CASE STUDIES

Module 1 - Overview of Children as Reseachers

Case Study of the "New Schools" of Colombia
The "Escuelas Nuevas" (New Schools) of Colombia, have successfully developed a model for public schools which incorporates many of the principles described in this unit. Community research is conducted in these democratic schools at all grade levels. The "active learning experiences" in the school include: learning stations, which allow for simultaneous class activities, school and classroom libraries for students to pursue advanced questions, and new types of organization to enable children to function as a democratic community. Children learn through the curriculum with a great degree of self-direction, both individually and in small groups. This liberates the teacher to function as a facilitator, responding as a resource to the different demands of the students. In order to illustrate some of the special ways that these schools relate to their communities it is useful to offer a case study.

Hojas Anchas: a "New School" in Caldas, the coffee growing province of Colombia
The curriculum is so well connected to the life of the community that it seems as though all of it is concerned with the environment. The "grounds" of the school seem limitless and extend quite naturally out into the larger community. There are six different environmental projects. Each has a student committee structure. Various categories of environmental projects were suggested to the students in the self-guided texts. However, the particular projects were identified by children through interviews of community residents and by walking surveys of the entire town.

A "kitchen garden" is a most common adjunct to the New Schools. Children commonly keep small gardens at home in which the parent, usually the father, assists in preparing the bed and planting, while the mother assists in managing the garden with the children, i.e. watering and harvesting. In spite of these gender differences at home, the boys and girls are insistent that at school they carry out all the same gardening tasks as one another. Another interesting feature of these gardens is that they are managed by all grades together, not separate gardens for different grades. There is a committee as with all projects. This committee, elected from all grade levels, takes special responsibility in planning the gardens and managing the work schedule. In addition to using food from the garden in the school restaurant, the students take produce to the market for sale. The treasurer for the garden committee handles the finances for this and all of the income is used for projects in the school.

The Recycling Project is conducted by children with the families of the entire village. A recycling committee oversees the project but all children in the school participate. Recycling within the school is most sophisticated, with separation of solids and the creation of compost for the school garden. For the composting, the recycling committee collaborates with the worm farming committee. For the village, each child collects recyclables from a number of families surrounding their home once per month. The project began with children following the program suggested in the children's self-guided workbooks: the children prepared posters to place around town and flyers to hand out to families. They then visited each of the families in the village in order to discuss the project and explain the procedures for recycling. Tin, glass and paper are separated back at the school and sold. From the proceeds the students are able to pay for the administration of the project. Children manage the funds and keep records of the different amounts of recyclables and the different households reached.

The Fish Farming Project. The children of the fish Farming Committee developed a program, which surprised both themselves and the larger community in its effectiveness. It is seen as a basic improvement to both the economy and to the environment of the village. It has become a source of income for the community and a way of reducing damage caused to the some of the river valleys from excessive fishing. The school functions like an agricultural experimental station. The children serve as the scientists experimenting with locations and types of fish. The results of this research are then shared with the community. In this way, the larger community can imitate the school program. Children keep logs of the types and sizes of the fish that are caught. The critical variable is the altitude and so the children experiment with ponds on a number of different slopes. In the largest ponds they compare the performance of different species of

fish. A by-product of their tests was the discovery of contamination in the ponds. The students were successful in creating clean water for the project and this also benefited residents living further down the slopes. The project is carried out in close collaboration with, and with funding from, the village government. Fifty percent of the fish are made available to the community and 50% to the school.

The Forest Conservation Project is the most ambitious of the environmental projects. It is difficult to know how much the problem identification is done by the students because the school's self-guided workbooks play an important catalytic role. Nevertheless, the children are so involved in the research phase of these projects through an extended diagnosis of the problem that they truly feel ownership. This project offers a major challenge to educate the villagers about the problem. The villagers have traditionally used wood for firewood and for sale. The children made visits to all of the homes in the village to explain the project and to interview them about their feelings regarding the problem. The children improve their awareness of the scope of the problem through these dialogues. This further increased their sense of "ownership" of the issue. At the time of visiting this school the children were collecting seeds from existing trees on the slope and bringing them down to the school in order to establish a nursery. The intention was to replant all the slopes with the native species in close collaboration with the adults of the community.

Interviews

Children should conduct their interviews in small groups of two or three children. They can share different roles: one actually conducting the interview, the second perhaps taking notes, a third maybe managing the tape recorder. In the ERA project in the Andes of Peru, the teachers found it effective for the class as a whole to interview knowledgeable elders of the community. The farmers would be invited into the classroom to speak about their knowledge of the environment, its resources, and its problems. At first, the farmers remained largely silent. The teachers discovered that it was necessary to turn the event into an interview and answer process. The children carefully prepare the questions in advance. This results in lengthy and highly valuable exchanges between the children and the elders.

