

CHILDREN AS COMMUNITY RESEARCHERS

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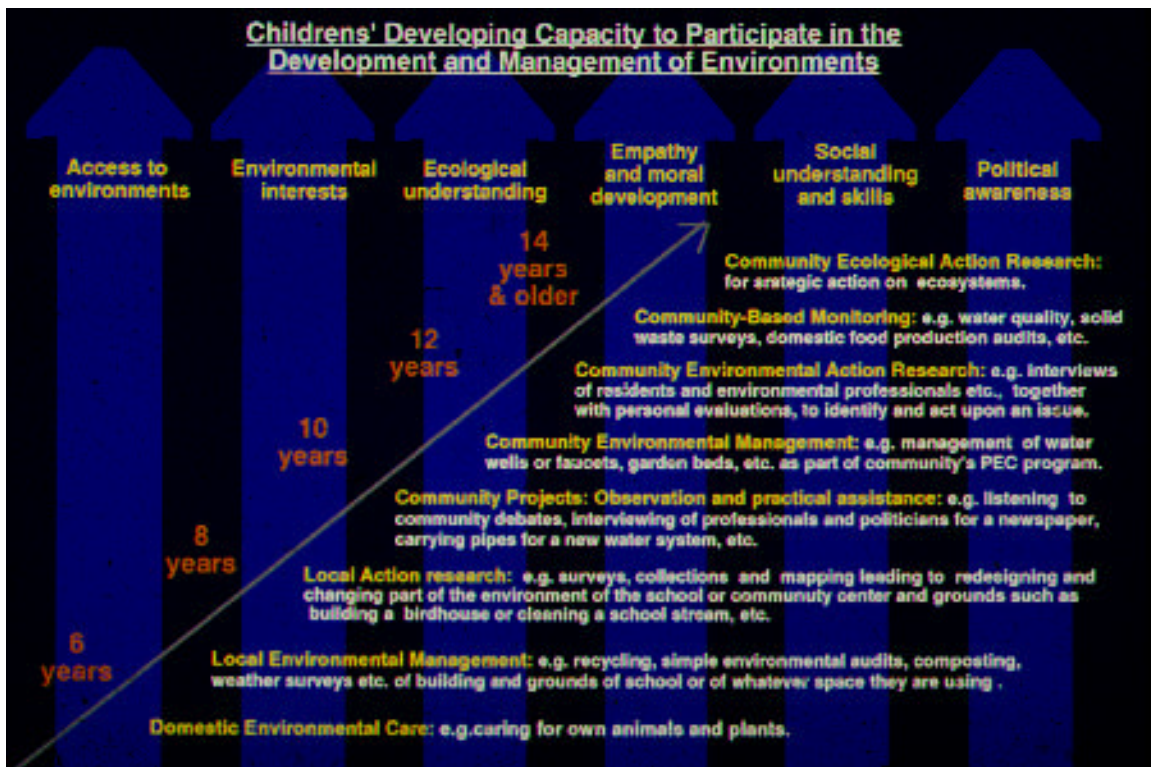
UNIT 1: SETTING THE STAGE FOR COMMUNITY RESEARCH BY CHILDREN

These units are designed to enhance children's capacities to conduct useful research in their everyday community. Most of the community research carried out by schoolchildren throughout the world is related to the physical environment and is called "environmental education". The subjects of these units include the living environment of the children themselves: housing, resources for earning a living, parks and municipal services.

All children can usefully carry out research from the early elementary school years through the teenage years. In fact mixed age grouping is ideal for research because of the capacity of children with different abilities to learn from one another. Considerable emphasis is given to the use of alternative forms of media to writing. This enables younger children and less literate children to participate. It is also a valuable way of recognizing the different 'learning styles' of children. It is also excellent for enabling children with very different abilities to work together. (*Go to: Some Alternative Methods*).

Although each unit can be conducted independently of the other, they do proceed with a developmental logic: students investigate the immediate surroundings of the classroom and the school grounds before proceeding to more complex community initiatives. The diagram below suggests very broadly the range of kinds of research activities that children of different ages might be interested in and capable of conducting.

Figure 1: Children's Developing Capacities and Interests in Research.



Why community research in schools?

Experience-based learning

It has long been recognized that learning is most effective when children are actively engaged in the creation of knowledge. It is also extremely valuable for children to be able to build their school learning upon the knowledge that they gain in their everyday lives in their community. (Go to other UNICEF unit on this).

Democratic learning

All schools require education in civics and/or government. This is often taught through formal texts that introduce citizenship in an entirely abstract manner. More important than the abstract facts of government is that children learn to see themselves as competent and confident members of their community. Children and adolescents appreciate the opportunity to feel that they can play a useful role in community or environmental improvement. The new vision of the UN Convention on the Rights of the Child brings this aspect of school education into greater focus for it sees children as citizens with rights to participate (*Go to UNICEF: "The Children's Wishbook" and "Why so Child Friendly?"*).

Environmental education

Environmental concern and understanding should be based in local knowledge of the environment. If children only know ecology from books, they will find it hard to understand it and will be unlikely to develop a deep concern for environmental issues. All communities need aware and active citizens if the environment is going to be successfully managed following the principles of "sustainable development". This is an extremely important concept for children to understand. Sustainable development has been defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". It recognizes that the future depends upon simultaneous development for the eradication of poverty while also rescuing the earth from its perilous path of degradation.

Benefits to the Community

Children's research can be valuable to their community. It can sometimes lead to minor physical improvements by the children themselves. It can also lead to larger changes by stimulating a dialogue on community problems and improvements between parents, planners and public officials.

Participatory Action Research

Action research is a process of looking critically at social and environmental conditions as the basis for improving them. It is important to note that your perspective and the children's perspectives on a research question may change while you are carrying out action research. This change is desirable. But this is a different way of thinking than that of the more traditional experimental research that is traditionally emphasized in school curriculum guides or textbooks. More traditional research, including experimental research, is also important for children to learn. It may, for example, be interesting for children to conduct research on the different crops that

they can grow in their school garden by making experimental plots and comparing growth in each of these. But this type of research is not the subject of this series of units. The diagram below describes the complete sequence of an action research cycle.

Figure 2: The action research cycle



As you can see in the diagram, evaluation is not a separate process, carried out by others, but a fundamental part of action- research.

Do children's projects look the same?

Do children's projects look the same in the different classrooms you know? If they are all the same then the children could not possibly have been openly identifying the issues in their community. It is not sufficient for children to only investigate problems that have previously been identified by adults. Children themselves should be involved in problem identification. Sometimes a teacher might suggest a subject, but if children are truly to become researchers they need to be fundamentally involved in the diagnosis of the problem. They need to learn how to ask questions as well as to answer them. For these reasons, the following units are based on the investigation of, and action on, issues that are important in children's own lives and in the lives of their communities.

Relating Community Research to the Required Curriculum

Community research cuts across the whole curriculum and is valuable to all subjects as a motivational core. It is sometimes necessary for teachers to illustrate to school administrators and

others that community research is not another new separate subject of the curriculum but are integrated into all subjects.

The clearest way to do this is by regularly marking up a chart of your total curriculum:

- Prepare a chart showing the outline of your required curriculum.
- Display it in a prominent location near the entrance to your classroom as a way of declaring explicitly the relevance of your community research program.
- Regularly annotate this curriculum chart with notes on the community research activities of the children.
- Consider using this chart for weekly classroom planning and review. In this way, the mandated curriculum can become a valuable check upon the different skills and kinds of knowledge being fostered by the children's community research.

Establishing School –Community Collaborations for Research

Teachers cannot effectively manage programs of community research alone. They need the help of others in their community. In most communities there are talented people who would be involved if they knew that this was of interest to the school. There are a number of things that a school can do to begin to change their relationship to the community and its many resource persons.

Invite the Collaboration of Parents

Parents can play a valuable role in the local research projects of their children. They can be the primary link for children to the collection of community data as homework. In fact, community research can become an effective means of helping parents to discover that learning is not something that just happens schools. They can play an important role even if they are themselves not formally educated.

Establish a Community Directory of willing volunteer consultants for the school:

One way of promoting the idea of community collaboration both within the community and with your teaching colleagues is to create a simple booklet of the names and talents of local persons who are willing to occasionally work with children in some way.

These people might include:

Community residents

This is an important group for any school wishing to build its community research capacity. There are valuable teaching resources residing in every community that are never used.

The Special Values of Working with Senior Residents

Community research offers an excellent opportunity to bridge the wisdom of the past with the necessary new understandings demanded by a rapidly changing world. Fostering the relationship between the local knowledge and skills of the older generation and the developing knowledge of the young offers us the best opportunity for maintaining cultural continuity while working for community development. Also, these two groups, which are

normally excluded from planning decisions, can develop alternative plans together. By working together they can achieve a great deal. The Neighborhoods 2000 project, in Hawaii, has been a very effective strategy to involve elderly residents in community research and planning. At the same time, seniors and students are able to greatly improve their understanding of each other through comparison of their perceptions of the same neighborhood.

Some environmental educators bring seniors into the classroom and take children to learn from them in forests, fields or urban neighborhoods. A few exceptional programs are even more enriching to a community because they involve a two-way process, and sometimes even a three-way exchange of knowledge between local sages, outside environmental experts and children.

Planners and Research Professionals as Consultants for Children

Children can learn from community residents what many of the primary environmental priorities and problems are. But environmental scientists and professionals still have a central role to play. They are better prepared to identify what parts of the environment are most at risk from human action and also in many cases, what parts of the environment are most seriously affecting the health of a community. Furthermore, many environmental problems cannot be fully addressed by a local community. Partnership is required: an interaction between the identification and diagnosis of local issues by community residents themselves, in dialogue with environmental professionals, and collaboration in the solution to these problems. Schools need to be able to occasionally call on officials to help their children as consultants. Government agencies and university staff are often surprisingly willing to respond to schools in this way (*Go to example: Case Study of the Herbarium Project*). Unfortunately, be aware that the typical response of a government agency in working with a school is often to send their staff to give prepared talks to children. To avoid this, quickly establish the desired nature of the two-way relationship.

Prepare for the participation of non-teaching resource persons:

The students may visit resource persons or the latter may be invited into the classroom. You should consider in advance what experience these persons might bring in order to enable them to be the most effective:

- To avoid the tendency to have experts give "potted" or "canned" lectures put them in the position of being a resource from the beginning. Invite them to come and respond to questions that have been prepared by children from their research.
- Arrange for children who have already begun some community research to visit a planner/environmental professional in his or her office to ask questions.
- Ask planners to accompany children on surveys in the community, walking side by side and exchanging their perspectives.

Improving Group Work

Group Size:

Because community research has a diversity of tasks and is highly motivating to children it is possible to conduct research even with very large sized classes of children. It is essential however to break children down into small working groups. Groups of four to six children around separate tables are ideal for maximizing children's participation in the research.

Decision-making structures:

It is valuable to help your students establish rules and decision-making processes for working in groups. Educators for Social Responsibility in the USA have produced some useful guidance on educating for democratic participation in elementary schools (<http://www.esrnational.org>). They suggest that children be introduced to six different models for decision-making:

- Authoritarianism
- Delegation of responsibility
- Random Choice
- Direct Democracy
- Representative democracy
- Consensus

You can have children create skits in which they role-play each of the different decision making models around a common problem. One good method is to have children make decisions regarding participation in organized team games or sports.

Have children try to systematically keep records of how these different models are variously used by their group from day to day (*go to: Investigating and Redesigning the Classroom*). They will come to learn of course that many of our decisions are made by an informal combination of a number of these models.

Some Alternative Methods for Child Research and Communication

Drawings and Collages

Individual Drawings

Drawing can be used most effectively as a warm-up exercise during the problem identification phase. At first try to use materials that you have a lot of so that the children feel free to make "mistakes". Features of children's drawings can be cut out for use in a collective collage of children's concerns or ideas.

Storyboards

Most children are familiar with comics. A sequence of annotated drawings is called a "storyboard" by the film industry. This method offers great potential for those children who have restricted writing abilities. It can be used in the problem identification phase as a way of telling stories from their everyday lives. It can also be used later in a project to describe their research process to others. To get them started you can provide them with a sequence of open boxes on a sheet of paper and one or two examples of storyboards.

You can also offer yourself as an annotator of their drawings. Rather than taking away from the significance of their work, it adds to it. Simply write alongside features on their drawing what they tell you. By enabling them to complete a storyboard, they are able to proudly exhibit it, use it in a publication with their peers or mail it to children in another community.

Collective Drawing

This is an excellent "warm-up" activity for any group. It can also be used as a central technique for the collective expression of a group's desires. The material resources needed are a piece of cardboard or large sheet of thick paper or canvas on a wall, paint or markers. Each participant can make some kind of graphic addition to the whole. The subject of the creative expression can either be left open, stressing its "warm-up" nature or it can be focused.

