s success, and the types of students that attended the school than the teachers did. He pictured a school that was recovering to the extent that students from other neighbourhoods wanted to go there. The problems the teachers spoke about (drop-outs, crack, violence) were mostly problems in neighbouring schools. The principal also concluded upon reading and hearing about the AR&CPS approach that the school was basically already engaged in such an approach to education, while the teachers complained about the rigid school structure that turns them into robots. These different perspectives need to be shared in order to gain some mutual understanding of the goals and nature of the project.

- Most teachers and administrators at Pistons Middle School do not live near the school. Aware of the neighbourhood’s problems they elect to live in the suburbs and to send their own kids to other schools. This means that many teachers and administrators only know the neighbourhood from hearsay, media coverage or the limited view they get driving on the main streets that take them to school. In a community problem-solving project this means that the teachers become learners and the students become the experts when it comes to knowing the neighbourhood and its potential resources.

Steps in the Pistons Middle School Project

By portraying some of the dilemmas of outside facilitation and the lessons learned at Pistons Middle School prior to jumping into the steps of the project itself, I tried to emphasise the importance of getting to know the
school community and of gaining some humility with regards to AR&CPS. With this knowledge and the openness to change one's perspective of AR&CPS as one muddles through the project, a better project is likely to result.

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 below. 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. With that we mean a learning process in which students and teachers 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 it does say that the 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 identified a science teacher and a Social Studies teacher who were interested to participate in the project, the outside facilitators set up initial meetings with the administration and the teachers involved. The goal of these initial meetings was to get to know each other and to get an understanding of each other's educational philosophy. Inevitably some of the frustrations with today's education were thrown on the table by the teachers. These frustrations provided an opportunity for the outside facilitators to introduce the concept of AR&CPS.

The 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 AR&CPS 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 program – as opposed to implementing it – they had to decide whether they had the time, energy and desire to still 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. During the initial meetings the teachers felt they were at a disadvantage since they had never before participated in a project like this, while we had. Therefore 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. Prior to the workshop all parties involved received a copy of the book *Education in Action: a community problem-solving program for schools* (Bull et al, 1988) as a means to familiarise themselves with AR&CPS.

In addition to 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 different AR&CPS stages that they considered crucial to the project (faculty orientation, parent notification/involvement, community walk, topic generation and selection, investigations, action taking), evaluation tools and criteria (the use of journals for which they set aside 5 minutes after each session, 'plus, minus, change sheets', student participation and the final product), 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.

The workshop at Pistons Middle School gave the teachers a better sense of their role in developing the project and nurtured a cooperative approach to the AR&CPS project. It is to the benefit of the entire project when a workshop like this also involves teachers who won’t be directly involved in developing the project. Teachers working with AR&CPS need support from their colleagues to help them in dealing with the uncertainties mentioned earlier.

In retrospect it would have been good to spend more time on ways to involve the students in the decision to participate in the project. As it turned out – and this should be no surprise – the students are even more unfamiliar with concepts of cooperative learning, process evaluation, action research and community problem-solving. As a result of prior experience they have come to perceive the teacher as 'the boss' who tells them what tasks to perform which they subsequently consider to be 'work.' Many teachers have come to see themselves as disciplinarians whose main concern is to control the students and to keep them on task. For many students the challenge is not an educational challenge to learn the subject being taught, but to undermine the control of the teacher by phenomena such as ‘bugging the teacher’ or by ‘goofing off’. Often students consider lessons to be boring and try to make the school day more meaningful and interesting by engaging in forms of resistance (Everhart, 1983). It is the students who are good at this,
e.g. the ones who don’t get caught, who enjoy high status among their peers, whereas those who concentrate on learning are considered outcast.

This dilemma seems to be at the heart of the problem of introducing AR&CPS to traditional schools regardless of what neighbourhood they are in. From the Pistons Middle School experience we have learned that much more time needs to be spent on role transformation on the part of both the teacher and the students! This issue needs to be addressed at an early stage of the project, while acknowledging that such a change won’t occur overnight particularly when the participants have to shift back to their traditional roles during the non-AR&CPS periods of the school day.

