

## **Kids Planning Our Environment: Environmental Education as a Tool for Community Stewardship**

### **Introduction**

Planning practice is an interactive process that generally involves many stakeholders. In order to make formative decisions and implement them, government, businesses, and citizens work to address local and regional issues. Sometimes issues are easily resolved; sometimes they are frustrating and drag on for years. Despite the widespread involvement of stakeholder groups, one faction is consistently ignored in planning decisions: children. In the push to make decisions and consider the numerous viewpoints of the adult population, children are habitually left by the wayside. Planners all too often fail to acknowledge that local children may have insightful and creative ideas to address issues. This is particularly true when these issues affect the local children, as is often the case with environmental planning decisions. How can planners incorporate children in the practice of environmental planning?

Environmental education provides a unique approach through which planners can integrate children's ideas. This approach can be directed toward youth-initiated venues for bringing environmental planning into the classroom. Children embody a fresh perspective that frequently generates a unique outlook adults often fail to see. They are often able to focus on possibility and not get mired in the minutiae. Out of the creative ideas of children can come significant contributions to their communities.

Thus said, there are also challenges to incorporating children into decision-making processes. It takes longer to work with children, particularly at a more child-initiated level. Lengthening the planning process is not typically a goal for planners. Additionally, many planners do not feel comfortable around children or do not know how to work with them. Many local issues may not be of interest to the children. As many planners are aware, dealing with the numerous public and private interest groups can be arduous. Adding children (a non-voting group) to this number is not necessarily a

priority in the eyes of most planning departments. While there are a number of reasons for planners to shy away from incorporating children in planning processes, how can planners include children, with a minimum amount of adjustment? The following chapters will outline how planners can collaborate with children and educators to create mutually beneficial situations.

Planners and educators have a unique opportunity to become part of a movement to incorporate children in environmental stewardship. By using environmental education to create a basis of knowledge about local issues and to provide a forum for children's participation, their ideas can be incorporated into planning. This paper discusses the importance of including children in environmental planning as well as how to use environmental education as an approach. The subsequent chapters introduce the field of environmental education and demonstrate ways it can be incorporated into school curricula exemplified through three case studies. The cases illustrate how programs in the United States are challenging youth to become active stewards of their local environments. Although environmental education can be utilized for children of all ages as well as adults, this paper focuses on grades four through nine. The final chapters include an examination of these programs based on an evaluative framework and provide a summary of the findings.

## **Chapter 1: Why is including children in environmental planning important?**

*“It is imperative that youth from all parts of the world participate actively in all relevant levels of decision-making processes because it affects their lives today and has implications for their futures. In addition to their intellectual contribution and their ability to mobilize support, they bring unique perspectives that need to be taken into account.”*

*- Agenda 21 Chapter 25.2, United Nations 1992 Rio Earth Summit*

Children constitute nearly 26 percent of the population in the United States (U.S. Census Bureau). However, young people exert the least influence on decisions about the environment in which they live (Adams & Ingham 1998). Rarely are children asked to participate in planning issues, and on the few occasions when they are, their input is often not taken seriously (Johnson *et al.* 1995, Checkoway *et al.* 1995). This trend can change by encouraging youth participation in planning their communities. Including children in decision-making processes is vital to their inclusion in the community. If we, as planners and educators incorporate their views when developing land use plans, we may encourage children to take more ownership and responsibility toward their local environment. Furthermore, by instilling this ownership at an early age, children are more likely to become active adult participants in their community and environment (Mullahey *et al.* 1999).

The lack of responsiveness to children’s viewpoints concerning environmental planning has grown to become one of global concern. Identified as an under-represented group, children have been excluded from most environmental decision-making processes worldwide (Freeman 1996). With this in mind, the 1992 Rio Earth Summit addressed the issue of excluding children from the decision process through the vehicle of Agenda 21 (Freeman 1996). Agenda 21 challenges nations to create an atmosphere in which children can become active participants in planning for their environment. This action plan for global sustainable development cites young people’s participation as vital to the development process (UNEP 2002). Agenda 21 “clearly recognizes the significance of children’s participation in promoting both the global and local environmental agenda” (Freeman p.70). One aspect of Agenda 21 challenges schoolchildren through the

classroom medium. The ultimate goal of Agenda 21 is for the children to learn about environmental problems locally and develop a plan of action to address these problems. They would thus serve as vital contributors to the community as young environmental planners.

Children drive their communities forward in many locations throughout the world. They are planting urban gardens, lobbying for environmental policy change, publishing magazines and newspapers, and participating directly in planning by designing urban forests. These children exemplify how activism can lead to increased stewardship. While this is generally perceived to be a positive ramification, many ask how integrated should children be in the planning process? Some believe young children should not be intimately involved in the process because they lack the decision-making skills necessary for planning (Sobel 1996). However, these same researchers agree that as children mature and grow, their grasp of critical thinking and decision-making also matures. As long as planners and educators work with children's unique development requirements, incorporating children in planning is feasible.