Collage Making

Collage making involves the cutting out, arranging and sticking down of images that can be taken from a variety of sources. In collage, children feel less limited by their technical abilities than when they draw. The method seems to increase their visualizing capabilities. Also, the possibility of contrasts of scale, such as a sheep as large as a public housing tower, can have symbolic and metaphoric potential which children often do not feel free to express in drawing. A mixture of expressive forms - photos, colors, words and drawings, is almost always richer in content than the use of only one means of expression. In some cases, children who do not usually write can create word collages by cutting out words from magazines. Collage making is more easily done in a group than are drawings. The process of choosing images, cutting, pasting, and positioning, etc. can contribute to the goal of collaborative work.

Figure 3: Children in Red Hook, Brooklyn, New York, making a collage as part of a Neighborhood Futures Project (photo credit: Ray Lorenzo).



The following range of materials is ideal, but children should be free to improvise:

- Wide array of sources of images (color magazines, comic books, unwanted brochures, reports, and cut-outs from children's own drawings, etc.)
- Fine and wide-tip colored markers or crayons.
- Watercolor paints, scissors
- Glue
- Loose 3-D parts that are relatively flat (e.g. industrial remnants: plastic, wood, glitter, cloth pieces)

Model Building

Models are an ideal tool for communication across a wide range of age ranges on planning and design projects. If you have plenty of time children can build everything themselves with clay, paper or cardboard. Unfortunately it is very time consuming if the participants do the entire model making. For an environmental design project, like a schoolyard, you can prepare in advance cardboard templates representing trees, shrubs, seats, different layouts for games and so on. For the design of green space you can work outside in soil with natural elements. Sticks, flower petals and stones are excellent for the design of alternative garden layouts. The materials should be diverse. There should be some that allow great flexibility in their meaning to allow the child to openly discuss a wide range of themes.

Figure 4: A. Children in a school near Cuzco, Peru, learn from mothers in the community how to use mud to build their traditional houses. B. Children in Harlem, New York City, displaying their model of suggestions for the design of a plaza on their street in order to obtain the reactions of other residents to their ideas.





Observational Surveys

Surveys are a straightforward and satisfying kind of research activity for facilitators and teachers to work on in any culture and with children of all ages. They also build upon the great fascination children seem to have with collecting and mapping and, if designed well, they can excite children with the opportunities they provide for detective work. With remarkably little effort, children in any community can collect information that that community has never seen before and express it in map and graphic forms. In this way, parents clearly see that the children's involvement in their community fits with traditional notions of the kinds of skills that should be learned in school. Thus, it is a good way to begin a new program in a school that does not have a record of community research.

The best kinds of surveys to begin with are those that record physical data on a form. The example below is a form for recording pollution designed with children in the National Program of Working Children in Ecuador. Questionnaire surveys are more challenging. They are discussed under "Interviewing", below.

Figure 5: A survey form used by the National Program of Working Children in Ecuador

PMT E ECUADOR

**PROVEEDOR: Defender al Medio Ambiente
"Un mundo grande desde los más pequeños"**

Los niños y jóvenes del Ecuador estamos defendiendo nuestro derecho a la vida y pedimos a las autoridades que nos ayuden a lograr que no haya contaminación al Medio Ambiente.

NOMBRE DEL ENTREVISTADO:

COLEGIO, BARRIO, INSTITUCIÓN O LUGAR DE LA ENTREVISTA:

| CONTAMINACION POR SUCIOS | | | | | | |
|--------------------------|-------|------------------------------------|------------------------------|-------------------|---------------|------------------------------|
| Fecha | Hora | Mensaje del medio, sector o barrio | I N F R A C C I O N | | | |
| | | | No tiene presencia municipal | No tiene denuncia | Se denuncia a | No se corrige y se desatende |
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PROBLEMAS DE SUCIO QUE EMPEÑA LA CONTAMINACION DE LA SALUD
 (Pregunte a la gente):
 - ¿cómo se ven los sucios?
 - ¿cómo se ven los sucios?
 - ¿cómo se ven los sucios?

RECOMENDACIONES DEL ENTREVISTADO PARA SOLUCIONAR ESTE PROBLEMA
 - ¿cómo se ven los sucios?
 - ¿cómo se ven los sucios?
 - ¿cómo se ven los sucios?

¿ Hay un problema de contaminación? Si no hay problema de contaminación, ¿cómo se ven los sucios?
 ¿ Hay un problema de contaminación? Si no hay problema de contaminación, ¿cómo se ven los sucios?

Click for a full-size view


Interviews

Interviewing is a basic technique for any community research project. It is extremely valuable for helping young children to understand that different people can have very different ideas about the same environment or issue. Young children are commonly intimidated by the idea of interviewing adults. It is true that adults, particularly in certain cultures, often find the idea of a child interviewing them strange. If a child is well prepared however, a successful interview can dramatically change the opinion of an adult about children's capacities. Also, children quickly discover that they can become the collectors and providers of information. For children with limited writing abilities, the use of a simple tape recorder in the interview can enable them to obtain a complete record. Analyzing the information from this record can subsequently be valuable for the development of their literacy skills and the information may be recorded in graphic form onto charts, maps or tables. (For further tips, go to "Interviews", below).

The National Program of Working Children (PMT) prepared the interview form reproduced below in Ecuador during the problem identification phase of children's research. It is a good example of designing a form for pre-adolescent children. It is clear, both to children and to adults, through the content of the questions why it is that the interview exchange should be taking place. The form was designed to have a minimum number of questions yet still reveal useful information to get children started on the identification of problems in the community. Its

appealing graphic quality, which can in fact be colored in by children, makes it an attractive, yet inexpensive, document.

Figure 6: Interview form from the National Program of Working Children (PMT), Ecuador.




Pregunta a la persona más anciana de tu comunidad si ahora hay más animales y plantas que antes. Cuéntanos lo que te dijo.

La persona que le pregunté me dijo que antes había más plantas y árboles más grandes y también más cacería y pesca, todo se ha terminado me dijo.

En cuanto a árboles existían cedros, caobas, laureles grandes y ahora no hay esto, claro que hay poca pequeña y en los cerros ^{cerro} todo se ha perdido, pero buscando con poco casaca si se consigue como: guatucita, guanta y acumadillo.

¿Qué animales y plantas te gustan más?. Pon sus nombres y haz un dibujo de cada uno:



Perró

Gurraño

Pollo

Chaiti

Questionnaires can be used to collect information from large numbers of people. They have mainly specific "closed-choice" questions rather than the "open-ended" ones used in interviews. They are most useful later in a research process when children have identified specific questions such as: "Which of the issues on this list do you think is the most important problem in your community?" or "Which of the following ways do you usually dispose of your garbage?" Unfortunately, few adults are likely to be willing to fill out a questionnaire that is left with them. Children can instead using the questionnaire forms to interview people.

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 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 described in Unit Seven 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.

6) 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.

RESOURCES

Educators for Social Responsibility (1991). Taking Part: An Elementary Curriculum in the Participation Series. Cambridge, Massachusetts: Educators for Social Responsibility (<http://www.esrnational.org>).

Fountain, Susan (1997). It's Only Right. New York: UNICEF

Raised Voices (1993). A film documenting children's rights issues around the world. Available from UNICEF (<http://www.unicef.org.apublic/vidfinal.htm>)

Adams, A. and Ingham, S. (1998). Changing Places: Children's Participation in Environmental Planning. The Children's Society, Edward Rudolf House, Margery Street, London WC1X OJL.

National Science Teachers Association. Dragonfly: A Magazine for Young Investigators. NSTA, 1840 Wilson Blvd., Arlington, Virginia, 22201-3000, U.S.A.

Hart, Roger (1997). Children's Participation: The Theory and Practice of Involving Young Citizens in Community Development and Environmental Care. New York: UNICEF and London: Earthscan.

A range of resources, including all publications by this author, are available from the Children's Environments Research Group (<http://web.cerg1.htm>).

UNIT 2: INVESTIGATING AND REDESIGNING THE CLASSROOM

Goals

Research skills

This unit introduces teachers to methods for enabling children to look critically at their daily use of classroom space. Children will learn the skills of mapping, observation, recording of observations, and analysis and interpretation of data.

Discovering the Value of Community Research

This project will demonstrate to the students that:

- People organize themselves, their things, and their spaces.
- The design of space is crucial for the smooth functioning of life.
- Communities can change their organization according to needs.
- Changes to spatial arrangements can help a community improve how it functions.

Examining classroom space entails examining the structure of authority represented in the existing classroom space. Most traditional classrooms are physically designed to be 'teacher-centered.' This type of design gives authority to the teacher and discourages group work. The kind of spatial analysis described here can help children see how reorganization can help people work better together. It's also an excellent method for improving children's understanding of their own behavior and the behavior of others. For this reason it is also useful in improving children's abilities to resolve conflicts.

Students will proceed through a series of activities that will enable them to suggest ways of redesigning the classroom space. If the data is reliably collected at different times of the day and week it can also be used to help the teacher rethink the planning of the classroom timetable and the rhythm of the day.

Procedures

Step 1: Creating a Floor plan of the Classroom

- Construct a floor plan of the area with the students (see figure 7).
- Make reduced copies of the floor plan for recording the data (e.g. 8 " x 11") - see Unit Four on how children can change the scale of a map.
- Keep a large copy of the master floor plan on the wall.
- Consider making different copies of this master floor plan for different classroom situations such as "Group Work" or "Performances". You can experiment with different furniture layouts for these different kinds of events.

Step 2: Establish a Reference System for Recording Locations on the Map.

The best kind of reference system for a map is a grid. Some classrooms have tile floors that can be used, as in Figure 7. Alternatively, a grid can be draw on the floor with chalk. If this is not

possible, zones can be drawn on a base map that are keyed to "landmarks" in the classroom such as the "science zone" or the "coat rack zone" etc.

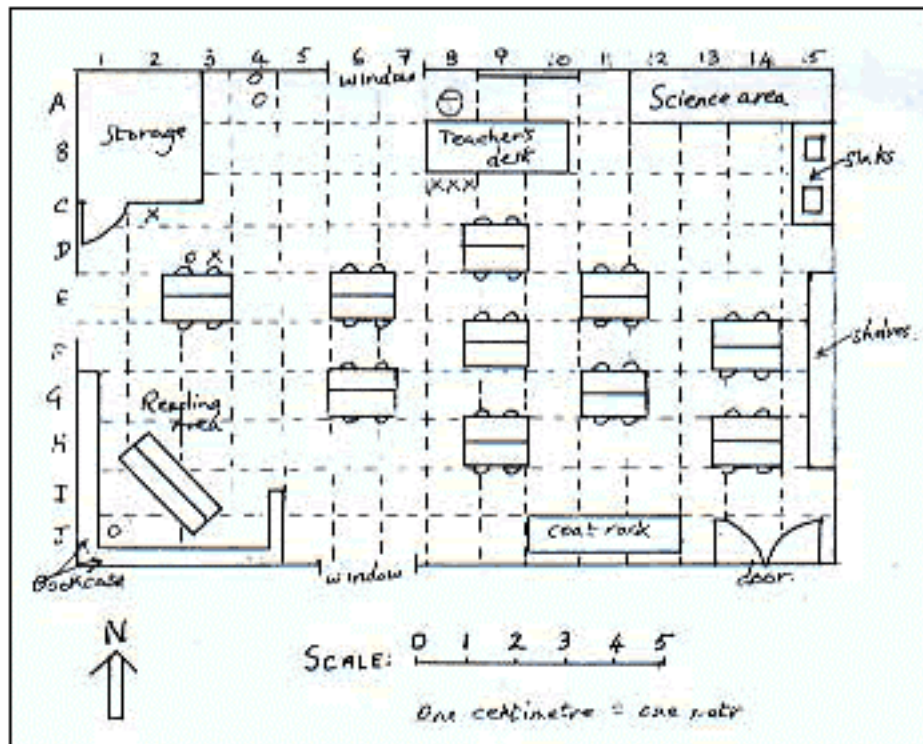
Step 3: Observing and Recording Behavior in the Classroom

There are at least two possible ways of setting up a system for observing children's use of the classroom. One is for each child to take responsibility for observing a different kind of behavior during the course of normal classroom activities and to keep a record of these on their map. Another is for pairs of students to take turns in the observation of all behaviors from a location with a good vantage point such as a raised platform on one side of the classroom. Whichever of these strategies is used, the research should continue over the course of enough days to be able to capture different kinds of typical classroom events, such as quiet individual work time, teaching to the whole class, group work, performances and so on.

Example One: The Recording of Everyday Activities

A map of the most common locations of everyday activities in the classroom is the kind of basic information that is needed for the sensible redesign of a classroom. Figure 7 shows a plan and a form for recording such behaviors. This plan is designed to record all of the behaviors that occur at one time in the classroom.

Figures 7: (a) A classroom plan and (b) a sample observation form showing the locations of everyday activities.