Children should practice with each other. It is even possible to have very young children do the interviewing. The problem rests more in the recording of the answers than in the asking of questions. One useful trick is to help the children design relatively "closed" interviews including some "yes" or "no" and fixed choice questions. But such interviews do not allow the respondents full freedom of expression. A good compromise is to ask the children to each first do some "open" interviewing with each other on their topic and then to work out together some particular questions for a standardized interview. The final design for the interview form should have spaces on it for the open-ended questions so that children can write in the answers or at least make notes on them.

It is useful to help the children work out a standard way of introducing themselves. This can be very helpful in reducing the anxiety of facing some very official looking adult. It is important to remember to have some de-briefing group sessions with the children. Interviewing is a skill that benefits a great deal from reflection after the excitement of the event. A tape recording is, of course, particularly valuable for this de-briefing session. From these sessions children will quickly discover things they are forgetting to say. They will also learn that precisely what they ask and how they ask it makes a great deal of difference.

The following are a number of principles that should be adopted regardless of the number of children carrying out the interview:

1. Children need a prepared introduction to be able to use with the interviewee. This should state clearly what the interview is for and how the information will be used. The person interviewed should be asked whether they would like to know the results of the research project, either in the forms of a copy of a publication or an invitation to a presentation.

2. Interview questions should be prepared in advance and written down or, in the case of non-literate children, committed to memory. There should not be too many questions. There should be alternative ways of asking the same questions in case the adult fails to understand the intentions of the child.

3. Children should spend a considerable amount of time trying out their interviews with their peers using the same note taking that they will be doing in the field. They then might wish to try out the interview with their parents, who in most instances will be an important source of information for the research anyway. The facilitator should identify in advance some people in the community who are supportive of the idea of children's participation and

would welcome and interview by them.

4. Perhaps the greatest weakness in interviewing by children is for children to be hesitant to ask an adult to repeat an answer or to speak more slowly or more clearly. This is only something that can improve with practice. The teacher can play the role of the interviewee as well as the interviewer in developing this kind of skill in children.

5. The interview should close with a question by the children of what additional information the interviewee might offer to the general subject. The children can then ask for open commentary on how the interviewee felt about being interviewed by children. They can also ask whether any of the questions could have been asked differently or in a better way.

Analysis of the interviews will depend upon the nature of the questions. If children have been primarily interested in finding out people's responses to specific questions in term of yes/no answers or degrees of liking or not liking something, than this survey type of interview can easily be recorded in a form of table or chart. If, on the other hand, the interviews were designed largely to reveal people's perspectives on a problem, then the child would probably need assistance in learning how to go though an interview to pull out categories of ideas and evaluations made by the respondent. This kind of analysis, of course, would be extremely difficult for children to do who do not have literacy skills. For this reason it would be preferable for less literate children to conduct interviews with a minimum number of open questions, perhaps even with graphic reminders of each of these questions.

Module 2 - Redesigning the School Ground

The Washington Environmental Yard, Berkeley California, USA
The transition from a black asphalt yard to a green oasis with fishponds, mature trees and a diverse wildlife provided an exciting opportunity for children to document change and to understand ecosystems by actually observing and recording them as they develop. Before the bulldozer came in to smash the asphalt of this schoolyard children throughout the school conducted a survey. Children asked other children what they most liked about the yard, as it was, what they most disliked, and what they might like to see added or changed. Two years after the asphalt was removed and a large pond with dirt banks and trees and shrubs were added, the children were asked again to complete the survey with the same questions. A natural invasion of plant life was already underway, seeds that had survived beneath the asphalt somehow germinated. The children contributed new plantings into the grounds and brought in found play objects. All of these were now new potential materials of interest and afforded new opportunities for play. The children commented on this in their questionnaires.

Figure 9: The dramatic example of the transformation of school ground surrounding Washington Elementary School in Berkeley, California.

Quickly the teachers of the school came to realize what an amazing resource they had for classroom scientific study. Strings were laid across the yard to enable the children to make detailed slices across the ecosystems. They were able to create charts of these slices showing how temperatures changed, how vegetation changed and how the wildlife changed along the line of the slice. Meter-square areas, again measured with string, were located along these lines so children could see how the plant and animal life differed at different points along the slice. Bird life was observed from a removable blind that was moved to various locations around the site. From these observations children came to understand the intimate relationship that existed between the wildlife and habitat. For example in the early days of the site when a few trees had developed around the pond in the center of the school ground, cliff swallows emerged and dove into the pond and collected mud which they carried to their nests beneath the eaves of the school building. As the banks of the pond developed vegetation, this resource disappeared and so did the cliff swallows. It was the lower forms of animal life, however, that was the most accessible and regularly observable by the children. They found great pleasure and much learning opportunity at looking at the relationship between ladybugs and aphids and the seasonal changes of such animals as salamanders.