Assessing Student Skills

At the onset and during the course of the project, 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.

Group work was rare at Pistons Middle School. The structure of the classrooms (seating arrangements) and the way students were evaluated, encouraged competitive learning rather than cooperative learning. Much time would need to be spent on getting across to the students the idea that everybody has something to contribute and that the entire class would be working towards a common goal: improving a local issue that affects all of them. The teachers stressed that the students needed much structure. For group work that meant that they clearly knew what role they had within a group (facilitator, recorder, time keeper, participant). Anticipating problems with group work during the course of the project, teachers and facilitators decided to engage the students in some group skill building activities at the beginning of the project. A shortcoming of the activities, as it turned out, was that they were out of context and rather abstract. As a result many of the students did not see the use of the activities and considered them trivial. If anything the students learned that everybody in a group has something to contribute and is needed to obtain a successful outcome.

Writing in journals to reflect on the project was considered to be important by the teachers for several reasons. The students lacked experience in writing and reflecting on their education and the teachers would like to be able to interact with the students on an individual basis. The latter would provide the teachers and the students with feedback that would enable them to improve their roles within the project.

Early on in the project we emphasised the writing process over the writing skills thinking that emphasis on ‘correctness’ would stifle students’ creativity and flow of thought. However, we learned from both the teachers and the students that writing without having writing skills can be a disempowering experience. As a result of discussions with the teachers, it was decided that when reading the journals we would indeed look at grammar and spelling. We agreed that not to do so would give the students
the impression that they were writing properly and perpetuate their writing
deficiencies. The question whether this would stifle students' creativity and
stop them from writing down their feelings was answered by one of the
teachers: "I have been teaching seventh and eighth graders for many years
now and if they want you to know how they feel they will let you know,
whether you like it or not ...." We decided that as long as students have
control over their own writing, it would be appropriate to correct grammar
and spelling without grading or penalising students for these qualities or the
lack thereof.

Choosing a Topic

The teachers and students at Pistons Middle School, following a positive
experience the facilitators had at a different school earlier, 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 surrounding (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 note
books 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 (see below) and the teachers and
facilitators had to take several precautions to assure some kind of safety.

_"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._

...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._

Journal excerpts from Detroit Middle School students
(literal transcriptions)
Fortunately it has been our experience that the students know best where to go and where not to go and that many of the people who are interviewed 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. The community walk energised the participants and again 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 the most in their journal. 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 at 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 no longer formed 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 can not deny something is a problem when eighty per cent of the students, teachers and parents think it is!” The students, excited by the prospect of setting the principal straight, energetically became 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 returned to the principal with the results, who acknowledged that it was a topic worthy of their investigation.

**Researching the Topic**

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 fixated on *ad hoc* solutions (get metal detectors, get a students’ identification system to recognise outsiders coming into the building). Much time needed to be spent on 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.

Up 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-oriented 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 changed our initial bias from information gathering first towards the emphasis on 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 that 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. Bill Hammond calls the process of going back to get more information in order to be more effective in future action taking: 'recycling' (Hammond, 1986).

As a result of this 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 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 to have student monitors.

Nonetheless as the project went on the students 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. As a result two mothers
who had sons that had been killed by guns came to the school to share the
trauma and the situations that led up to their deaths. A speaker from the
Centre of 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.

Gradually the purpose of the project was re-defined by the students. No
longer was the goal to get metal detectors or an identification system, 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.

Determining Action

The students’ shift from implementing 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 a
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 I.

The Pistons Middle School project illustrated that action taking can
occur at several stages of the project and does not have to occur only at the
end. Students experienced going to court and inviting speakers to come to
the school also as a form of action taking.
ENVIRONMENTAL EDUCATION

*Grade level:* elementary school (6th grade)

*Setting:* suburban

*Curriculum subjects:* social studies, language arts, mathematics

*Project title:* Community Transportation

*Time Period:* 20 Class sessions (2 sessions per week)

*Project outcomes and community actions:*
  - students develop, administer and analyse a community transportation questionnaire;
  - 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;
  - students arrange and participate in a question/answer session with the city planner and bicycle coordinator;
  - students attend a bicycle committee meeting;
  - students write and circulate a formal transportation position paper;
  - the local Homeowner's 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.