Form 1: Mapping the Use of classroom Space. Time: 10 am. Names of Moana observers: Diela

| Location | Person | Activity |
|----------|--------|-------------------------------|
| D3 | ox | writing |
| C2 | x | carrying paper supplies |
| A4 | o | pinning drawings on the wall. |
| J2 | o | reading |
| B6 | Ⓣ | writing |
| C7 | xax | talking |

KEY Ⓣ Teacher o girl
Ⓥ Visitor x boy

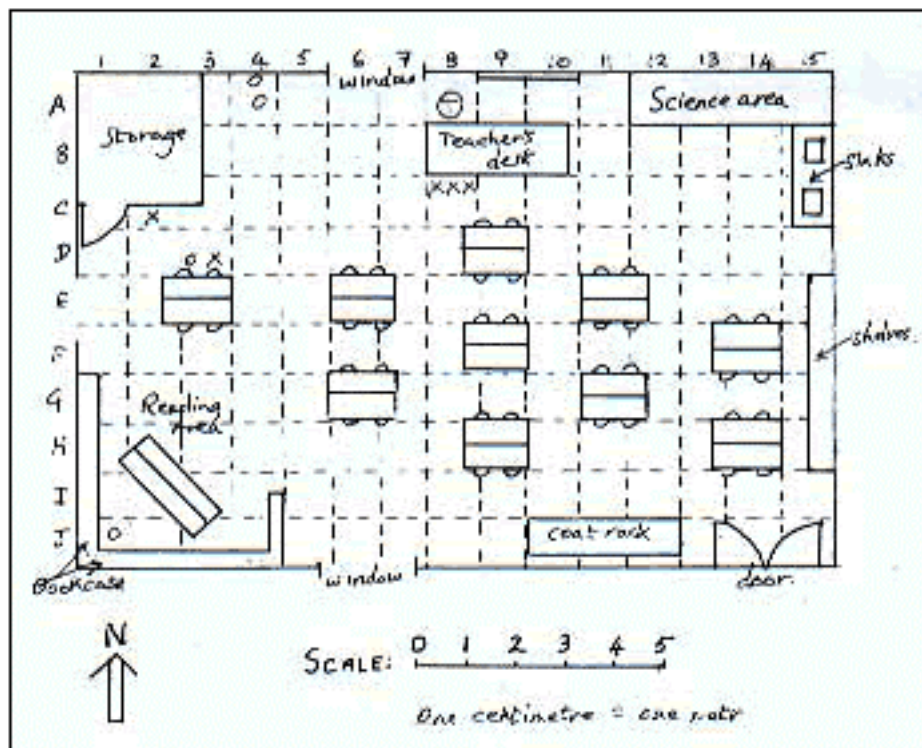
- Brainstorm the kinds of information that need to be recorded.
- Create a key with the symbols that will be used to show these categories. In this case, symbols are needed to describe the different categories of people that will be using the classroom.
- Design a form (e.g. Figure 7b).
- Establish a systematic procedure for observation. It will take many minutes for children to observe and record all of the activities. It is therefore necessary for the observer(s) to establish a systematic procedure so that they do not record the same persons more than once. For example, if the observer is located at the entrance to the storage room he or she can first record the activities occurring in all of the grid squares of column one. When that is complete they can go on to record all of the behaviors in column two, and so on. If there is a second observer, they could locate themselves near the Science area and begin with column 15. They would also observe one column at a time until, together with the other observer, they complete the observations of all of the grid squares.
- For the first day the child observers can write down each of the activities that occur in their own words. But this is a time consuming process. Furthermore, they would need to later code these activities in order to see patterns of types of activities in their classroom.
- After one day of such free recording they should be able to develop a list of recording categories that include most of the different kinds of activities that they are likely to observe. Other pairs of children can then use this list of "coding categories". For example, for the period shown on this form they might use the codes "writing", "classroom display", "administrative assistance", "reading" and "talking".

- They can take turns, using these categories, over a week or two to record classroom activities on the forms.
- After each pair of observers finishes their observations they transfer the data they collect to the master floor plan of classroom behaviors.

Example Two: Recording Select Behaviors

1. Brainstorm a list of behaviors conducted within a classroom (e.g. classroom discussions, asking/answering questions, giving speeches, taking notes, listening to the teacher, doing group work, writing, listening, raising hands/getting called on, etc.).
2. Discuss with students which important activities are influenced by the spatial arrangement of the classroom, e.g. a student who raises his hand but is never called on by the teacher because she sits in the back of the room.
3. Create a list of behaviors that are worthwhile recording. For example it might be concluded that one observer should focus on only recording conflicts between children. To record these they can write down the number and location of the conflict on the map. They can then write down on the form a list of these numbers with a description of the event and who was involved (see Figure 8b).

Figures 8: (a) A classroom plan and (b) a sample observation form showing the locations of conflicts.



Form 2: Mapping the Occurrence of Conflicts.

| Time | Location | People | Event |
|-------|----------|---------------------|---|
| 9.05 | 1 | Fred, Jake | Argument over using the same coat hanger for their jackets. |
| 10.04 | 2 | Mary, Ahmed | Argument over who can use the reading-armchair. |
| 10.08 | 3 | Mary, Ali, Ben, Amy | Disagreement over which team is meant to clean the fish aquarium this week. |
| 10.15 | 4 | Chay, Nick, Rod, Ⓣ | Teacher complains of too much noise at the table. |
| 10.19 | 5 | Maria, John | Maria says that John soaked her shoes with water. John says she did it. |
| 10.29 | 6 | Nick | Nick complains that someone has ruined his experiment and so knocks it down. |
| 10.40 | 7 | Fatima, Maria | Fatima accuses Maria of over-watering the plants. Maria says it was his turn. |

- All of the class should meet after an hour or two of data has been collected to discuss any methodological problems that have arisen.

Step 3: Analyzing the Data

The data from each of the different teams of observers will quickly begin to reveal interesting patterns when it is mapped on to the master floor plan. Wait for a few days before you begin to have the children display their data in this way because they might be tempted to start changing their behavior playfully, to manipulate the findings. This is of course what you want because it means that they understand the process and the power of data. On the other hand, it is best that they first carefully observe their existing patterns of behavior.

Special versions of the floor plans can be produced by the children to show where certain behaviors most frequently occur. These might include a plan showing the greatest density of use. Another could show where arguments break out. Yet another might show the different degrees of talking in different parts of the classroom.

Children can also learn to make some simple bar charts of the data for different times of the day. These might be useful in helping to rethink the organization of the class timetable. Such charts can initially be made with the whole class observing the process on a large piece of paper on the wall. The children can then follow this format to produce numerous charts to show other phenomena.

Step 4: Reporting and Interpreting the Data

Meetings at the end of each school day enable the data to be reported and discussed. Issues that had previously been your responsibility as a teacher will now often be raised by children and discussed more collectively. For example, children might point out why noise occurs at certain

times or why children get involved in arguments about the use of equipment. When you review discipline in these meetings your observing scientists will be quick to turn to their data sheets to say how certain conflicts began and how they were resolved! Through this kind of dialog children can become enthusiastic participants in both research and the possible improvements that might be made to the classroom.

Step 5: Planning Changes to the Classroom Space

- Review the data on the master floor plan with the whole class and make a list of the problems that children think the patterns of data suggest. For example, conflicts seem to arise mostly around the timing of who gets to feed the fish in the aquarium.
- For each of these problems, discuss suggestions for physical change of the classroom that might help resolve each of these problems. Make a list of these suggestions. You will need to point out to them that the resolution of one problem can make another one worse and so they will have to begin thinking more systemically about these problems.
- Add to this problem list children's suggestions for new opportunities and resources that need to be added to the classroom.
- Use another large-scale floor plan or, ideally, a model of the classroom. Make notes of suggested design changes (moving of furniture, reassigning functions to different locations, additions of new furnishings, etc). These suggestions should not be written in a permanent way because this should be an open and changing dialog. With the model, you can move the model furniture around and add pieces to show new suggested features. With the floor plan, you can use stick-on pieces of paper for this process.
- Some of the suggestions that the children make will not work in your mind because of issues of classroom management. But now, because they have been the observers of their own classroom community, they will have a greater capacity to understand some of the issues that you face as a teacher.
- Make a final version of the proposed design changes using the model of the classroom or the Master floor plan.

Step 6: Making Changes and Evaluating Them

- Move the furnishings and make other modifications as much as possible with the collaboration of the children.
- Make revised copies of the floor plans for the children to use in their observations.

- After making observations on a range of types of classroom events, children can then discuss which of the changes they have made are working and which are not. This can then lead to another minor redesign process, and so on.

Resources

Nelson, D. (1984). Transformations, Process and Theory: A Curriculum Guide to Creative Development. Santa Monica, California: Center for City Building Educational Programs.

Wentworth, D.F., Couchman, J.K., MacBean, J.C. & Stecher, A. (1972). *Mapping Small Places: Examining Your Environment.* Toronto, Ontario: Holt, Rinehart and Winston.

UNIT 3: ASSESSING AND IMPROVING THE SCHOOL GROUND

Introduction

This unit describes how teachers can make school grounds into an extremely valuable learning resource. They are an ideal setting for engaging in repeated cycles of research and action with children. Every school has some space around it, even in dense inner city areas. It generally lacks any features that children value even though it is children who are their sole users. The school ground is often not known by the teachers. It is rarely used as a subject of study even though it is available on a daily basis. Learning is thought to stop at the door to the school building

Research on the school grounds can be usefully carried out for different reasons. Some of the more likely ones are:

- **to redesign for children's better use during free time.** Develop a plan to redesign based on children's existing uses and an evaluation of existing resources. This can be valuable for children's free play time both during and after school hours.
- **to reduce conflict during free time use through improved management.** Develop a plan for the improved management and rules of the school grounds for play and recreation.
- **to create outdoor classroom spaces.** Sometimes limited indoor space can be extended through the modification of the outdoors into spaces of different sizes and with a variety of furniture arrangements.
- **to create a natural observatory and a wildlife management program.** A highly biodiverse (diversity of plant and animal life) landscape can be created around the school to serve as a rich microcosm for learning environmental knowledge and skills. Many rural schools have farms and gardens to teach about growing plants. Some schools have now gone the next step. Children learn to manage the environment in a manner that helps them learn about both conservation of nature and agricultural production.

Procedures

Involving Everyone

The school grounds need to be developed in a way that maximizes its value to all users. The entire school population, children and staff, should be involved in the research, planning and design of any transformations to be made. A great deal of progress can be made at this survey stage of the process by working as a class even though later on it will be necessary to bring in the remainder of the users of the school grounds. If it is a large school it may be necessary for classes to elect design team representatives for stages of the process.

Making a Plan and Model of the Site

Before beginning the survey you will need, of course, to have a very large-scale site plan. If one is not already available or is too small in scale, you can follow some of the mapping guidelines to create such a plan. It is also ideal if you can build a model (some tips for how to do this can be found in Unit Four: "Making a Community Base Map" and "Model Making" in Unit One).

Surveying the Landscape

The first step of surveying the current site and what happens there is an extremely interesting and valuable task for children. A detailed inventory of the landscape and all of the resources surrounding the school building is required. "Learning Through Landscapes" in the United Kingdom suggests the following headings for a comprehensive survey of the school grounds.

History of the school and its site

What has happened there before? This may have affected the physical quality of the site. The site might also have some features of important symbolic meaning to the community.

Geographic aspect

What are the micro-climatic conditions of the site? Where is it sunny or shady, windy or susceptible to flooding?

Geology Soil

What are the soil characteristics? Soil type is very important not only in influencing the kinds of plants that can grow on the site, but also the kinds of recreational activities children can engage in. You might be able to invite scientific advisers from government agricultural agencies to answer children's questions on these subjects.

Land use in the area surrounding the school and school grounds

Mapping the larger environment beyond the school and school grounds will be important in guiding the planning of the school grounds. If for example it is decided to attract more wildlife, then it is necessary to understand what wildlife already uses the surrounding areas. There may also be other environmental factors such as surrounding industry that may affect the environmental quality of the site.

Boundaries -- walls, fences and hedges

The nature and the quality of these boundaries are important for the planning and design of the school grounds. What messages do the boundaries currently give to the community surrounding the school and to visitors to the site? Who is welcome? How is this conveyed? How is the school made safe?

Other surfaces

What resources currently exist in the form of all-weather surfaces for sports and play activities and playing fields for games?

Trees, shrubs and other plants

What are the existing plants? This will help determine existing habitats on the site as a basis for planning and design of the landscape.

Footpaths

What informal footpaths do children and staff use? These may provide valuable guidelines on where paths should and should not be in a redesigned school ground.

Access for special needs

How can children using wheelchairs or other devices for their special physical needs access the site? Mapping this accessibility can do a great deal for children's awareness of different people's special needs.

How the grounds are used

To what extent are the school grounds used for play, recreation, class work, scientific monitoring of the site, gardening, livestock management, and the study of wildlife. To what extent are they exposed to other activities such as vandalism?

Site maintenance

How is the site currently maintained? If it is managed by a particular person at the school or by an outside agency, what duties are specified in the contract for site management? Thoroughly surveying existing maintenance of the site is important as a basis for subsequent planning.

Redesigning the Grounds

Children will have many ideas about how the school site could be improved. They need to first ask what they want the school site to be used for. Designers call this "the design program".