Additionally, Freeman (1999) believes the reasons why children are being encouraged to participate and the expectations of all participants must be made very clear at the outset. Tell the children their participation is important because they play throughout the community and may know it better than the adults. Tell the adult citizens their children are an integral part of the community and their insights may aid planners improve their safety. Also advise children about how the government system works. They need to know that there are limits to their involvement. For example, there are laws and rules that planning must work within. Moreover, they cannot vote – but their parents can. In this way, some misunderstandings can be avoided by starting everyone on the same page at the beginning. Furthermore, mechanisms to facilitate the exchange of information should be in place before incorporating children. Being unprepared to deal with a room of children is not a good way to begin an interactive planning process. Freeman (1999) also states that in order to be effective, it is essential that several participation methods and situations be used, according to local needs and circumstances.

Sherry Arnstein outlines the difference between participation and non-participation through the image of a ladder (1969). There are eight rungs on the ladder and each rung represents a greater degree of citizen involvement in decision-making. For example, the lowest rungs of *manipulation* and *therapy* represent non-participation, whereas the highest rung of *citizen control* turns over ultimate decision-making ability to the participants. The “powerless citizens,” typified by the non-participation levels, are contrasted with the “powerful” in order to illustrate the divisions between them. As an advocate for citizen participation, she believes that greater involvement of the public will result in greater empowerment and stewardship in their communities (Arnstein 1969).

Roger Hart (1997) adapted Arnstein’s ladder of participation to create a ladder of children’s participation. Hart’s ladder illustrates the participation methods adults commonly use with children.

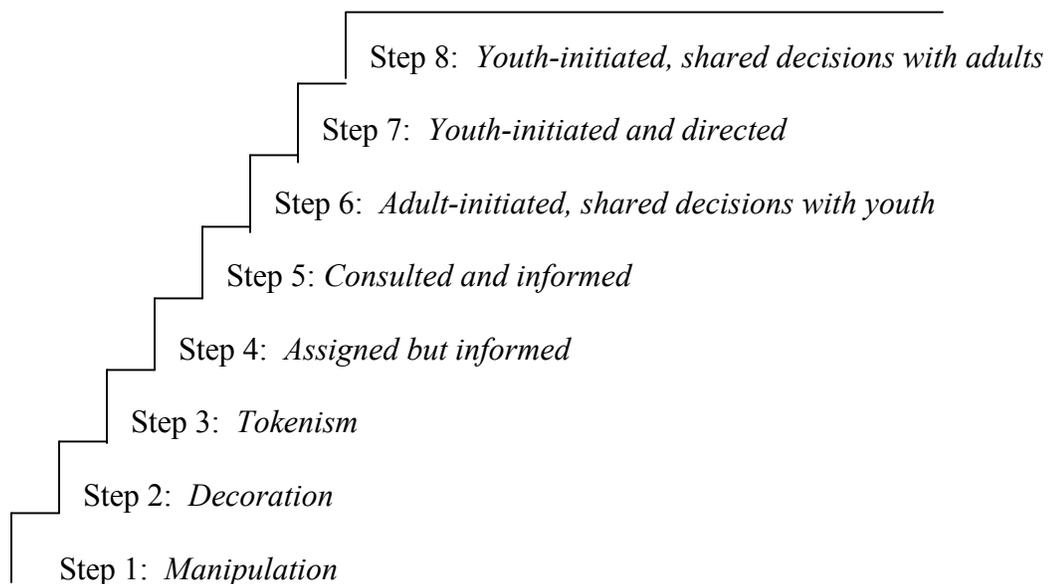


Figure 1.1: Based on Hart’s (1997) Children’s Ladder of Participation

As seen in Figure 1.1, each step on the ladder signifies an increase in degrees of initiation by children in the planning process. Hart suggests that adult facilitators should strive to achieve the upper rungs of the ladder and avoid the bottom three (1997). The ladder is

meant to illustrate various levels at which children can work. For instance, a more technical project may warrant a larger degree of facilitator control, while the students can largely control a more basic, hands-on project. The degree of children's participation may vary from project to project. The ladder of participation is not meant to be a level of succession necessarily, but something to keep in mind. A degree of child-initiated decision-making is necessary for any environmental planning process where we are including children's ideas. However, in order for this to occur, additional mechanisms need to be put in place to facilitate the exchange of information (Freeman 1999).

An effort was made to address children's participation in planning in 1977, when the first Intergovernmental Conference on Environmental Education was convened. Organized by the United Nations, the conference in Tbilisi, Georgia (USSR) produced a declaration that outlines the goals, objectives, and characteristics of environmental education. Known as the Tbilisi Declaration, it endorses the objectives of *awareness, knowledge, attitudes, skills, and participation*, as essential to the guiding principles of environmental education (UNESCO 1978). These five objectives establish the core of environmental education and illustrate the importance of educating children about environmental issues and incorporating their ideas into environmental planning. The *skills* and *participation* objectives are essential in the environmental planning process. Raising children's awareness and knowledge of environmental issues enables them to unite these concepts with decision-making skills to address issues they see in their community (Adams & Ingham 1998).