Children also monitored their own use and preferences for the environment. For example, temperatures were taken of different parts of the yard and interviews made by children of other children's preferences for different microclimates. From this children were able to talk about clothing in relationship to the environment, and how different cultures deal with these environmental differences.

Figure 10: Monitoring water quality at Washington Environmental yard, a public elementary school in Berkeley, California. (Photo: Robin Moore)

Some classes of children kept garden plots with five or six children per plot and they kept logs of growth in their gardens each week. More interesting to the children were the monitoring of growth rates and systematic comparison of these under different conditions. In one agricultural experiment children took the soil from different locations: underneath asphalt, soil from underneath the school's garden beds and compost from the site. They then established experimental seedbeds in their classroom window with these three different kinds of soil. Beans were planted in the experimental boxes and systematic records were kept of their growth.

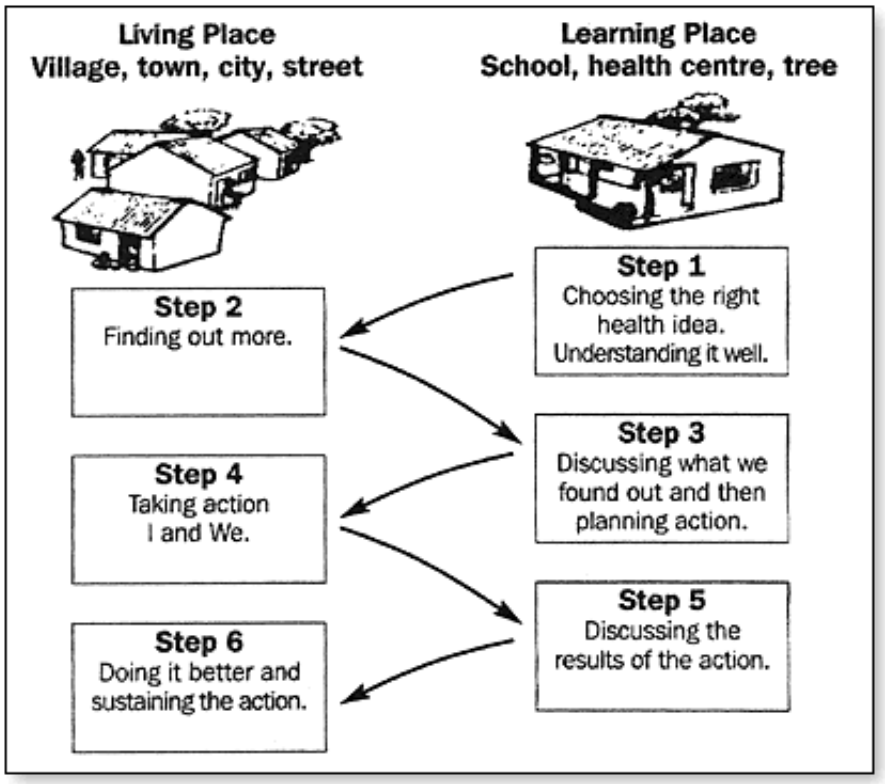
Module 3 - Identifying Community Problems

The Child to Child Approach to Research and Action for Community Health

The Child-to-Child approach is a highly effective strategy that uses research by children as the first step in a program of awareness rising (see Child to Child Trust, under "Resources", below). Unfortunately, there is a great temptation for development agencies working with children in public health, and now in environmental health for them to see children as cheap channels of communication of their ideas through "social mobilization" rather than participation. This is not the intention of the training materials of the Child-to-Child program. These describe how to foster in children a sustained capacity to become active agents by involving them in community problem identification and research before sharing their knowledge with a larger audience.