The Design Program

1. Identify the different users of the site.
2. Interview other users, or if this project is being carried out as a whole school project, each of the groups (teachers, parents, cleaning staff, etc.) will have their own meetings and process.
3. Chart the different desired activities and experiences of each of these user groups.
4. Combine the different activities of all the user groups into a comprehensive list. This can be done most effectively by manipulating cards or small pieces of paper expressing the different activities into identical and similar categories. If this process involves the whole school this will have to be done by a representative committee and the conclusions will need to be made centrally visible to all school children and staff.

Transforming the Program into Design Elements:

Create design suggestions for each of the program activities through group discussion. Again, this can be done with the classroom as a whole by having the children write their suggestions on small cards or pieces of paper and then sticking them on the wall next to the list of activities that need to be designed. These cards can then subsequently be creatively sorted by the group into categories of ideas.

Encourage children to be creative in their suggestions. It may not be sufficient to rely solely on their spontaneous statements of preference. For example, you might begin by asking them to make drawings of their ideas. Also, showing children pictures of very different kinds of landscapes, including highly fanciful or imaginary ones, can be a useful way of getting them to broaden their design ideas.

Building a Model Collectively

- Success in the design process lies in the creative negotiation process between the children and the other user groups of the school site. Consensus building is greatly aided by having a model of the school site with materials that can be easily added, taken away and moved around.
- The scale of the model should be large enough to manipulate the design elements. Separate groups of children can take it in turns to add features to this model.
- Participatory design workshops can be carried out with a group of children around the models. The size of each group should not be very big, ideally not more than 10 children, in order to give each child enough opportunities to participate.
- The process requires skillful mediation by a facilitator so that no children walk away from the process feeling their design ideas were rejected. Children should be encouraged to reveal the reasons behind their suggestions. For example a group of girls may insist that they have to locate the area for skipping rope in a relatively isolated part of the site, in order to prevent interference from the boys' running games.
- Teachers and other school staff can have their own modeling workshops.
- Gradually the model, in a central location in the school, is transformed into a space that balances the desires of the whole community.

Exhibiting the Design

Towards the end of the project, when the conceptual design proposals are ready, it is necessary to get wider feedback from all the residents in the community. Again, modeling is valuable. If the whole community also uses the school grounds after school hours everyone's opinions are relevant. Depending on the politics of the school, the children's ideas will now go into dialogue with all of those who have power and make decisions regarding the school environment. Hopefully representative children would at least be invited to present their ideas at some of these debates. It is particularly important that children learn why the changes they recommended cannot be instituted.

Transforming the Site with Continued Monitoring

Even if you do not engage in a large-scale research program with everyone in the school, it is still possible to make small changes. The class can then observe the effects of these changes. The

children might, for example, conclude that they would like to increase the diversity of bird life on the school grounds by improving the habitat for certain species. This may involve the planting of trees or shrubs or the building of bird nesting houses. Or they might for example want to measure the number of children using the new games that they have had painted on the schoolyard. This would enable them to learn which are the most popular for boys and girls of different ages and whether more lines need to be painted for certain games. Each of their changes presents an interesting opportunity for new research.

Case Study: 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.

Resources

For valuable publications and information, contact:

Learning Through Landscapes Trust,
3rd Floor, Southside Offices,
The Law Courts,
Winchester,
Hants,
U.K. SO23 9DL

Moore, R. and Wong, H. (1999). *Natural Learning: The Life History of An Environmental Schoolyard*. Berkeley, California: MIG Communications.

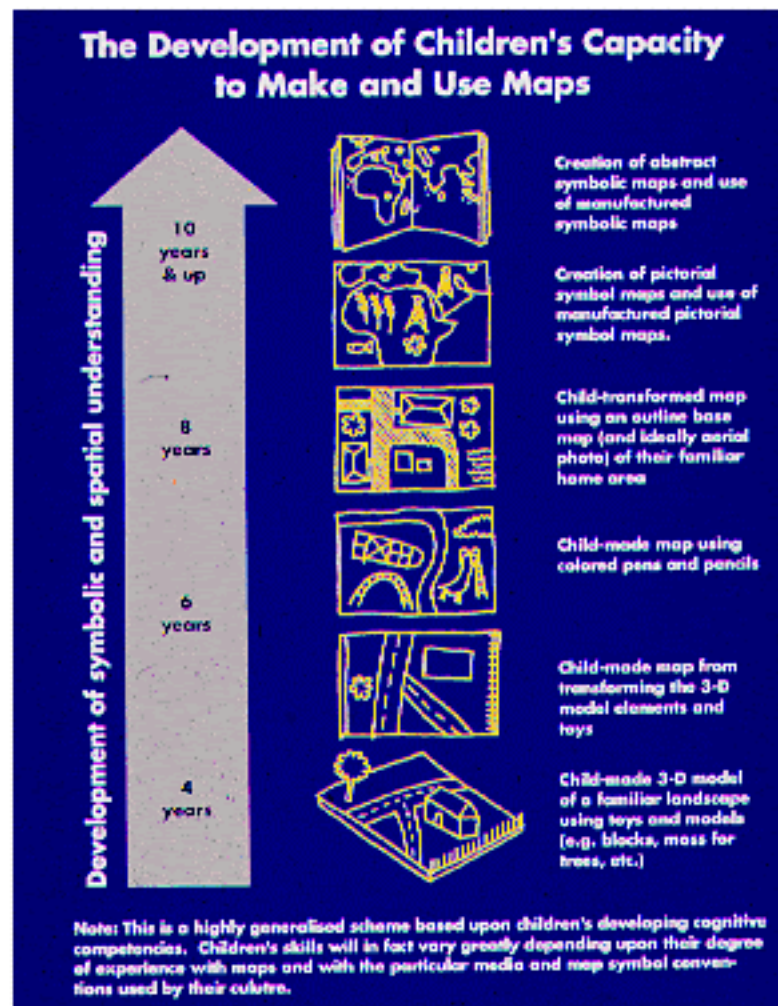
For further information on the transformation of a schoolyard into a green environment, including the publication *Natural Learning*, go to www.naturalearning.org

UNIT 4: CREATING A COMMUNITY BASE MAP

This unit describes how to enlarge existing maps or create large maps from scratch. If the community has no generally available map, there will be one in the hands of a government agency (e.g. water, sanitation, housing, or city planning). These maps can be updated and have more detail added by working with children and their parents. The process of enlarging a map is a relatively easy task for children over nine years of age and one which they greatly enjoy doing.

A community base map is a fundamental tool for most community research. With it children can map valuable data about their community that no one is likely to have mapped before. Ideally, maps should be large enough to enable the children to identify their own homes. In many instances the available maps of your community will be at too small a scale. Children will be unable to draw in details that they know from their daily activities. If your students have not mapped before you might want to try some of the exercises described later in this Unit. Children of all ages can make maps - although the media for mapping should be different with the younger children (see Figure 11, below).

Figure 11: The Development of Children's Mapping Skills



The Choice of Materials

Superb no-cost maps can be built in dirt or sand on a protected area of ground or on the side of the school building. These are excellent kinds of maps for many projects where it is necessary to be flexible and be able to change or erase map symbols. But because in a school it is generally important to keep any set of map data for a considerable length of time, it is preferable to have at least one large map made of material or paper. A large piece of cloth is the best material to use. A cheap decorator's canvas is particularly valuable as it will last a long time and children will even be able to walk on it. Symbols related to different themes can be easily pinned and removed from the map.

One of the major values of drawing large maps is that they can be hung in a prominent place for members of a larger community to see, comment on, and even add to, if possible. Some of the new Schools of Colombia reveal their community emphasis by having community maps at a grand scale on the outside walls of their buildings as well as on the insides.

Children's Personal Maps

Have children begin a project with their own personal map of their community. This will enable each child to have a personal basis for debating what should be shown on the community base map. The ability of children to draw accurate maps varies greatly according to the child's age. But if you accept their very different styles and abilities, children of all ages will enjoy producing useful features for the collective community base map.

For children who have not previously built any map, you may want to first allow them to build a model of the places they know well. They can use wooden blocks or cardboard cutout houses and moss to serve as trees and string or wool to represent roads and rivers, etc. This can be done in the dirt or sand but it should ideally be done on paper so that the students can then trace around their models with a pencil. The models can then be removed by the child, leaving behind their first map! They can then create symbols for each of the places they have traced on their map. You can suggest that they go over the pencil lines with colored pens. Do not forget to have them make a legend or a key on the side of the map to say what all of these places are. The method can be particularly liberating for less literate children.

Creating a Community Base Map from Scratch

Some communities do not have access to a map at any scale of their community. In these cases, a simple base map can be prepared from scratch. This is an extremely valuable contribution for children to make for their community even without any further research.

1. If material or heavy paper is available this should be laid on the ground. It should be as large as possible (the size of the highest wall that can be used to display it).
2. The children should all assemble around the material.
3. Decide on a feature that all of the children know very well such as the school.
4. Position the school on the map so that the children will be able to fit all of their homes relative to its location. For example, if the school is located near their homes, place it in the

center of the map. If the school is located far away from their homes and other aspects of places they visit in their community, position it off to the side of the box.

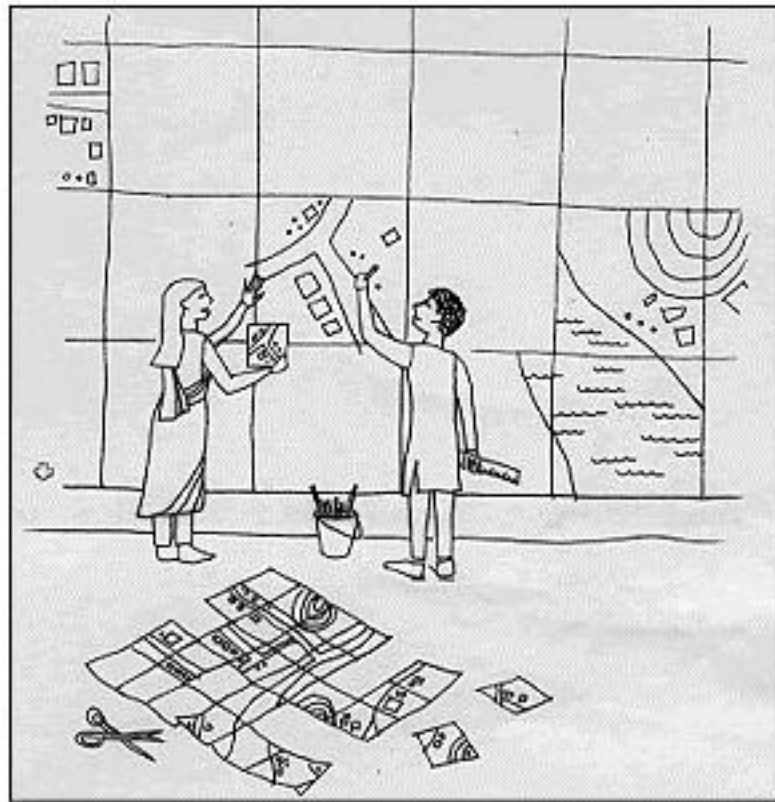
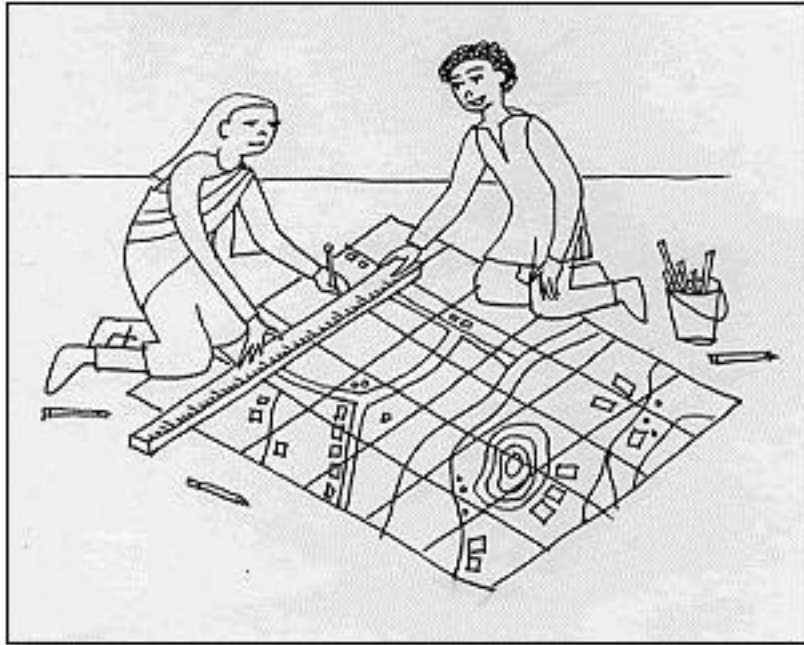
5. Choose a feature that everyone agrees will be on the outskirts of his or her map and place that on the map. This will be the way of establishing the scale for the map.
6. As a group, position the major streets, fields or physical features such as mountains and rivers using the materials available in your community. These can be stones, wooden blocks, string, sticks, etc. However, it is ideal if you also cut out pieces of cardboard that can be drawn on. This enables the children to make pictorial symbols that everyone can remember rather than relying only on abstract symbols like stones to stand for features.
7. Make sure that all of the children agree on the accuracy of the placement of their features. You might want them to be free to carefully walk on the map to check this out.
8. Consider inviting adults from the community into a meeting with the children to make suggestions for additions to the map.
9. When there is agreement about the placement of features, the children can draw them in with ink, paint or felt pen.