The Eco-Schools Project provides an example of how the five environmental education objectives introduced by the Tbilisi Declaration form a step-by-step process that ultimately results in children planning their local environment. In Wales, the Eco-Schools Project strives to raise student's awareness of environmental issues, and encourage action in the community. In two years time, what started with 8 schools grew to include 200. When schools sign up to participate, they undertake a review of their environmental practice, and produce an action plan and an "eco-code" (Croall p.II). Part of this process includes a day when ideas are disseminated within the school, as well as to

the rest of the community and beyond. An unforeseen benefit of this program has been that the children's initiative in the local environment has spilled over into their other coursework. The children have gone on to create inspiring stories, artwork, graphics, and a newspaper they can use to explain the local issues to the community. The Eco-Schools project demonstrates the ease with which environmental education lends itself to integration into existing curricula and activism, while providing a forum for involving children in environmental planning.

Involving children in planning and implementing ideas is intrinsic to the Eco-Schools Project. To fulfill this goal, children are members of a special eco-committee (Croall 1995). Including children on this level instills stewardship, activism and pride that continue long after they have put school behind them. Additionally, this project supports the aims of the 1992 Rio Earth Summit Agenda 21 document by involving children at all levels of environmental decision-making (Croall 1995).

The United States has also worked to meet the Agenda 21 challenge by incorporating children in environmental decision-making. The adoption of the National Environmental Education Act of 1990 charged the Environmental Protection Agency (EPA) with coordinating Federal environmental education initiatives and providing national-level leadership to both the public and private sectors (Browner 1995). The Act mandated the creation of an Office of Environmental Education within the EPA. According to its mission statement, this Office exists: "To advance and support national education efforts to develop an environmentally conscious and responsible public, and to inspire in all individuals a sense of personal responsibility for the care of the environment" (EPA website). The mandate has proven successful. In fact, by 1997, thirty-one states adopted legislation requiring environmental concepts be incorporated into their K-12 curriculum (Independent Commission 1997).

The EPA continues to work towards this mission, however the broad implications of the mission strain funding and personnel. This strain, in turn, limits the extent of their efforts. It is often left to communities, schools, organizations and other agencies to bring

the national environmental education agendas to the local level. As educators and planners, we can aid in filling this gap by implementing environmental education principles within our communities. The collaborative process has shown time and again that engaged stakeholders are significantly more likely to be active participants, especially when they are involved in the design and creation process of a program (Arnstein 1969, Hart 1997). This ownership or stewardship is the essence of sustainable environmental activism.

## **Chapter 2: Why is incorporating environmental education in school curriculum important and how can we involve children?**

*“No important change in ethics was ever accomplished without an internal change in our intellectual emphasis, loyalties, affections, and convictions.”*

*- Aldo Leopold*

Children have a vested interest in their environment and should be included in participation processes. They are often the dominant users for outdoor recreation facilities such as parks, open space, and urban forests, and their participation in environmental planning can provide valuable insights (Freeman 1999). Expanding environmental education in schools can be used to support and promote participation. Environmental education raises awareness of the natural world for children as well as adults. Field exercises, outdoor classrooms, and indoor activities are only a few of the successful applications of environmental education principles (Ruskey & Wilke 1994). Applications such as these focus on global, regional, or local issues while illustrating the cause and effect relationships between them.

For example, a groundwater model demonstrates the impacts of one person emptying their oil pan onto their driveway. This illustrates how the oil travels from the driveway, down the storm drain, and eventually into neighboring wells and streams. These avenues are an excellent means to show children how the natural world works and the potential role they can take in their local community. However, there are additional steps educators can take to encourage a sense of stewardship and activism in their students. If planners and educators can foster a feeling of stewardship in children at a primary school age and continue to nurture that feeling, these children will grow into more knowledgeable adults. They will be aware of their impact on the environment and more likely to become active participants in environmental planning issues in their communities.

Environmental education can be directed toward a youth-initiated venue for bringing environmental planning into the classroom. Incorporating environmental education into

the curriculum can promote youth empowerment and establish a forum for child-initiated planning and decision-making. The reasons for implementing environmental education into schools are numerous. Schools have the resources necessary to instruct children on the environment. They offer a structured setting with mentors and faculty already in place. This could allow data and information collected by classes to be used by partner groups, with a higher degree of reliability than from unstructured groups.

Furthermore, the structure schools offer can benefit planners when they conduct visioning and brainstorming sessions with the students. A program may be more successful utilizing a pre-existing, conventional atmosphere where both children and adults are comfortable. This cooperation between environmental education and school classrooms has the potential to blossom into a mutually beneficial relationship.