In the Child-to-Child model there are four fundamental ways children can serve as health agents for their communities: older children helping younger ones; doing small projects together; communicating health messages that they have learned to the larger community; and creating their own health actions with their communities. The first of these four approaches is perhaps the best known Child-to-Child strategy. Although the Child-to-Child Trust stresses the importance of children making their own observations and drawing their own conclusions before acting with their families and communities, this is commonly not what happens. Many teachers and facilitators have by-passed the more participatory goals of the program and taught children to regurgitate simple " health messages". One of the inevitable consequences is that the health messages remain those of the outside agencies, losing the original intention of incorporating the traditional health knowledge of the children's home area. Nevertheless, Child-to-Child, as it is designed is radically different from a traditional curriculum. First, it links children's school learning immediately with their activities outside of school. Secondly, it links what children do in the classroom with what they do in their homes. Third, the activities in the program are not taught in one lesson and then forgotten. They are rather learned and then practiced as part of everyday behavior in the classroom and then outside of the classroom. There are six steps to the Child-to-Child process of designing health actions in the community:

Figure 18: The Six Stage Approach of the Child-to-Child approach (Training Manual, 1995)

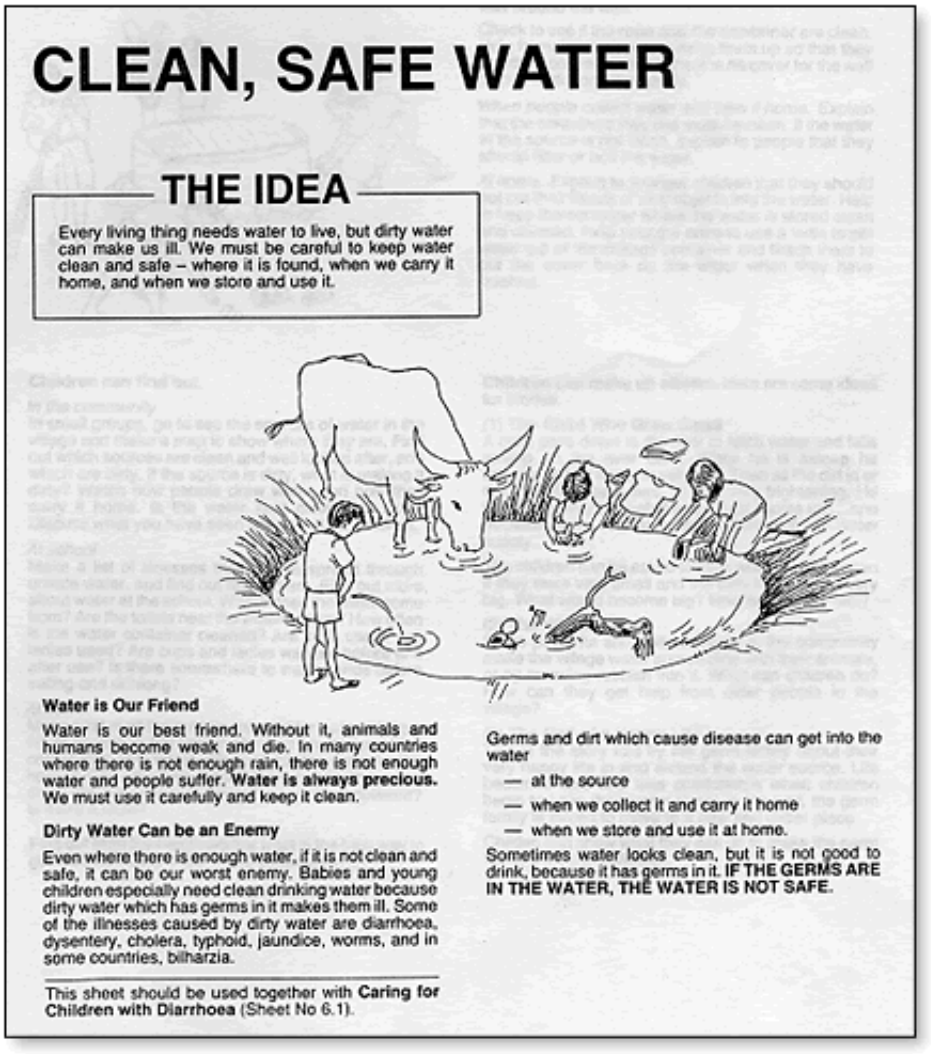


Step One: Choosing the Right Health Idea

The teacher chooses for the children a kind of project that is both important and fun. They suggest that the children first make the project area their own by understanding it well in a variety of ways. They provide activity sheets to aid in this

process).

Figure 19: A sample first page from Child-to-Child activity sheet 3.4



CLEAN, SAFE WATER

THE IDEA

Every living thing needs water to live, but dirty water can make us ill. We must be careful to keep water clean and safe – where it is found, when we carry it home, and when we store and use it.

Water is Our Friend

Water is our best friend. Without it, animals and humans become weak and die. In many countries where there is not enough rain, there is not enough water and people suffer. **Water is always precious.** We must use it carefully and keep it clean.