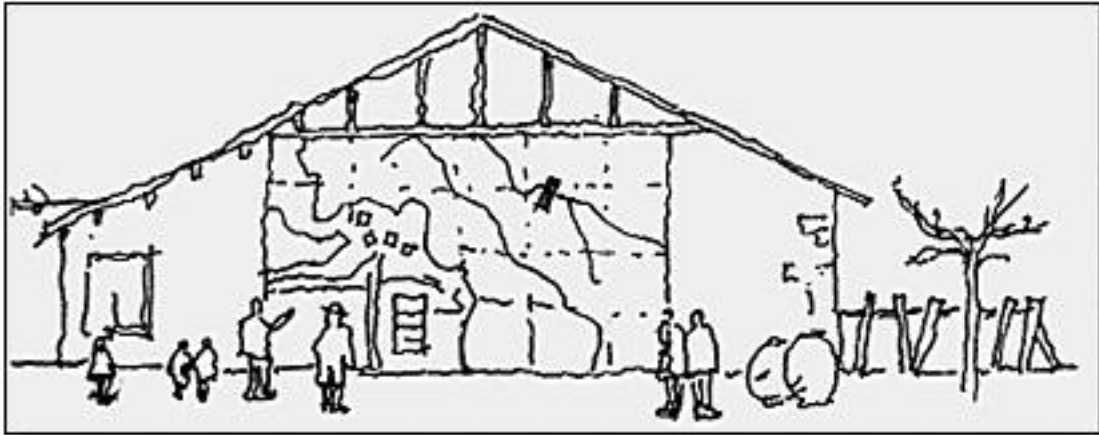
Using Existing Maps to Create an Enlarged Base Map

In many instances, the maps provided by government agencies or private companies will be at too small in scale for children to be able to draw the details they know from their daily activities. Nevertheless, they are valuable as a starting point because they include accurate measurements of certain basic features in the community. These maps can be easily enlarged using a simple grid method.

1. Have children draw a grid system over the existing map.
2. Designate a place where the enlarged map will be copied onto – either on a large piece of paper, a blank wall or somewhere on a protected or covered ground/sand area. Have children draw a large grid system over this area.
3. Number each square (for example from left to right) on both the existing map and the larger, blank grid system.
4. Have each child select a square of the map that they will copy onto the larger map.
5. You may wish to choose certain grid sections to copy onto paper so individuals or small groups working in the field can duplicate them for use.

Figure 12: The process of enlarging a base map. (a) Drawing grid lines over a small base map. (b) Enlarging the map by re-drawing each of the grid squares at a larger scale. (c) Drawing the map as a mural on the side of a school building.





Elaborating and Improving the Base Map

Locating Landmarks on the Community-Base Map

Once the initial base map has been created, places that are well known and important to children should be added to serve as orientation landmarks. For very young children, personally meaningful places should be identified with pictorial symbols designed by them rather than with abstract shapes and colors. Or use the abstract shapes and colors but make the key pictorial so that they can read it.

Adding to the map.

The map needs to become the collective property of the class and so it should be dynamic and be added to as children think of new important features. Before beginning serious research children can begin making different theme maps by pinning small paper symbols to their map. Some of the most obvious features to begin with are:

- Children's homes
- Homes of people who are important to their daily lives
- Schools/community groups/religious sights
- Places children play/work
- Places children avoid, places of danger
- Places children like/dislike
- Places where children go alone/with their parents/with friends/with other adults/with other relatives
- Transportation routes by foot/bicycle/subway/train/automobile/moped/animals, etc.
- Industrial areas/agricultural areas/residential areas.

Environmental walks through the community can be made to help fill in the map with greater accuracy. To keep this process interesting it is a good idea for children to begin making their own copies of maps from this master map to show features that most interest them. There should be debate as to whether these should be permanently drawn on the map or simply pinned on.

Government agencies usually have aerial photographs. If you can obtain one of these they are extremely valuable resources. They carry much detail and children greatly enjoy the task of interpreting and transferring information about their community to their maps. Even children newly entering school can read aerial photographs. They thoroughly enjoy inventing and designing map symbols by choosing colors, coloring-in the air photos and making legends.

Resources

Worldwide list of map libraries:

http://www-map.lib.umn.edu/map_libraries.html

The Green Map System:

Describes how to make useful environmental maps for the community showing examples of good environmental practices.

www.greenmap.org

Online Map Collection at the University of Texas-Austin Map Library:

Cities and Country Maps from around the world and links to other map sites

http://www.lib.utexas.edu/Libs/PCL/Map_collection/map_sites/cities_sites.html

UNIT 5: PROBLEM IDENTIFICATION IN CHILDREN'S EVERYDAY LIVES

The phase of problem identification is probably the most important phase. It is fundamental to the promotion of independent thought and action in children and is highly motivating. It enables a school to be better linked to the community by carrying out projects that are important to the children and to other members of the community.

Strategies

This unit introduces the following approaches to problem identification with children:

- Helping children evaluate their own everyday environment
- Using children's rights as the basis for problem identification
- Comparing their lives with the memories of elderly community residents

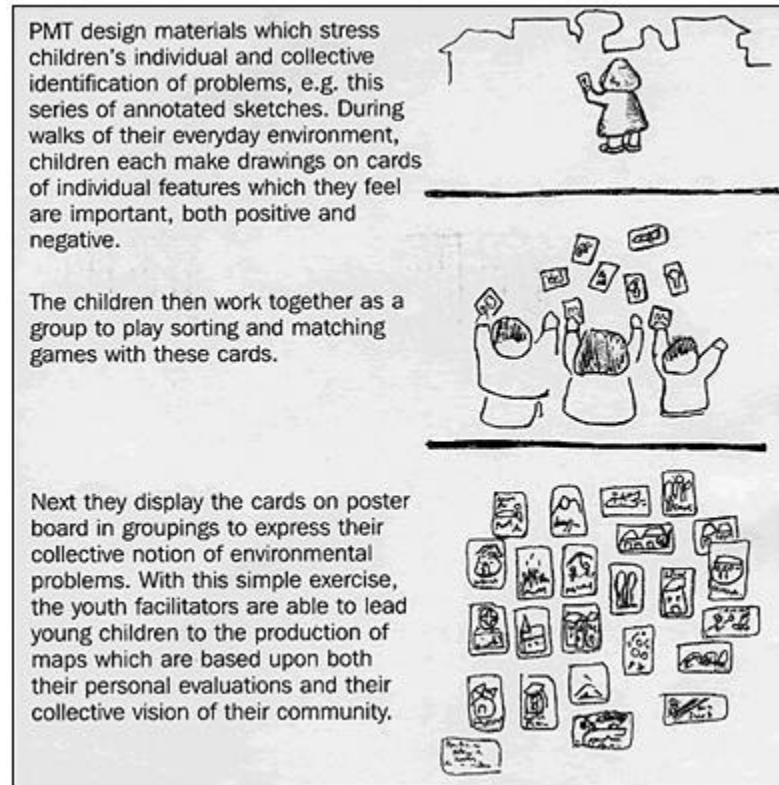
Helping Children Evaluate Their Own Daily Living Environment

There is great value in beginning community research with children by enabling them to evaluate their own everyday environment. It is a particularly important strategy for those children who have been excluded from education in the past.

It is not always clear to children, however, why they should document their own lives. "Who would be interested?" they ask. One answer is that other children are interested. In a correspondence exchange project between pairs of schools in the USA the project began with each child preparing a drawing and a written statement summarizing their evaluation of their own environment and an image of their "twin" environment. These were simultaneously exchanged, by mail, with their corresponding environmental "pen pals". This enabled the children to engage in comparisons of perspectives of their own community with their "twin" community (*Go to: Case Study of a Community Exchange Approach to Environmental Education in the U.S.A.*).

- Get started by having children make an inventory of the positive and negative features of their environment for play and recreation. One way is for children to each make drawings on cards of positive and negative features as they walk through their everyday environment.

Figure 13: A drawing and card-sorting exercise for evaluating the environment (designed by PMT, the National Program of Working Children, in Ecuador).



- They can also mark these features on a community base map (see to Unit Four). A collage method can also be used with these maps: pinning or gluing photos or drawings of places made by the children on to the appropriate location on the base maps.
- After individually evaluating their environment, the children can work together in small groups. These groups can discuss their different evaluations and make a collective map by plotting them on a community base map. Each group might specialize with a theme such as "dangerous locations" or "dirty or polluted play places". These base maps can then be subsequently combined with one another to form the first version of a map of "Children's Evaluation of Recreational Resources".

Comparing their Lives with those of Elder Residents

The "Working Children's Program" (PMT) in Ecuador has used a clever strategy for getting children to think about the quality of their own daily environment. The children interviewed grandparents and compared their elders' childhood environment with their own, today (Go to: Case Study of the National Program of Working Children in Ecuador). PMT has learned though that it is important to be aware of the orientations of elders to children in different cultures. For example, the Shaman, or wise elders, of the Amazon region in Ecuador are happy to share their knowledge with children but are not comfortable being interviewed by them.

Figure 14: Pages from PMT children's environmental problem identification workbook.



Another strategy is for both children and senior residents to identify problems in their own lives today. They can then work together on each other's problems. This is the approach used by the Neighborhoods 2000 project in Hawaii. By working together children and seniors are able to generate useful neighborhood planning proposals. Activities included in this program are photographic neighborhood surveys, reminiscence interviews where seniors recount their community memories and experiences, autobiographical walking tours, and joint model building.

Using Children's Rights as a Basis for Problem Identification

The Convention on the Rights of the Child (CRC) is an excellent starting point for research on the quality of the community for children. After introducing the children in your class to the Convention on the Rights of the Child (visit the UNICEF CRC web site and The Children's Wishbone). Children can work on a domain that they identify and priorities (perhaps by voting) from the CRC. Many school children in the world live in poverty and help their families survive by working. The CRC can be a particularly useful document in guiding their reflections on their own daily environment and the resources it offers. This can be a way of enabling them to work fundamentally on their rights. The products working children can create about their own daily lives can become valuable means of communication with those supportive adults such as "street

workers" who need to better understand their lives. They can also be of great value for use with their peers in the classroom, enabling them to achieve a more complete understanding of one another's lives.

The products should clearly belong to each child. One solution is to encourage them to construct their own personal book on their environment even if, for non-literate children, this book is largely made up of pictures and maps. By building upon an analysis of their own daily lives, working children may be able to develop joint plans for the improvement of their living conditions. From such experiences it becomes more realistic to expect these children to collaborate in projects for some larger community beyond themselves.

But all children have rights, and children's research on their everyday environment can also be of importance to children of wealthy families. In Sweden, for example, schools have a strategy for reducing the number of injuries and deaths. Children from as young as seven years of age are involved in research on the areas where they walk and play in order to identify dangerous places and features. The data is then used to inform parents, other children and public officials, including traffic planners, school ground officials and the police.

Procedures

Geographic Diaries

An excellent way for children to understand how research can be used to help them plan a project is for them to conduct a survey on their own everyday behavior. For example, a useful first step in having children plan play and recreation opportunities in their neighborhood is to ask every child in a classroom to make their own "Geographic Diary". This is a simple record of the places that they go, along with their evaluation of those places. They can begin by making a record of their previous day's activities if you wish. But it is necessary for them to go beyond this if they are to fully identify all of the places and problems that they face on different days and in different seasons. The example of a diary created by a child in a New York City project shows one way of dealing with this:

Figure 15: A Geographic Diary by a 9 year-old girl in the Bronx, New York City.