There are however, several considerations when beginning to work with schools. Most educators have little extra time to work on developing a program. Additionally, some schools are over-crowded and feel over-burdened with their current task-load. Sometimes making contact with educators and administrators is a lengthy process unto itself. Although these are challenges to incorporating environmental education into classes, when they are overcome, the rewards can be that much greater.

One such example is the pairing of Appalachia Elementary School and Hands Across the Mountain, Inc. ('Hands'). Hands is a community watershed management group working to clean the Upper Powell River watershed in the coal mining regions of Southwest Virginia and Southeast Kentucky. They are an active group that sees environmental education as vital to the on-going improvement of their watershed.

In 2001, they added another facet to their environmental education outreach program. They won a grant to provide Appalachia Elementary School with Palm IIIc handheld computers (PDAs) and Garmin eTrex personal geo-positioning system units (GPS). This enabled Appalachia Elementary to establish a hands-on environmental assessment tool that is used to collect data. This interactive system allows the children to use new

technology to gather information about their local environment and establish a database that tracks a local stream's conditions. The children are able to create charts, graphs, and maps that illustrate changes in the stream, such as erosion and basic water quality. It is Hands' hope that with this program, Appalachia Elementary schoolchildren will gain an appreciation for their local environment while a deep-seated sense of ownership toward the area is instilled in them. While this is a new program for Appalachia Elementary, teachers are already seeing these hopes come to light. The children are excited about going outside to collect the data and see what has changed. Furthermore, they are beginning to become protective of *their* streams – a definite basis of ownership.

Hands and Appalachia Elementary, as well as the other partner agencies, are hoping that the children will want to take a larger role in their watershed. With this increasing sense of responsibility, the children feel as though they have a stake in their environment and want to tell adults what *they* feel should be done with their natural resources. Hands and Appalachia Elementary have an exceptional opportunity to develop this desire by including the children in the watershed group's decision-making process. By using any number of community involvement techniques and using Hart's ladder as a guide, Hands can develop an open dialog with the students and incorporate their ideas in the group's project planning and implementation.

In order to engage children in collaborative environmental planning, a suitable method should be chosen. Decision-making processes that incorporate children must consider the differences in the conceptual levels of children and adults. Children do not have fully developed social and reasoning skills. Furthermore, the *type* of decision-making process is important when working with children. The graph shown below illustrates the desired program, structure, and funding goals for local environmental education programs. Collaborative child-initiated processes can be incorporated in this format to address environmental planning issues.

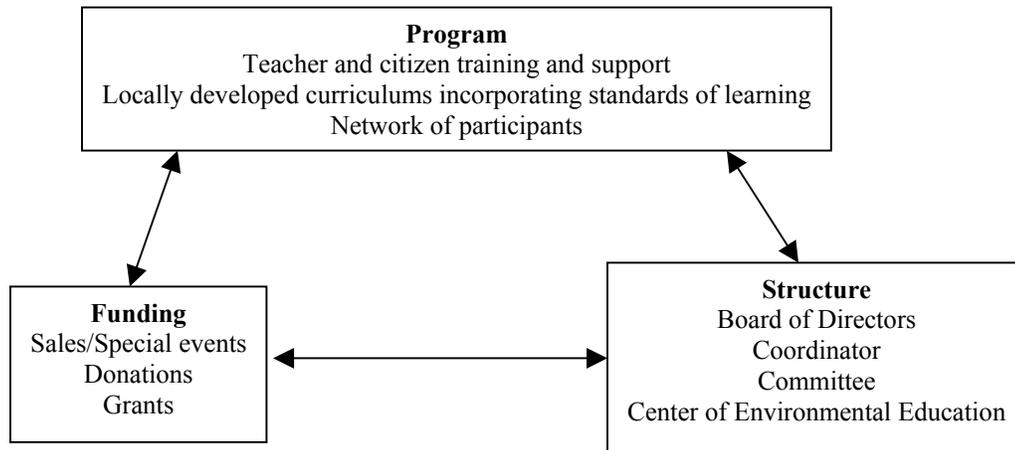


Figure 2.1: Based on Ruskey and Wilke’s (1994) Components of a Local Environmental Education Program

The process begins with solid program support and training for teachers and community participants, including curriculum development. In this way, they can pass on knowledge to the children via locally developed curriculums based on regional academic standards. A network of local planners, educators, government personnel, and citizens is also necessary for a rounded participation program. Without this fundamental support, the process lacks the necessary foundation from which to pull information and resources. The second step is to develop the structure. A program should form a board of directors from the program participants, choose a coordinator and committee, and find a suitable location from which the program can operate. Once the program has a foundation of support in the form of training, support, a curriculum, and dedicated participants and committee, funding can be sought. This third step can be as simple as raising money locally through raffles or sales, or more ambitious by applying for government and private grants. The last step is to apply the funding earned to further sponsor the program, creating a sustainable circle of on-going support. Interaction between these factors can lead to a firm foundation, strong leadership, dedicated participants, and on-going funding.