Dirty Water Can be an Enemy

Even where there is enough water, if it is not clean and safe, it can be our worst enemy. Babies and young children especially need clean drinking water because dirty water which has germs in it makes them ill. Some of the illnesses caused by dirty water are diarrhoea, dysentery, cholera, typhoid, jaundice, worms, and in some countries, bilharzia.

This sheet should be used together with **Caring for Children with Diarrhoea** (Sheet No 6.1).

Germs and dirt which cause disease can get into the water

— at the source
— when we collect it and carry it home
— when we store and use it at home.

Sometimes water looks clean, but it is not good to drink, because it has germs in it. **IF THE GERMS ARE IN THE WATER, THE WATER IS NOT SAFE.**

Step Two: Finding Out More

The children now investigate the phenomena beyond the school. They gather information and develop communication skills with their own families and communities through questionnaire surveys and interviews and observation schedules. For example, having identified access to fresh water as a problem, they interview a sample of residents to learn how far each household in different parts of the community has to walk for water.

Step Three: Discuss Results and Plan Actions

Children now bring their findings back to the school in order to organize and analyze their findings. Little specific guidance is presented here on how children can be taught to analyze data in order to develop plans and prioritize them. A very important point that the authors offer at this stage, however, is the importance of the children discussing with the teacher how they will evaluate their plans and activities subsequently. This is a phase that is commonly excluded from action programs.

Step Four: Taking Action

It is impossible for a person who doesn't know the community to suggest what Child-to-Child activities would be appropriate. In an awareness campaign such as a dramatic performance, it may be useful to assess people's reaction to the activities by talking to the audience after a play about what they thought and learned from it, or asking their parents about what they thought of a poster they designed on the subject.

Step Five: Discussing the Activities

The children and teachers need to discuss the effectiveness of their activities. This enables any problems to be

identified and alternative solutions to be discussed.

Step Six: Doing it Better and Helping Health Messages Become Part of Life
The children now conduct the activities again in an improved way. This gives them the chance to make the health messages clearer and perhaps reinforcing the message to others in certain ways so that the desired changes become a feature of everyday life rather than a short-term response to the children's program.

Examples of Child-to-Child Neighborhood Health Hazard Action Research in England and Nicaragua

The following accounts were provided by Sue Occleston and Pat King of Knowsley Health Education Center in Merseyside, England. The Lancashire project can be seen in the UNICEF film "Raised Voices".

The project began with children openly discussing the health hazards in the environment. Following this brainstorming, the teacher created additional visual stimuli including pictures of cars, factories, chimney, children in push chairs and dogs, etc. in order to enable the children to develop further the discussion in smaller groups. From these smaller groups the children developed ideas of what hazards they would like to survey in their community. The neighborhood was divided up into sections and small groups went out and mapped hazards. Two volunteer parents helped the teacher during this fieldwork and throughout the length of the project. Using this mapped data, the children worked together to identify and prioritize issues that they felt were important in their community. Interest groups formed around different themes and the children made badges to show membership in these groups. The groups then began to invite experts into the classroom for discussion, made phone calls to local council representatives, wrote letters and collected diverse information from books and leaflets.

One group focused on the problem of dog fouling in the community. Not only are dog excreta unpleasant to the eye and nose it is a health hazard, especially to young children playing on the earth, in grass and in the streets. A record was made of the number and location of mounds of excreta throughout the community. From this, the children were able to draw graphs showing the most seriously affected areas. It was clear to the children that their target group for this project was adults and that they should develop a message to make dog owners more aware of the problem and not to let their dogs foul the streets. In British elementary schools it is quite common for schools to conduct environmental field research in relation to a number of completely different subject areas. In this case, the children designed "pooper-scoopers" (devices for scooping up dog feces) out of discarded plastic bottles during their science and technology class. They created posters for shops throughout the community and gave talks to adults. Adults who exercised their dogs on the school field were a particularly important target group. When dog owners were sighted on the school fields with their dogs, the children would intercept them, present them with a flyer explaining the health hazard and present them with a pooper-scooper to clean up after their dogs. At the same time, other groups of children targeted younger children and those of their own age. They designed a board game called "Yuck" and puppets and short stories to reach these children on the dangers of dog excreta. By thinking strategically of the target groups they wished to reach and by focusing on all of the persons just in their neighborhood, the children were able to have an impact on the problem of dog excreta in their community. This is an excellent example of how children can have a considerable impact on an issue important to their daily play lives.