An example of a 9-year-old girl's recreation diary

| What sport or activity, recreation, exercise, play and other physical activities do you do at school and in the neighborhood? | Where does this activity take place? | Why do you do this activity? | Is this activity indoor or outdoor? | How often do you do this activity? | Who do you do this activity with? | In what season do you do this activity? | Which are your favorite and least favorite activities? (1 = most favorite) |
|---|---------------------------------------|---|-------------------------------------|------------------------------------|-----------------------------------|---|--|
| Basketball | school gym | I like to play basketball because I build up energy | Indoor | Almost every day | Friends, classmates | Summer and winter | 2 |
| Football | church | It's fun and easy | Indoor | Almost never | Friends, other kids | Summer and winter | 13 |
| Tennis | In front of my building | It's just things you can do | Outdoor | Almost every day | Family, friends | Summer | 4 |
| Exercise | church | It makes me strong | Outdoor | Once a month | By myself, friends | Summer | 12 |
| Swim | around my neighborhood | It helps release my problems | Indoor | Almost every day | Family, friends, by myself | Summer and winter | 3 |
| Swimming | Central Beach, Coney Island | I like the water when it's sunny | Outdoor | Almost every day | By myself, family, friends | Summer | 7 |
| Stretch | Church park | It's a way to get some place better | Outdoor | Almost every day | Friends, by myself | Summer and winter | 6 |
| Flying kite | After school program at church | I can be with my friends | Outdoor | Twice a month | Friends, family | Summer | 8 |
| Running | at around my neighborhood | It helps my legs | Outdoor | Almost every day | Friends, by myself | Summer and winter | 5 |
| Play that "race of horses" (game of tag) | On the streets | It's a way to be with my friends | Outdoor | Twice a month | Friends | Summer | 11 |
| Play out in front of my building | On the street in front of my building | I can play my friends | Outdoor | Almost every day | Friends, family | Summer and winter | 1 |
| Play exercise | My house | It's fun and easy | Indoor | Almost every day | Family | Summer and winter | 10 |
| Play tennis | church | It's interesting | Outdoor | Twice a month | By myself | Summer | 14 |
| Play basketball | friends' apartments | It's a way to communicate | Indoor | Almost every day | Friends, family | Summer and winter | 9 |
| Walk to school | On the streets | So I can get an education | Outdoor | Almost every day | By myself, friends | Summer and winter | 15 |

(Click for a larger view)

Mapping "Personal Worlds"

It is also useful to allow children to each make a map of their personal world. It is useful to build this activity out of their geographic diary work. Ask the children to each draw a freehand map. This has the benefit of not limiting the scale of the map to suit their expression of concerns to those that can fit on an orthodox map with a standard scale. They can create and vary the scale of the map to suit their own purposes. Either way, they will need to subsequently transfer their data to a standardized map.

In the case of working children, a personal map might include the locations of people who serve as their social supports, their work locations, occasional sleeping places and eating-places. Some of the problems in the child's life will appear obvious when mapped, such as prohibitive transportation distances between home and workplace. Other spatial problems may be less obvious and only be revealed by encouraging the children to take a close look at their maps with each other. For more privileged children, this kind of mapping can also be used to identify problems in their personal lives such as prohibition from valued play locations because of dangerous traffic.

Making a Collective Inventory of Valued Play Places and Problems

It is now necessary to take the personal data and to combine it with that of other children. This will enable them to see common patterns. They will also learn about unique but important issues that some individual children have. It is useful to map many issues. For example, for analysis of their play and recreation environment, it is important to be able to see the particular locations where they identify common problems.

Using their diaries and maps as sources of information, the children can work in small groups to make lists of issues that they deem to be problematic:

- Places they consider dangerous and dare not visit
- Places they like to play but which need improvement of some kind
- Places they like but are not allowed to use
- Places they cannot gain access to due to lack of transport
- Places they would most like to play if available

They may decide that it would be worthwhile to make collective maps of some of these issues. The size of the map to use will depend upon the children's regular spatial range of free movement in their community. In the case of working children this may mean a map of a whole city. When they look at the data collected for the whole class or group of children they might see patterns that they could not see in their personal maps and which they have not thought of before. For example it may be learned that most children are working in those locations in the community that have the highest concentrations of air pollution.

If children have access to the use of a camera they can photograph their most significant community places and activities so that they can glue them to the map as annotations. This is valuable not only for helping other children become aware of places and issues outside of their personal sphere of activity but also for the subsequent community presentation of data.

Prioritizing Places and Issues

It is now time to prioritize the important issues affecting the quality of their lives. With all of the maps and charts of their data on the walls, they can discuss and vote on which issues they would like to consider doing further research on. They can then proceed to an analysis of the problem or you may wish to have them first look at the problems others in their community face. Either way, go to Unit 6 (Identifying and Surveying Community Problems) for the subsequent research phases.

UNIT 6: IDENTIFYING AND SURVEYING COMMUNITY PROBLEMS

Procedures





Problem Identification

If this phase is not taken very seriously, then all the subsequent phases will be affected. It is a good idea for each child to be given a sheet like the one shown here to emphasize its importance.

Figure 16: Research Plan by an eight-year-old (Westminster West School, Vermont, USA)

Name: xvew

RESEARCH PLAN

| | |
|---|---|
| <p>1. What is my question? Is it a good question?</p>  | <p>1. How can I set up my recycling center at home? Yes, it is a good question because it helps me know how to get it done.</p> |
| <p>2. How can I get my information?</p>  | <p>2. ^(A) Read about what we are allowed to bring to the Recycling Center and what we are not allowed to bring. ^(B) Go to the Recycling Center with our stuff that we had to recycle. ^(C) Ask questions.</p> |
| <p>3. What will I do with this information?</p>  | <p>3. Keep it and use it to build our own recycling center</p> |
| <p>4. How will I know I did my job well?</p>  | <p>4. If our recycling center works and we take our stuff to the big Recycling Center</p> |

If you wish to have children focus on environmental projects this first phase must involve helping the children escape from the stereotypes of what they think "environmental " projects are. If you do not, children will begin with loud expressions of concern for the issues that have been presented to them in so many ways by mass media such as preserving tropical rainforests or the need for recycling. While these argue important issues, it is important that every community become competent in identifying its own priorities. Liberate them from preconceptions by stressing the need for community involvement in problem identification. It is useful for children to have previously worked on Unit 5: Problem Identification in Children's Everyday Lives for they will have learned to think broadly about this process.

In the problem identification stage of the project it is valuable for every child to interview a grandparent or elderly neighbor about their memories of the local environment as children. This can quickly and effectively establish awareness of how their environment is changing. In some cultures teachers will find it easy and very effective to invite elderly residents of the community to further collaborate with children in community research and planning, building upon their personal knowledge. This strategy has been central to the work of the national program of working children in Ecuador. In this program it was found that different elderly persons are able to offer different kinds of knowledge of the environment. For example, women ceramicists were able to speak of the rich symbolism about the environment carried on their pots.

A Proposed Sequence

1. Identifying Different Perspectives in the Community

The students first need to decide whose perspectives should be considered. Have them brainstorm ideas in their groups. Encourage them to think of those people, like themselves, whose perspectives are often not considered in community development efforts. You can follow up by suggesting groups that they might not have thought of such as the elderly, the poor and the disabled. The children also need to consider whether they should locate any professionals with special knowledge of community development or environmental issues in their area.

2. Interviewing the Community

Interviewing a sample of representatives from different groups identified above can then be conducted. The interviews can be carried out in a number of different ways depending upon the age and competencies of the children (Go to Alternative Methods: Interviews). Whichever interview method is used, the children should use a community base map for recording the locations of problems identified during the interview (Go to Unit Four: Creating a Community Base Map).

Children's interviews can provide such valuable information on what the community collectively thinks its problems are that their research can sometimes stop there. All that is left to do is for them to design an effective means to deliver this message to others: to community residents, to planners, politicians and decision-makers.

3. Consulting Environmental Scientists and Planners

The community will not be aware of all of the environmental problems facing them. Furthermore, in rural communities the utilitarian goals of human communities have to be

balanced against the lives of other living things whose "perspectives" are unlikely to be fully revealed in a community survey. There is a valuable role for environmental professionals to play and they will often be willing to help. Again, the children can be the interviewers, identifying environmental issues and locations to add to their summary map of environmental issues and problems to be considered by the community.

4. Mapping and Classifying the Issues

The community and environmental professional surveys are likely to have resulted in the identification of a lot of problems. They need to be displayed together so that children can decide which ones to work on. This can be done by mapping them and by making lists on a chart.

If the data was collected on maps it will be possible to quickly create a collective map showing all of the problem locations identified in the community. It would be valuable to map other issues in order to be able to see patterns such as the locations of dangerous traffic or the sites that are considered polluted by people.

Not all environmental problems are specific to a particular location; air pollution for example. These problems need to be expressed as lists on a chart. Again, if the children are not highly literate a visual chart can be used, using picture symbols to represent different categories of concern. This large chart can then be filled out by all of the children in a group setting. The children can take turns to enter marks to show whether or not they found this to be a problem in their interviews. From this chart it is easy to make a simple bar chart to show which are the most frequently mentioned problems. This might have such categories as "housing problems" or "water pollution".

Selecting Problems for Further Research or Action

From the analysis above the children will have a number of suggestions for problems they would like to work on. Remind the children of the fundamental task in hand, namely, to identify issues that are important in affecting the quality of their lives and the lives of others in their community, including other living things.

If you wish to make this a long-term program, group children to each take one problem. This has the advantage of enabling a team of four to six children to work in depth on an important issue. Alternatively, the whole class can take on one problem and the division of labor can be on different aspects of the problem.

A Statement of the Problem

It is very important for each research group to write out very specifically and clearly a statement of their problem. This is an important act, for it forces everyone to be clear about collecting data on the problem. This should always be done in the form of a question and should always clearly indicate whom the question refers to, that is, which groups of people or animals or plants, etc. the issue affects. One example might be, "Where do the homeless people in our town sleep at night and can anything be done to help them with their sleeping situation?" It is unlikely that the children will be able to write a good research question the first time. This is an excellent opportunity for you and all the children involved to help the group clearly define what it is they

are interested in. This, more than anything, will affect the clarity of the subsequent research effort.

Whether to Choose a Theme or Study Site?

Children can choose to work on either a problem theme or a specific study site. For pre-adolescent children there is great value in their having a specific study site to investigate. This can greatly reduce the complexity for children who are still learning to deal with complex intellectual challenges. Investigating the life of a particular pond or stream, for example, would be a much more appropriate task for most pre-adolescent children than to generally investigate problems of water quality in their whole community.

Acquiring Information from a Variety of Sources

Children need to learn the importance of thinking broadly about different sources of information related to their problem, including their own experiences and observations. They can each keep a logbook of their own observations. They can also collectively maintain a log of articles and graphic material from newspapers and magazines related to their chosen theme. Of course, Internet sites could also prove valuable to this activity.

Identifying Sources of Information

Have a class discussion on what sources of information there might be for each of the issues to be investigated. This is a discussion that is probably best conducted with the help of a graphic chart in order for children to identify classes of people and sources of information to be considered. For example the children of the Colombian "New School" described in Unit One, determined that in order to plan the reforestation of the hill in their village they needed to interview a variety of different people. This included the elderly residents of the village who would be most likely to remember the types of trees that were there, the forester for the region who could also help at this task, and the local nurserymen who are more likely to know which trees would grow under which microclimatic conditions for their particular area. Remind the children that there is more than one perspective on any issue. They need to consciously work hard to hunt out the different ideas and values people in their community have towards their chosen issue. They will rely upon you for identifying any environmental and other specialist consultants.

Interviewing

Although children can be easily intimidated in interviews they are preferable to the questionnaire surveys (Go to Unit One: Interviews). The quality of information is richer. Also, through collecting the data children become aware of their capacity as children to seriously investigate the problem. Furthermore, adults begin to change their minds about the values of children doing research and their capacities to do so. There is a great danger with surveys designed by children that they will simply be ignored by the adult world. This is less likely to happen with interviews.

Charting the Data

Children need to get into the practice of summarizing data after each data collection trip. They should make a written summary of what they have learned from each of their interviews or each of their observation visits. In this way they will begin to understand concretely what their task is as they proceed.

Simple bar charts are an excellent graphical means for large numbers of children to see the quantitative aspects of their data take form. Some of their questions will have been closed choice questions. These are easy for the children to make charts from because the categories have already been established. For the open-ended questions, the children will need to look through their written summaries of interviews and suggest categories that could be used to analyze the data. This is an activity that is best done in small group sessions. These categories can then be used to make charts or maps.

Interpreting and Making patterns from the data

Given the complex nature of all environmental problems, children are going to need your help in finding ways to express the relationship of the many relevant variables. Again the best collective way to do this is with large wall graphics. All of the maps and charts that have been created should be pinned to the wall. Children can then look together at the data to suggest what the important variables are related to their problem. The teacher should facilitate this discussion using cards pinned or stuck to the wall. The various important variables that begin to emerge can each be written on a small card. These can be written on (and pictures drawn) by the children and pinned to the wall in such a way that they can be seen by everyone and can be moved around on the wall. Gradually a complex composite picture is created of many factors relevant to the problem. You can help give form to this display by suggesting alternative ways of arranging the card (variables) and by drawing lines between them. Prioritizing the influence of the variables may involve voting by the children or looking back again to the data to see what the different interviewees said about the relative importance of different factors.

Planning Interventions

Children can now suggest which of these variables they think can be acted upon to create an improvement in the situation. Create a list of alternative solutions alongside each problem. Beside this list they can write the likely positive and negative social and environmental impacts of each of their different suggestions. The children can then debate which of their different solutions seems to offer the greatest degree of positive social worth with a minimal degree of environmental damage. This stage of the research is so valuable to the larger community's understanding of environmental problems that it would be well if this stage could be graphically expressed or presented to the larger community.