*Grade level:* junior high (8th grade)

*Setting:* inner-city

*Curriculum subjects:* social studies and science

*Project title:* School Safety

*Time period:* 48 class sessions (3 sessions per week)

*Project outcomes and community actions:*
  - school survey on students' and teachers' perceptions of school safety;
  - students submit a plan for obtaining student IDs to keep outsiders from entering the school to the principal;
  - students arrange for the director of Save Our Sons and Daughters (SOSAD) and a representative of the Centre for Peace and Conflict Studies to discuss violence in the community and conflict resolution strategies with the students.
  - students participate in SOSAD's annual memorial service to remember Detroit's slain children.
  - students visit Court House, attend several arraignments and interview a judge.
  - 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.

Table I. Some actions that have resulted from AR&CPS projects.

**Evaluation**

Evaluation of the project was an ongoing element of all phases of the Pistons Middle School Project. During the meetings between the teachers and the outside facilitators the process as a whole was frequently evaluated and specific dilemmas, such as the 'process versus skills' 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,
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the 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

One important lesson learned by the teachers and the outside facilitators was that the students tend not to see their activities as part of a learning process. This is problematic since that would suggest that they are unable to distill a new learning strategy. The spiral learning process that an AR&CPS process embodies is hard to make explicit to anybody, not just the students. Linear learning models have the great advantage of being crisp and clear on paper. A cyclical model, although put to use every day in daily life, is much harder to convey. In future projects the spiral will have to be emphasised more frequently, for example, by using visuals. At the same time we should not rule out that when students become engaged in multiple AR&CPS type experiences, they might very well develop a learning strategy that they can apply in a variety of problem-solving situations.

AR&CPS is founded on the belief that students will develop skills and become empowered as a result of their experience with the project. Empowerment here means that students by having been given responsibility for the planning of their own education as well as the opportunity to investigate and act upon an issue that concerns them, obtain the feeling that they can have an impact on decisions that affect their lives. Although one can have a false sense of empowerment, it seems that talent and knowledge go much further in solving problems if one has self-confidence. Students' verbal statements and written journal entries do suggest that there are feelings of empowerment among most (not all) of the students that participated in the project.

As a day-to-day process, the growth and learning that occurs in AR&CPS cannot be measured with a grade on the culminating action alone. The student's contribution in all stages of the project should be considered in the evaluation. Teachers in past projects, including the one at Pistons Middle School, have used several criteria on which to base a grade including: effort put into journal writing, quality of student reports, level of class participation, ability to work in a small group, quality of oral reports, and student's self-evaluation. Although assigning a grade seems inevitable, most action research based approaches in education maintain that the purpose of evaluation is not to assess, judge and compare students, but, rather, to give them feedback that stimulates further learning.

The AR&CPS model as described here explicitly emphasises the connection of frequently separate domains in institutional education: natural and social studies, students and expert teachers, affective and cognitive learning, and school and community. As a model of environmental education, AR&CPS does not ignore the basic educational subjects like arithmetic, reading and writing. On the contrary, it enriches them with application and the context in which students perceive the world. Hereby
environmental education becomes itself a basic subject; it can no longer be separated from more conventional school syllabi.

In many countries today, the curriculum and its instructional materials are developed by experts and tested outside the school. Consequently, the uniqueness of local circumstances and the experiences students bring to class are left ignored. AR&CPS allows students' own ideas to be at the centre of the curriculum. By acting on their own ideas, AR&CPS gives students the opportunity to realise that they can be forces of constructive change. Hereby, students learn that they can act responsibly and effectively rather than being acted upon. In its totality, AR&CPS, with all its flaws, affirms students' value in shaping a quality future.

Note

[1] Names have intentionally been changed to preserve anonymity.

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References


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