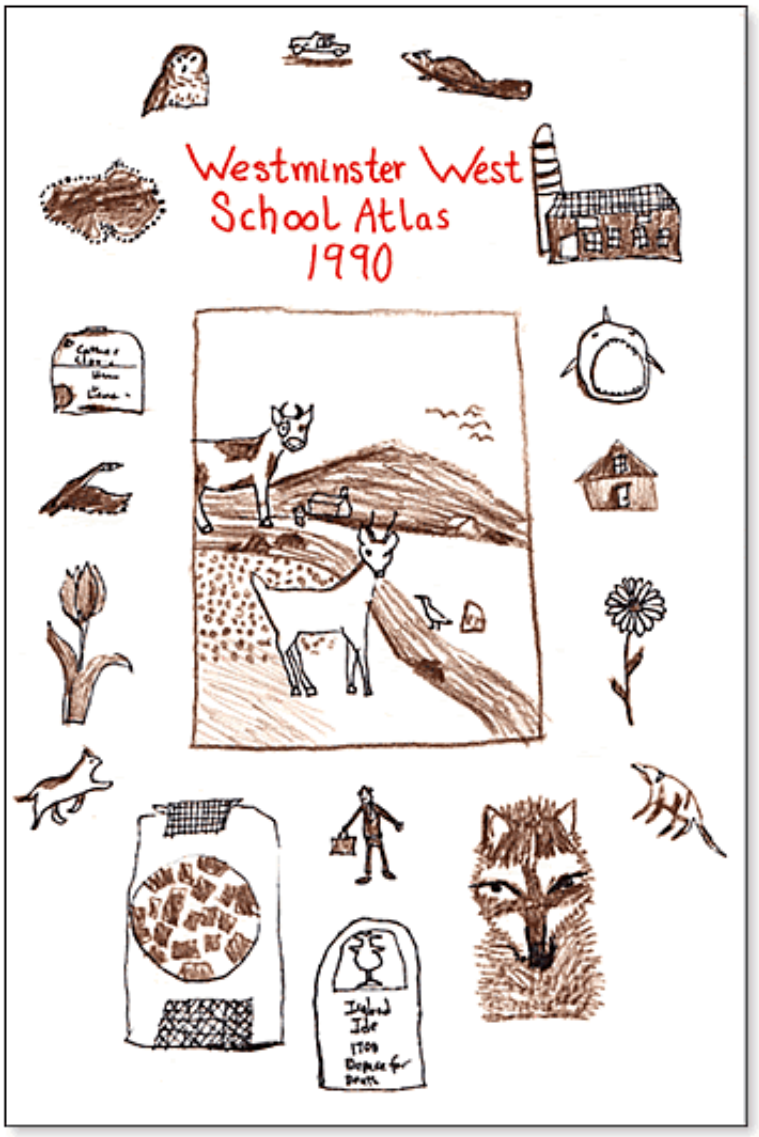
Since 1983, CISAS (Centro de Información y Servicios de Asesoría en Salud) has been promoting the Child-to-Child approach and methodology in Nicaragua. Annual National workshops enable children from different regions of Nicaragua to meet and share experiences from their local community Child-to-Child projects. The following were recently identified by a team of children in Managua as priorities in their community: unemployment, economic problems, lack of adequate affordable schools, no health center, lack of organization in the community, dirty ditches, unclean water source, streets in need of repair, and black water in the ditches. The children were able to prioritize these and to conclude that the lack of community organization was at the heart of all the problems. As a way to begin looking at the problem of "organization," the children decided to organize themselves and others to clear rubbish. An excellent example of the global linking possibilities of the Child-to-Child approach is that a large banner created by children in Managua, with pictures drawn of some of their Child-to-Child activities, was recently sent to the children of the project described above in Knowsley, England.

Module 3 - Community Atlas

The Westminster West Atlas Project

The Westminster West School. The Atlas Project grew out of an earlier project looking at the history of the community. It became clear to Claire Oglesby, the teacher of the Lower Elementary School in the town, that the children didn't know much about present-day Westminster West. This led to classroom discussions on what projects the children might do and it became clear that individual children knew a lot about particular environmental phenomena. Some of them enthusiastically wanted to share their knowledge of such things as horses, because they felt they knew all the horses in Westminster West. Others were proud of their knowledge of farming and they knew where many of the hayfields were. After discussing how these might be mapped, one of the children suggested that an atlas be created, and in this way an exciting new project was born.