Action or Advocacy?

It is not necessary for the children to take action themselves to improve the environment. Do not follow the common tendency to help children achieve some change at all costs by hiding from the children your role in that change. This is more likely to foster a cynical attitude to community change than the spirit of critical awareness and citizenship that should be our goal. Having done good research it may be enough for the children to feel competent that they convince others of the importance of what they have discovered. Making a presentation to the local civic leaders or environmental planners, for example, can be an extremely satisfying experience for children. It is of course necessary for adults to seriously listen to them and demonstrate so by asking sincere questions. The achievement of such dialogue is superior to any number of garbage clean-ups or beautification projects by children.

Figure 17: Girls preparing an article on quality of housing for an issue of the Silchester Sun, a community newspaper at the Notting Dale Urban Studies Center in London, England.



Evaluating the Research and Debriefing

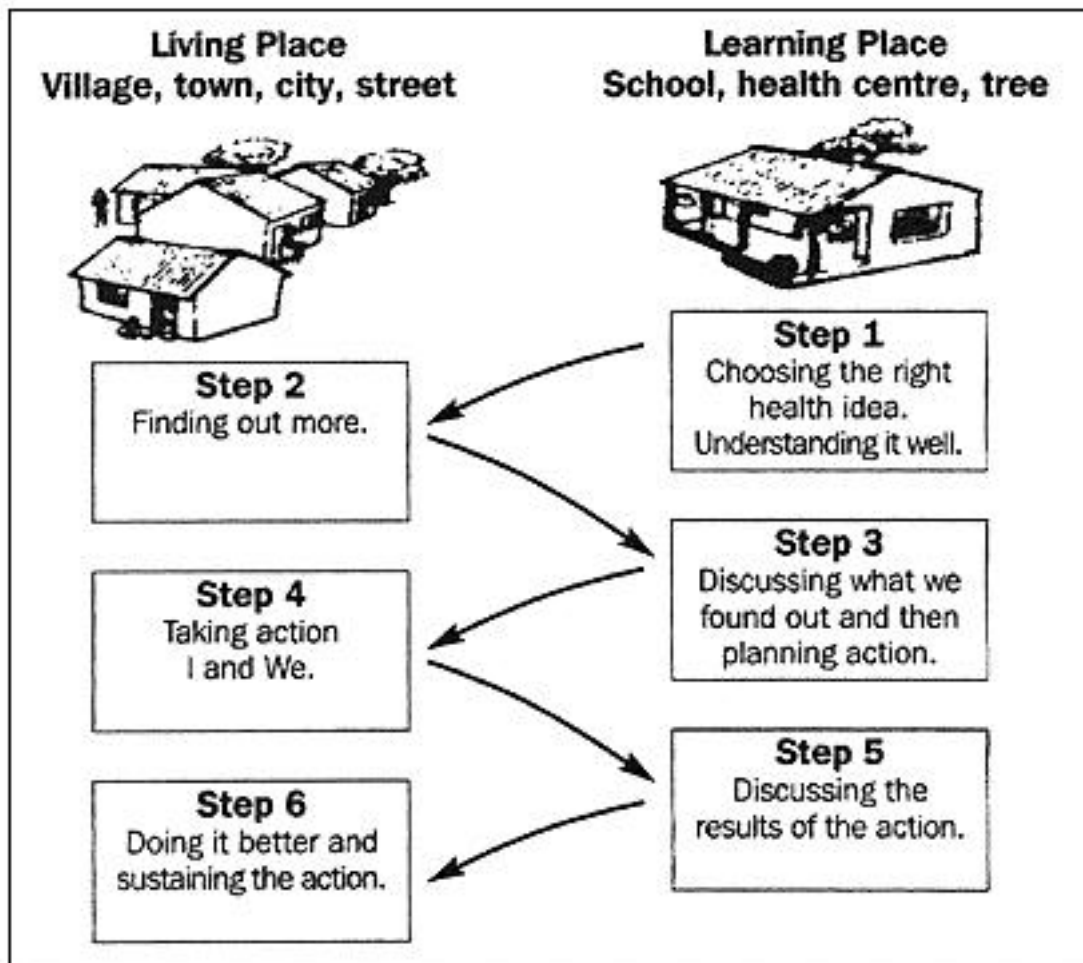
Review the original goals of the project and retrace, through class discussion, how the project developed and changed. This phase is commonly missing from children's research projects. If the children were not able to produce some action from their project or if their action failed, it is particularly important that they review why this happened. Understanding the barriers to change can be as valuable to learning and as empowering to children as to actually changing something.

Case study of 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, 995)



Step One: Choosing the Right Health Idea

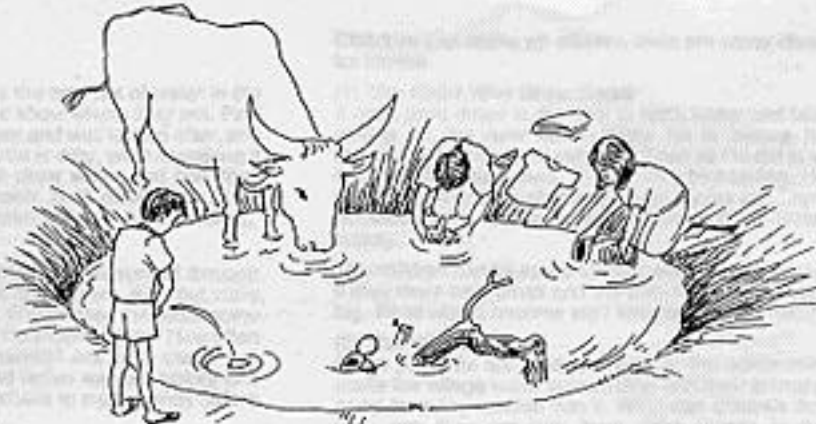
The teacher chooses for the children a kind of project that is both important and fun. They suggest that the children first make the project area their own by understanding it well in a variety of ways. They provide activity sheets to aid in this process).

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.

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.**

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

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.

Resources

Child to Child Trust (1995). **The Child-to-Child Training Manual**. London: The Child-to-Child Trust, The Institute of Education, 20 Bedford Way, London WC1H 0AL, U.K.

Kaplan, Matt. Neighborhoods 2000: An Intergenerational Planning Curriculum. Available from The Children's Environments Research Group, The City University of New York, 365 5th Avenue, New York, NY 10016 (www.cerg1.htm).

UNICEF (1996). "Raised Voices", a film describing children learning about and taking action on their rights around the world.

UNIT 7: EDITING A COMMUNITY ATLAS

Children can create an atlas of their own community. This is a bound collection of maps covering topics that are important to them or which they think will be useful to their community. This is a project that is best introduced to your students after they have already had some experience with community mapping projects. They will first need to have created a community base map (Go to Unit Four: Making a Community Base Map).

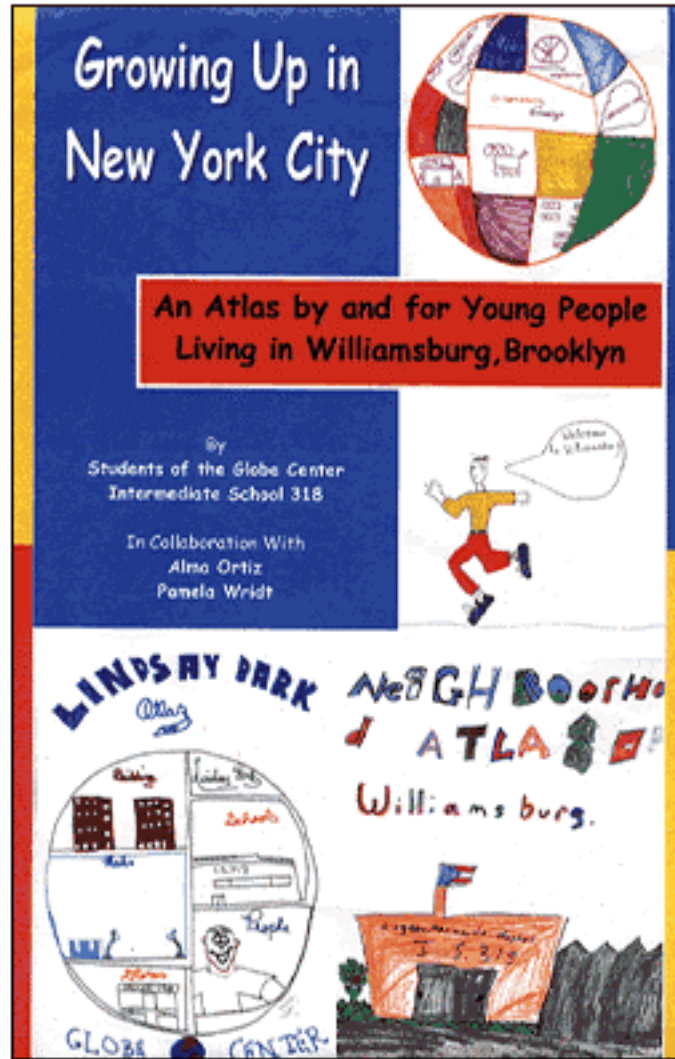
Identifying What Kind of Atlas

Children may have been producing maps for a variety of reasons. Now that they are to create an atlas, they need to go through the stages of designing a collection of maps that will guide someone through some simple decisions. The first and most important one is to discuss who might be interested in using the atlas. There are a number of possible alternatives you can suggest:

- **A Personal Atlas.** An atlas for each child that includes maps which they personally find interesting. This might include maps of all scales including the child's own bedroom and desktop.
- **A Classroom Atlas.** The students may feel that it is sufficient for them to produce an atlas that is useful just for their own classroom, with maps that the children find interesting. For example, one of the children of Westminster West School in Vermont created a map of the locations of pets in the community. Another child mapped the locations that the children felt were haunted in their community and labeled it "The Ghosts of Westminster West".
- **A School Atlas.** This might include different maps of the school grounds showing such areas as wildlife habitats, games, play and sports locations or sun maps showing the patterns of sunshine and shade in different seasons (Go to: Assessing and Improving the School ground).
- **A Community Atlas.** This is the most broadly interesting kind of atlas for a community. It includes maps of a wide range of phenomena in the community (Go to: Case Study of The Westminster West Atlas Project). The kinds of maps that might be included in this atlas range from orthodox kinds of maps showing the locations of housing, institutions and land to the creative contributions of children such as "The Ghost Houses of Westminster West". The atlas could also include maps that children may have collected in one of their community research projects such as the density of traffic on different roads in the community.
- **A Children's Community Atlas.** This is an atlas intended for other children, identifying issues that interest and concern young people. There are a number of important potential values of such a product. First it might be of more interest to children of some ages than a more general community atlas. Young adolescents might find it particularly useful to have an atlas that shows the places that their peers deem to be important. Such an atlas

could also be valuable for those adults who wish to better understand the perspectives of young people on their own neighborhoods. The students could produce such an atlas with this as a specific goal and make sure that it is delivered to local youth planners and public officials.

Figure 20: Cover of an Atlas by and for Young People in Williamsburg, Brooklyn, New York.



- **Specific Community Atlases.** Children might conclude that their community could benefit from specific kinds of atlases. A **Basic Services Atlas** might be useful in some communities. A **Cultural Atlas** might be valuable for raising the awareness of both children and the larger community to the diversity of people in their community. This could include information on the different cultural practices, festivals, knowledge and skills of these cultures. Through oral history research with elders in their community children could also create a **Historical Atlas** of local lore. This would show such things as the origin of buildings, the sites of significant events and the history of place names.

Size and Format

It is difficult to make a book of sufficient size that can also be reproduced in quantity. But this may not be necessary. Atlases are reference books and hence do not need to be very portable and are not needed in great numbers. It may be enough for the children to reproduce a few copies of their atlas by drawing them by hand. It is best to have the children reproduce each of their atlas maps on cardboard or cardstock because the finished product will get a great deal of use. The large size of the maps suggests that paper versions would soon tear and become unusable. Children can make a binding by punching holes and using string. This not only results in a sturdier product but also a more attractive one than the standard solution of a stapled binding.

The essential places to distribute these large atlases would be the school and community libraries. Depending on the size of the community and the scale of the map it may be possible to also reproduce selective maps for inclusion in a small atlas. The children could then carry copies of this home to their families and neighbors. It would encourage the readers to go and consult the master reference Community Atlas in the library.

Related Projects

Atlases are just one kind of published product that children can create related to their community. Another example is a local history booklet with stories collected by children from people in the community who possess valuable cultural knowledge (see reference to Foxfire in *Resources*, below). This could also usefully include maps with community historical information. The New Schools in Colombia have produced local Herbaria for their communities. The children create a kind of natural history museum in their school and books, which record the local knowledge of plants, found in their community. Again this is based on interview research with community residents (Go to Case Study of the Colombian Community Herbaria Project).

Case Study of 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.