Even with well-designed programs there are challenges to incorporating environmental education protocol into existing class curriculum. As most teachers can attest, redesigning curriculum is a time-consuming process (Kesson & Oyler 1999). Teachers are often pulled in a number of directions and have little time to adapt new ideas for their classroom – particularly with the increasing importance placed on academic standards. Additionally, administrators and teachers are not always comfortable with the non-traditional classroom education styles exemplified by environmental education (Boston 1998-99). Theories such as Bloom’s taxonomy and constructivism are proponents of turning over some control to the students and then incorporating their desires and ideas into future plans of action. Letting children have more control over the decision-making process in the classroom can be a challenge for teachers (Mordock & Krasny 2001). Fortunately, each of these concerns can be addressed by programs willing to work with educators on a continual basis to cooperatively design curricula suited to the school, educator, and regional academic standards.

Although these challenges may seem great, it is important to implement environmental education into a curriculum in order to create a forum through which children can participate in planning issues. Incorporating children’s ideas and viewpoints through increased involvement and hands-on activities exemplifies a good environmental education program (Kesson & Oyler 1999). Annie Brody, Earth Force Coordinator for National Programs, explains what many environmental educators feel, “Environmental education is successful with young people because it addresses the whole being—the feeling, creative, intuitive self—and couples it with analytical, critical thinking” (qtd. in Boston 1998-99 p.68). Blending environmental education with a classroom structure can achieve a mutually beneficial setting where children’s unique perspectives are included in decision-making processes.

### **Chapter 3: What is Environmental Education?**

*“Environmental education is a process of developing a world population that is aware of and concerned about the total environment and its associated problems, and which has the knowledge, skills, attitudes, motivation and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones”*

*- Independent Commission on Environmental Education*

The definition of environmental education developed by the Independent Commission (1997) on Environmental Education, as noted above, is the generally accepted formal definition. The points outlined in the definition parallel those in the Tbilisi Declaration. Key points include raising awareness about the total environment and its issues, while providing people the skills and commitment to work toward addressing these issues. Various organizations and agencies adapt the definition to suit their particular goals and charter. Although numerous versions of the definition exist, the evolution of environmental education progressed from a consortium of writings and beliefs that challenged common thinking in the 1940s (Disinger 1998).

Many people point to the writings of Aldo Leopold in the 1920s as the first introduction to environmental education. Leopold’s unique land ethic that “humankind shares the environment” and owes a responsibility to it, is one that reverberates throughout the environmental education standard of today (Shepard p.150). This era also gave rise to three somewhat related standards of education: nature education, conservation education and outdoor education. These standards coalesced to create environmental education as it is known today (Shepard 1989).

Some educators agree with Orr (1992) when he states that all education is environmental education. A belief exists that the way in which education occurs is as important as the content. Orr states that “real learning is participatory and experiential, not just didactic” (p.94). Altering a child’s relationship with the environment in order for them to develop a connection with it, is necessary in order for them to understand it (Orr 1992).

Environmental education is also recognized as a form of experiential education or service learning. This recognition arose from a concern in academe that children's unique growth and development requirements are ignored as a result of the role of adults in determining children's environments (Frank 2000). In many classrooms throughout the country, environmental problems such as tropical deforestation, vanishing endangered species, and spreading desertification are used as examples. These abstract concepts are difficult for youth to put into terms they are familiar with and could have the effect of scaring them. Sobel (1996) refers to this phenomenon as ecophobia – a fear of ecological problems and the natural world. He advocates a three-tiered approach to environmental education that follows childhood development in their relationships with nature:

“In early childhood, activities should center on enhancing the developmental tendency toward empathy with the natural world; in middle childhood, exploration should take precedence; and in early adolescence, social action should assume a more central role” (p.12).

Shepard (1989) shares this belief and states that as adolescents move toward adulthood, they need appropriate opportunities to gain knowledge, experience, and new skills. Youths commonly complain that traditional environmental and school programs utilize an inflexible and uncreative design (Shepard 1989). Children desire more freedom to choose and carry out programs of their own design. Shepard also believes that traditional lecturing has not been successful when it comes to raising awareness of environmental issues or generating activism in children. He is a proponent of the 'share and do' methodology instead of the more traditional 'show and tell' approach (Shepard 1989).

Many environmental education programs have built their activities around academic standards of learning in order to appeal to educators. Teachers are able to focus more on the activity itself than trying to adapt it to suit curricula. An additional concern in environmental education is that of bias. It is the responsibility of the educator to teach or present an unbiased view of the environmental education topic. It is the educator's role to present all sides of an issue, not only those they personally hold.