Figure 21: (a) Cover, (b)Table of Contents and (c) one map selected from the Environmental Atlas of Westminster West, produced by six-to-ten-year-old children



MAPS

This classroom has children aged from six to nine years of age. With such a great variation in the children's ability to map, Claire started to engage in a series of model-making and map-drawing exercises, leading up to children being able to understand and use outline maps of the town. The creation of a large three-dimensional model of their own was critical to developing the younger children's understanding and is strongly recommended for all elementary school teachers although it is an extremely time-consuming task. Most of the children chose to work in pairs in creating a map for the atlas, though a number of them had unique interests and created a map by themselves. Once children had chosen their topic, the goal of mapping it was clear. The different routes for obtaining the information, however, were an exciting challenge for each child. The atlas project lent itself to children developing their own strategies for collecting information, with help, and struggling through the required decision-making. The whole projects lasted three or four months. The atlas remained an interesting resource for children in later years and children periodically chose to add new maps to it.

One of the mapping projects for the atlas was on graveyards. The children reviewed maps, visited the sites and interviewed various elder members of the community, because many of the graveyards were small, private ones connected to people's homes. Most of the field research parts of these projects are carried out as homework, though in this school it is possible for children to make field visits in small groups during school hours, accompanied by volunteer parents.

Data for the map of pets in the community was collected through the design of a survey. This survey was carried home by the children of the 40 families and from this carried out to further families through relatives and neighbors. With this age it was not possible to have a complete saturation survey, or even a formal random sample, but the children reached a large percentage of the total community of 800. Another common source of information for children is for them to interview particularly informed persons in the community. Very often such persons will come into the classroom to be

interviewed by all of the children together.

Case Study of Community Herbaria in Colombian Schools

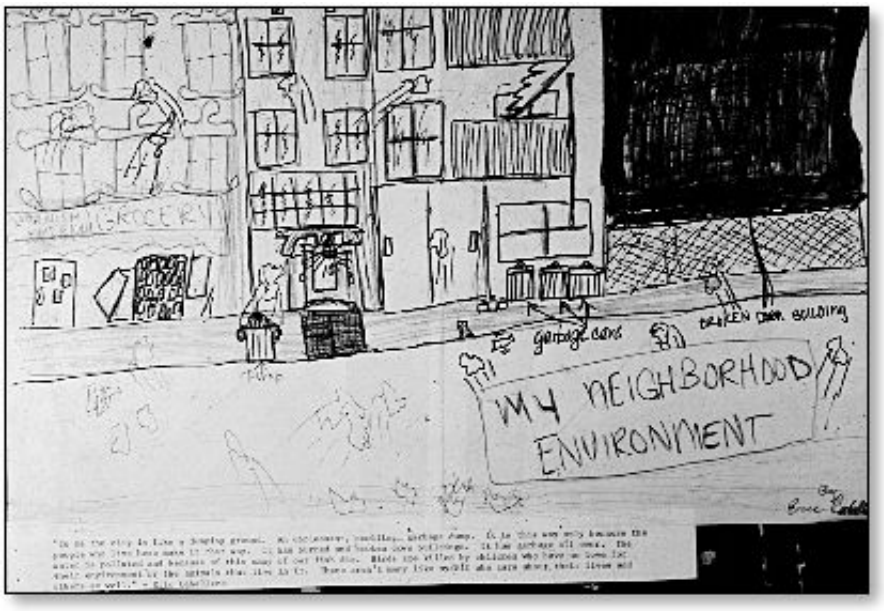
Community Herbaria are being created by primary schools in the region around Villa de Lleva near Bogota in Colombia. With the help of their parents and through interviewing neighbors, the children of each school constructed for their community a herbarium that reflects the collective plant knowledge of that community. The Collegio Verde, or "Green College", supported the schools in this work. Regular visits by a botanist from the Green College enabled children to show the scientists what they had learned, to complete and confirm their plant identifications with him and to consult on plants they had not been able to identify. They sometimes provided him with specimens that he did not have in the regional herbarium based at the Green College and sometimes offered him plants, which he himself did not know. In these instances the plants were sent to Bogota for identification and, when necessary, to the Botanic Garden in Kew, London, an international center for plant identification. In this project, children were excited by the idea of playing a useful role as scientists for their own community with the possibility that they may even be able to extend the frontiers of knowledge. Any school can create a valuable community herbarium with no technical assistance beyond the knowledge existing within the community. Ideally, there should be occasional visits by an agricultural adviser who could help answer questions of plant identity that go beyond local knowledge. In many countries government agricultural agents would be happy to respond if invited to help in this way.