MAPS

| | |
|-------------------------------|----|
| BARNs | 1 |
| BEAVER DAMS | 2 |
| BIRDS | 3 |
| CELLAR HOLES | 4 |
| CEMETERIES | 5 |
| CENTER OF VILLAGE | 6 |
| FARMS | 7 |
| GARDEN FLOWER | 8 |
| HAY FIELDS | 9 |
| HORSES | 10 |
| HOUSEHOLD PETS | 11 |
| HOUSES | 12 |
| JOBS | 13 |
| PONDS | 14 |
| PREFERRED DRINKS | 15 |
| ROADS | 16 |
| SPRINGTIME WILDFLOWERS | 17 |
| WATERWAYS | 2 |
| WHERE W.W. FAMILIES COME FROM | 19 |
| WILD ANIMALS | 20 |



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.

Resources

Wigginton, Elliot (Ed.) (1991). **Foxfire: 25 years.** New York: Doubleday.

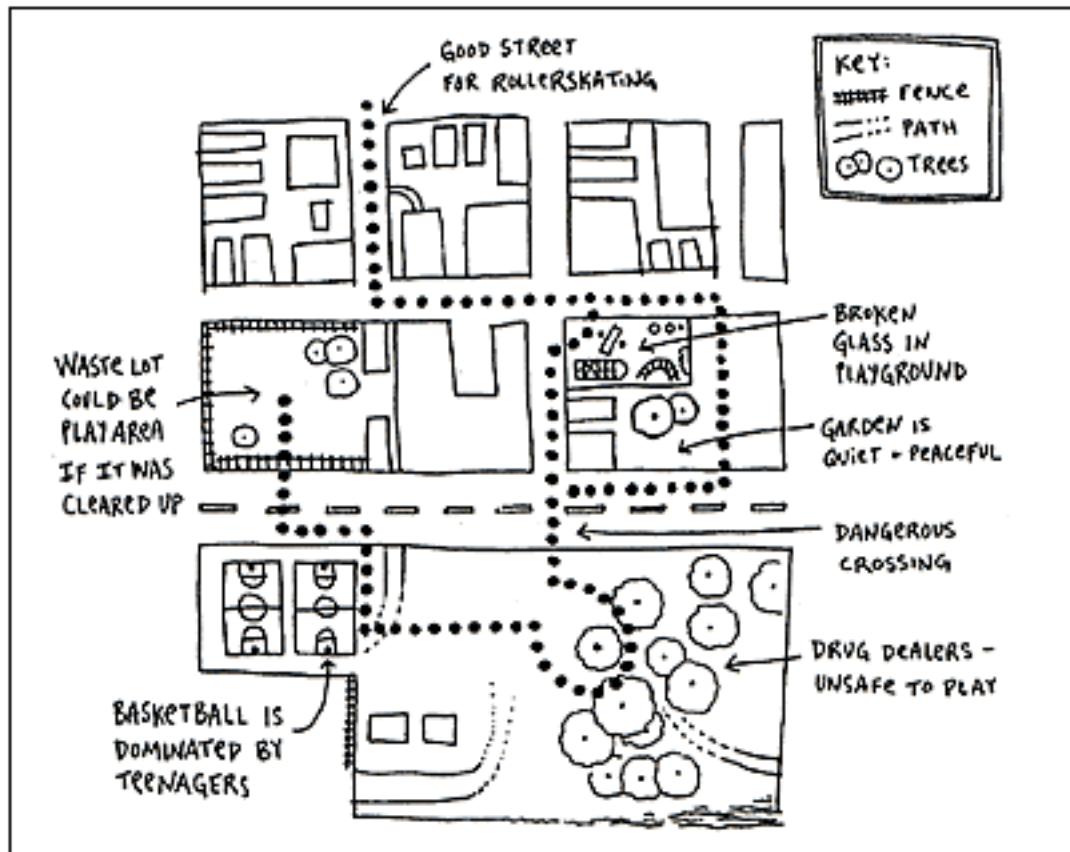
UNIT 8: PLANNING COMMUNITY TRAILS

This unit describes how children can design a trail to introduce others to aspects of their community which they think are important to see and discuss. Children greatly enjoy field trips but rarely get to establish their own itinerary for these trips. This is a good introductory research project for children because it has a clear end goal and can be done with little or no cost. Walking through the environment is the best way to communicate to anyone about issues related to it. The term "trail" is usually associated in people's minds with nature trails. Certainly this project would work in rural areas but it is equally, if not better, suited to urban settings. These trails need not be passive and boring experiences. Instead, the viewer is invited to become active through dialogue or to even act like a detective on these trails. The trails can become relatively permanent ones or can serve more specific, short-term ends. One particularly useful purpose for trails is to help open a dialogue with planners so that children's ideas are more integral to neighborhood plans.

Problem Identification

It is useful to focus on a particular theme, such as "economic development potentials", or "environmental pollution" or "sites for alternative plans for the community." The clearest way to introduce children to making a trail is to have them focus on the environment which they know and use every day with a view to sharing this with other children or adults (Go to Unit Four: Problem Identification). Figure 22 shows such a trail made by children.

Figure 22: A community trail map can be designed by children to show their everyday play environment.



The scale of the trail need not be of an entire community. In redesigning a schoolyard at Longfellow School in Berkeley, Californian Robin Moore found what he called "scored walks" to be a very effective strategy for gaining input to the design. It helped direct the attention of students, parents, teachers, administrators, and people from the surrounding neighborhood, towards opportunities for improvement to the school site. The scored walk was designed with some thirty "stations" on the school site. It was used as the opening segment of a three-hour community planning workshop. At each station, participants noted likes and dislikes and listed comments about the physical conditions. It took about an hour to complete the circuit. Most of the thirty-five participants worked in pairs, discussing their opinions as they moved from station to station, although each individual made their own record. Back at the workshop meeting, the results of the walk were discussed in small groups and on a wall graphic, which was used as the basis for group discussion on how to proceed in redesigning the schoolyard.

Making the trails interactive

The "tracker" should be given a set of questions and clues to guide them rather than a specific set of facts about what to look for and what their significance is. The trail is not meant to leave the tracker feeling that they have learned what they were supposed to have learned. It should rather stimulate the desire to investigate further. Different people perceive the environment differently and each of their perspectives is important.

Determining the Length of the Trail

The age and physical abilities of those who will be using the trail is the most important consideration. The children themselves will be a good judge of what other children would accept. The children also need to consider whether elderly persons will be using the trail. If they are, one possibility is to make alternative loops so that people can leave the trail and return via an equally intersecting route as the main trail.

Creating a Rhythm in the Trail

Contrasts and surprises are important. Do not take the trail along an obvious route or a beaten path. The trail should rather travel through controversial areas where people may be in conflict with developers or planners over a particular use of a site. A good trail should be designed for versatility of use. The tracker should be able to use the trail at their own level of interest and in the amount of time they wish to spend on it. Nevertheless there will be sections of the trail that are rich and interesting and others that are relatively uninteresting for most of the users of the trail.

Encouraging the use of all the senses

Aim to focus the attention of the tracker on each of the senses. Build in suggestions to the tracker that at different points they can listen for noises, smell the pleasant as well as the negative parts of the environment and even reach out to touch aesthetically pleasing objects in the built environment. One warning, however, is that because of the desire to touch after a period of months or years a nature oriented trail will become a deserted pathway through an otherwise rich environment!

Overviews

It is important to have at least one outlook point in a trail. This could be a hill from which a panorama can be offered, or in the case of a town, a tall building that is accessible. Not only does this offer a vantage point for new kinds of information but it can also place the trail in a larger context.

Introducing the Users to the Trail

Trackers should ideally be briefed on the route beforehand and introduced to symbols used on the map but then allowed to travel independently either alone or in small groups of children. This better allows people to move at their own speed along the trail. Also small groups can have discussions about the issues raised by the trail guide. Small groups or individuals are also more likely to be successful in moving through the natural environment with minimal disturbance of the animal life or through an urban environment with minimal disturbance to the regular activities of the populations they are passing through.

Recording the Trail Experience

A simple environmental appraisal form can be designed. This is not meant to turn this activity into a quantitative survey. Surveys have been discussed as a distinct method above. The trackers should work in small groups of two or three to fill out these sheets. The purpose of the environmental appraisal sheet is rather to focus a child on certain aspects of the environment. These are useful for stimulating discussion on the environment after the trackers complete the trail.

Evaluating and Redesigning the Trail

The trail should be frequently revised. Before the close of the discussion it is a good idea to take advantage of the students experience to redesign or supplement the trail for future use. The children themselves may wish to do this and even to transform the trail into something that can be useful for others. They may wish to make a visual and even an audio recording of the interesting environmental sites and the views of people resources along the trail. This might lead them to the creation of various forms of trail guides that can be shared with other children and adults of their community.

Resources

Eileen Adams (1982). *Art and The Built Environment*. Harlow: Longman.

Ward, Colin and Fyson, Tony. *Streetworks*. London: Routledge, Kegan-Paul, 1973.

UNIT 9: EXCHANGING COMMUNITY RESEARCH WITH OTHER SCHOOLS

Children need to be able to compare their research with that of other communities. Community "exchange" or "linking" enables them to exchange their work with children who are doing similar local research in other communities. Many schools already involve children in pen pal exchange projects. There are special motivational and learning benefits to children when they share serious local research projects. The medium for the exchange can be traditional correspondence, fax or the Internet. Whichever one is used, the emphasis of this unit is upon a sustained exchange of learning by groups of children. This is distinct from those kinds of Internet projects where children have brief or periodic communication about a wide range of ideas. This unit is also different from those kinds of programs where many classes of children are part of a global or regional network of children who are working on a common problem. This unit is limited to pairs of schools that are engaged in research and are exchanging their research with one another.

Locating a Partner Classroom

Teaming up with Teachers

It is particularly valuable for teachers who are working on such innovative projects to have the opportunity to meet with one another. Such professional development meetings enable teachers to clarify with one another the aims and methods of their project, to share experiences and frustrations and to find solutions to practical problems.

Teachers who will be exchanging with one another's classes should talk at length before a project begins. They need to do this in order to determine that they have common aims and objectives. They also need to understand the different circumstances of one another's schools so that there are no big surprises later on.

Matching the Children

Each child can pair up with an individual child from the twin school so that there is a "pen pal" exchange within the larger class-to-class exchange.

Age: Children should be approximately the same age in order to guarantee a parallel exchange of ideas. It is possible to carry out twinning projects with children of all school ages, even as young as six years of age.

Gender: Because so much of what children choose to exchange is personal, it is important that the paired children be of the same sex.

Social class: If you expect to include direct visits as part of your project you should carefully consider the social class differences between the children involved in the exchange. Even with correspondence exchange there is the possibility that great differences in the material wealth of children in the link will become too much of the focus. Such differences in wealth should become a matter for dialogue, not an issue of power between the children. It is too easy for a project between poor and rich children to take on traditional benefactor kinds of relationships particularly when parents get involved.

Local Exchanges

Choose a partner school which is sufficiently close that the children can visit one another's communities towards the end of their community research (Go to: Case Study of a "Community Exchange" Approach to Environmental Education in the U.S.A.). This way they will meet their twin friends and see the other community that they have been studying. Correspondence exchange is itself a most valuable experience. But the children establish such an excellent rapport and learn so much about each other's communities through writing and other media that they are in a superb position to learn even more by meeting. They can learn much more from an exchange field visit than they would from a normal field trip because of these prior exchanges and because of the rapport between the children who serve as community guides. It is often possible to find schools to which one can travel to and return from in one day that sit in very different physical environments and whose children are from distinct cultures. In Niger, Africa, for example, children from classrooms in different schools sometimes walk to one another's communities. This enables them to show each other the very different kinds of ways that they play and make a living from the land.

International Exchanges

International correspondence exchanges enable teachers to help their children make extremely valuable connections to many parts of their curriculum (Go to: Case Study of an England and Kenya Exchange). This is valuable for geography and cultural studies. It is also particularly important for environmental education, which calls for local problems to be seen in a global context.

There are linkage organizations in one or two industrialized countries (see Resources, below), but generally linkages are established through informal networks of personal contacts rather through any official channels. If you do not have such a network, the best recommendation is to contact an NGO that is internationally linked.

Issues to Consider

Speed of Correspondence.

Children feel great frustration when correspondence takes weeks between countries and may lose interest when relying totally upon mail. Every opportunity should be taken to use non-government organizations and friends who may be visiting the other country to serve as couriers of the children's material. Wherever possible a fax machine should be taken advantage of, for it enables some of the children's materials to be communicated instantly, thereby avoiding much of the problem. For those who have Internet connection the children can at least be in very frequent contact. But this should not result in an avoidance of other means of communication. There is a tendency with Internet exchanges for the material exchanged to be brief and superficial. Unless both of the paired schools have the capacity for scanning and sending visual data, the Internet link will need to be supplemented by traditional mail.

Media and the Problem of Literacy and Different Languages

It is important to be aware of the problem of different languages and degrees of literacy in different countries. This should be discussed between teachers before children are even involved. If a real problem is expected because of different languages or inferiority in writing abilities, then



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 commonality 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 dying 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.

Resources

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