The concept of environmental education is broad and diverse, as exemplified by the wide range of institutions, organizations, and agencies who support it. However, there *is* a common purpose: “environmental problem-solving...is a process by which young people learn to take personal responsibility for their environments, develop broader perspectives, and become involved in finding solutions to current and future environmental issues” (qtd. in Shepard p.150).

## **Chapter 4: How are national programs addressing environmental planning through environmental education?**

*“When you provide a context that ties learning to practical results they can see, it changes [kids] as human beings”*

*- Donna Power of Earth Force*

Environmental problem-solving invites environmental education proponents to create programs to address the issues we face. In this world of advanced technology and increasing globalization, there is mounting pressure to expand traditional environmental education programs. The goal is to not only teach children about their environment, but to also raise their awareness and incorporate their ideas into our future environmental plans. How can planners and educators become aware of ways to incorporate opportunities for children to participate in and contribute to the environmental planning process?

National environmental education programs are vast in number and differ greatly in many ways. Program structures, goals, activities, location, size, and scope are specific to each individual program and mission. A number of programs are suited for rural primary schools while others focus more on urban after-school activities. Several programs are specifically designed for a locality while others focus on global issues. A program exists to suit most any situation.

From this great diversity of available environmental education programs, three were chosen for this in-depth discussion and evaluation based on the following criteria:

- The programs existed for at least five years;
- The programs focus on land use or the environment;
- The programs involve children in decision-making processes;
- The programs utilize existing classroom structure;
- The programs are located throughout the U.S.;
- The programs were initiated by varying circumstances and organizations; and
- The programs connect with their communities.

Furthermore, from within those that meet the criteria, cases were picked that work predominantly with grades four through nine.

In order to better examine the programs, a framework was created that focuses on a variety of the programs' aspects. The framework was divided into the following three categories in order to better assess how each of the programs meets our goal of pairing environmental education with schools while supporting environmental planning; 1) program structure, 2) adaptability and teacher support, and 3) community stewardship. As discussed below, each of these categories includes criteria important to the overall success of a program.

**Program Structure** describes the basic foundation of the program. It explains the principles of how the program formed, how it is funded, and where it is going.

- *Funding*: is financial support coming from donors and grants or through federal monies?
- *Sponsors*: was the program founded by a federal agency or an organization?
- *Expansion*: is the program increasing, remaining the same, or decreasing in capacity and scope?
- *Staffing*: does the program have full-time, part-time, or volunteer staff?

**Adaptability and Teacher Support** outlines how well the program meets the needs of teachers and participants. It also details if the program can adapt to suit local environments and skills.

- *Aligned with academic standards*: do the activities in the program support national and state academic guidelines?
- *Teacher support*: is the program staff available and able to provide individual assistance to teachers on a continual basis?
- *Pre-existing curricula*: is there a curriculum teachers can use already written for the program?

- *Adaptable curriculum:* can the program staff work with their existing curriculum or develop a curriculum tailored to meet the specific needs of a school/classroom?
- *Cross-curricular:* does the program address many different classroom subjects such as Math, Art, Physical Education, History, or Language Arts?
- *Subjects commonly addressed:* what are the subjects the program concentrates on frequently?

**Community Stewardship** addresses whether the program fosters ownership and activism in the students. It also explains if the community is involved in the program and what their opinion is.

- *Children feel empowered:* do children feel like they are making a difference and can make decisions about their local environment and act upon those decisions in their communities?
- *Activism beyond program:* after their involvement in the program, do children become involved in other environmental programs or activities?
- *Children see results:* can the children see the results their activities have, for both the short- and long-term?
- *Community – school relationship:* does the community have a positive or negative opinion of the school, and vice versa?
- *Activism beyond school grounds:* are children involved in projects beyond the borders of the school grounds?
- *Community participates:* are community citizens involved in the program and working with the students?

The three chosen programs: NatureMapping, Earth Force CAPS, and KIDS Consortium, Inc., are each introduced by a case study illustrating an example of how the program has been implemented at a particular school. The subsequent explanation of the program and its characteristics follows the format outlined above. The assessment of the programs is then synthesized in Chapter 5.

## **Chapter 4.1: NatureMapping: Incorporating environmental education into a school curriculum.**

*“Our goal is to keep common animals common and to maintain our quality of life. Our approach is to train individuals to become aware of their natural resources and to provide the tools to inventory and monitor their resources.”*

*- NatureMapping*

The classroom was bustling with activity. Farmers’ weather-roughened hands worked alongside the small hands of students to put colored stickers on a chart. Local citizens worked with other students to type data into computers to create charts and graphs. Was this career day at Waterville Elementary, Washington? No! It was a day for Horny toads.

Students involved in the Washington state-based NatureMapping Program, chose to collect data on the Short-horned lizard (more commonly known as the Horny toad). Although indigenous to many places throughout the United States, human encroachment is putting pressure on the Horny toad. Relatively little is actually known about this small lizard and the students are working to change this.