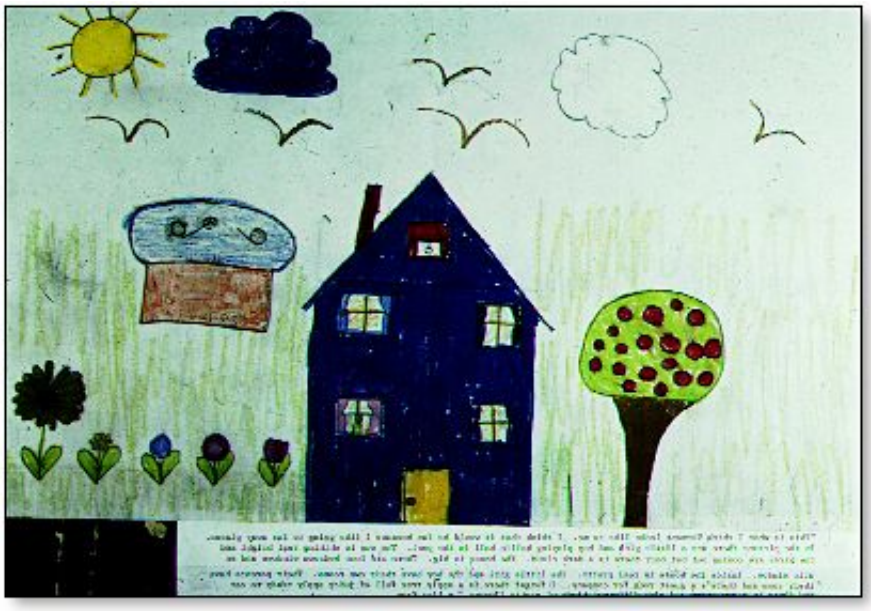
Case Studies - Community Exchanges

Community Exchange Approach to Environmental Education in the U.S.A.

It is not always possible for children to believe that their research could be interesting or useful for adults. In such cases one may begin community environmental research by having children share their findings with other children. In a demonstration project with schools in New York and New England states, children living in two dramatically different communities corresponded with one another for a year about their research on the environment of their community. The experiment involved grades four through eight (nine year olds to 14 year olds). The project served as a focus for teachers to integrate all subjects of the school curriculum. Only modest in-service support, in the form of weekly visits by graduate student environmental interns, was required to help the teachers see how to meet some of their particular curriculum goals through the project.

Figure 23: Sample Drawings from an Exchange Project between Children in New York City and Vermont, USA.





In the first exchange of letters about each other and about their respective environments, stereotypes were shattered. In each classroom, the children themselves, through their own experiences and through interviews, identified local environmental study sites with community residents. These sites were locations that were slated to change or that the children thought should be changed. The children then spent the year studying these sites, projecting alternative futures for them, and assessing the positive and negative social and environmental impacts of their proposals. Each classroom created a book of their own community's environmental study sites and constructed a book of their "twin" community's study sites through the correspondence. At the end of the year they visited their twin communities with enough background to be led around the sites and to have informed discussions without adult mediation.

The correspondence exchange process leads quite naturally to classroom discussions on both commonalty and differences in their two environments, and of the different priorities the citizens of the two communities have. This provides an excellent basis for the teachers to lead the children into discussions of regional, national and global environmental problems. If the children discover that damage to trees in the park of their East Harlem "twin" community is coming from the same source as pollutants in their Vermont community, then they are no longer investigating local problems only.

Case Study of an England and Kenya Exchange

The Norton School, a high school in Cleveland in the Industrial Northeast of England, has been frustrated by the problems of not being able to communicate rapidly through electronic technology with their twin school, the Lenana School in Nairobi, Kenya. As a result the Norton School sent some money to Lenana to assist them in the purchase of a computer. Mr. Maneno, the principal, responded to the gift from England by explaining that he "could not justify spending that kind of money on something that as of yet had no established place in his school curriculum, whereas the trees which the boys had planted in the school compound as part of their agricultural practice were drying through lack of water!" As a result, the money from Norton was spent on a pipeline to the garden. Communication was improved through the use of a fax machine at a post office in Nairobi, though this is not very close to the school. An exchange of schoolteachers has enabled both schools to understand each other and what resources they have to offer. While the United Kingdom had better school supplies, books and electronic technology, it was found that Nairobi had spacious land and a good supply of gardening equipment. This enables the school to focus on the kinds of environmental learning most relevant to the problems of this community: serious soil erosion, water supply and fuel shortages. The priorities for the work on their land are related to their survival and this is most important for the children of the Norton School to understand. The English children will improve their four acres of rough land, previously belonging to the British Rail Authority, for wildlife and as a leisure amenity and a place of beauty for residents who live in this old industrial area.

http://www.unicef.org/teachers/researchers/
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