In their pursuit for information on Horny toad habits and habitat, the Waterville students enlisted the help of the community. In this rural community, farmers seemed to be a natural source of potential Horny toad data, so the students implemented their Adopt-a-Farmer project. Farmers received a Farmer Data Sheet, Horny toad habitat code list (laminated, with a string through it so it could be hung on their tractors), and a data collection book. The students created all of these materials. Farmers recorded Horny toad sitings in their data books while out in the fields during the summer and turned the information over to the students at regular intervals so they could record the data. Students went on to create maps, charts, and graphs tracking the habits of the Horny toad. The students also designed a Short-horned lizard website and presented their findings at an annual meeting of Pacific Northwest fish and wildlife biologists and researchers.

## **Program Structure**

The Washington Cooperative Fish and Wildlife Research Unit Gap Analysis Project (WAGAP) and the Washington Department of Fish and Wildlife (WDFW) co-founded The NatureMapping Program in 1993. NatureMapping is a volunteer and student wildlife monitoring program originally founded to serve conservation planning and education needs (Frank 2000). The participants' wildlife observations enable the agencies to assess statewide species distribution maps that are then used for biodiversity conservation planning. To date, there are more than 50,000 citizens involved in NatureMapping in the Northwest (Frank 2000). Virginia, Iowa, and Idaho have adopted similar programs based on the NatureMapping outline.

Agencies are realizing that their environmental monitoring charge is too large to handle alone, particularly when paired with declining agency budgets. This provides a strong incentive for agencies to seek assistance (Frank 2000). Additionally, there was an identified need to create opportunities for "stewardship as a means to educate" that would directly impact the agency mission (Tudor & Dvornich p.8). These incentives led to the creation of The NatureMapping Program.

NatureMapping is funded by several private organizations in cooperation with government agencies. It relies on partnerships and its citizen volunteers to provide the groundwork necessary to gather data.

## **Adaptability and Teacher Support**

The State of Washington mandated environmental education for K-12 students in 1990. Concurrently, statewide curriculum restructuring encouraged teachers to incorporate real-world experiences across all school disciplines (Dvornich *et al.* 1995). The WDFW worked with teachers to develop a program that allowed students and teachers to explore nature while fulfilling state academic standards. NatureMapping thus evolved from a pilot program to a statewide, in-class biological database by 1995 (Dvornich *et al.* 1995).

The main objective of NatureMapping is to foster participants' environmental literacy, which is defined as the ability to answer the following questions (NatureMapping 2000):

1. What do we have where we live?
2. What is the condition of those components?
3. How can we sustain what we have?
4. What is my role?

The guidelines for the Program are set up so that collected data can ultimately be shared among all participants. Children can therefore see the larger picture they contributed data and time to accomplish. The WDFW also produced a video for teachers describing the program and how their students can participate in NatureMapping. There is also an educational/data entry software package children as well as adults can use to record their observations. NatureMappers are also networked via a website managed by the WDFW, which contains links such as program protocols, project examples and how the programs achieve regional academic standards.

The NatureMapping Program holds frequent teacher and participant workshops in order to facilitate the exchange of information among participating schools. A series of workshops offers further instruction in techniques ranging from basic data collection and reporting, to Geographic Information Systems (GIS) technology. Workshops are held throughout Washington in addition to an annual national conference.

NatureMapping supports more than just environmental education in the classroom, as all the data collected by the students is sent to the WDFW to be incorporated into the Washington State database. The agency assimilates this information and adds it to a website that participating classes can access via the Internet. In this way, the students see where the data is going and are more likely to feel part of a larger scheme. This opportunity allows students to build an information base for understanding and independent decision-making (Tudor & Dvornich 2001).

## **Community Stewardship**

This program was designed in part to promote community stewardship. Frank (2000) notes that NatureMapping activities and educational and community support can vary broadly from school to school. The flexible nature of the program allows teachers to adapt it to fit the needs of the students. This flexibility is illustrated in the wide array of projects undertaken. Examples range from Sakai Intermediate School, where students NatureMapped their backyards and island corridors; to Orchard Prairie School students authoring a children's book.

In a University of Oregon thesis study conducted in 2001, participating NatureMapping students were asked to describe what actions they could take to maintain or improve the good things about their communities and natural environments. This same question was posed to non-NatureMapping students in the same school or local area. Significantly more NatureMapping students bring up community involvement as an approach. (Frank 2000). Tudor also states students "believed that their data were useful to others and exhibited a heightened sense of stewardship" (p.12). This heightened sense of awareness may lead the students to a more involved adulthood.

Frank (2000) and Tudor & Dvornich (2001) all state that the most significant impact of NatureMapping is the improvement of the communities' impression of the schools and their students. There are more interactions between students and citizens, and the program inherently promotes collaboration between agencies, communities, and schools. The NatureMapping Program's vision of creating opportunities for stewardship as a means to educate is well on its way to lucidity.

### **What is the contribution to environmental planning?**

The NatureMapping program corresponds mostly to Step 4: *Assigned but informed* and Step 5: *Consulted and informed* on Hart's ladder of participation (see Figure 1.1). In NatureMapping, children are not directly engaged in planning. Rather, they are taught and informed about wildlife and ecological issues affecting their communities. Teachers typically implement this program to enhance their curriculum and often use the adult-

initiated categories of the ladder. This lack of more child-initiated involvement is likely due to NatureMapping being a data-collection program. By design, NatureMapping does not address environmental planning issues. Additionally, children are not often integrated into a planning process. Because it adapts to suit the needs of a school, planning may never be incorporated into that particular program if the school and planning department are not supportive of it happening.

However, this does not preclude NatureMapping from contributing to planning particularly in the areas of habitat conservation and greenways planning. For example, the City of Bainbridge Island in Washington State, purchased land for a wildlife corridor (Tudor & Dvornich 2001). The city then solicited the help of Woodward Middle School students to monitor the wildlife using the corridor. The city wanted to use this data to assess what species were using the greenway in order to make more educated planning decisions. Through this initial partnership, middle school students worked with high school students, citizens, land trust personnel, and parents.

At Orchard Prairie School in Washington State, students submitted comments on a proposed road realignment for an environmental impact statement (Tudor & Dvornich 2001). The comments included analysis of NatureMapping data the students had conducted. Furthermore, the students conducted a residential attitudinal survey. The results of the survey as well as detailed potential effects of the road realignment were submitted in support of their comments. As these two examples illustrate, planners can use an adult-initiated, data collection program such as NatureMapping as a foundation for integrating children into the environmental planning process.

## **Chapter 4.2: Earth Force CAPS: Using environmental education to promote stewardship in youth.**

*“CAPS (Community Action and Problem Solving) is an environmental problem-solving program through which middle-school aged youth identify local environmental issues and create lasting solutions to these problems. CAPS combines the best practices of environmental education, civic engagement and service learning.”*

*- Earth Force CAPS*

If your drinking water tastes funny, what do you do? Buy bottled water? Ignore it? In Denver, Colorado seventh graders at Cole Middle School decided to do something about it. They were not sure if the water tasted funny because of a problem, but if it was, they wanted to fix it.

Despite the enthusiasm shown by the students, their teacher was concerned about jumping into this project wholeheartedly. These students presented a real challenge. They were the kids with a bad reputation and needed an outlet to keep them out of trouble (Boston 1998-99). Other teachers had given up on them. Although somewhat uncertain of the outcome, they proceeded with the project.

The students first realized the drinking water problem after conducting an environmental inventory of their community through the Earth Force CAPS (Community Action and Problem Solving) Program. They began by contacting community resources for information about drinking water. They soon moved to an investigation of what policies are in effect in Denver for drinking water and how testing occurs. During this process, several questions arose concerning issues such as how water is carried from house to house and if there are any regional differences between Denver water and other water. After the students had more information about their project, they identified workable solutions and developed an action plan.

Throughout the year, the seventh graders researched and discussed issues associated with the Denver water. They ultimately decided to continue the project the following year and worked with another group of students to put water-filtration systems in low-cost

housing. At the end of the school year, the students had learned valuable skills, made partnerships throughout Denver, and discovered a common purpose: making their drinking water better. By working together, this group of kids overcame adversity and banded together as a team.

### **Program Structure**

Earth Force CAPS is a national program based in Alexandria, Virginia that focuses on environmental and community service learning. This program was founded through the non-profit Earth Force organization in order to address children's concern for the environment with cross-curricular learning, service learning, and civic engagement (Boston 1998-99). The CAPS program works with school and community partners and resources to convey environmental knowledge to youth, while teaching skills that enable them to become civically active.

CAPS fundamental principle is that of engaging youth in civic action to work toward solving environmental problems (Erickson 2001). The ultimate goal of CAPS is for the program participants to take action on an issue and produce sustainable results (Boston 2000). Erickson (2001) identifies three key elements that should be included in order to have success in experiential learning programs:

1. A project must transcend short-term efforts, such as park clean ups. Lasting community change does not follow a one-day field trip; it comes when people address the policies and practices at the core of a problem.
2. Action plans must be based on objective research that the students conduct early in the process. Opinions and strong feelings must be supported by credible data and thoughtful arguments.
3. The process must be youth-led, with students making the decisions of what issue to select and what plan of action to pursue. The goal is to teach them how to think, not what to think based on an adult's agenda. (p.12)

These elements are inherent in the six-step sequence used by CAPS to enable children to initiate environmental problem-solving.

1. Take a community environmental inventory.
2. Select an issue.
3. Research policy and community practices.
4. Examine options for influencing policy and practice.
5. Plan and take civic action.
6. Look back and ahead.

### **Adaptability and Teacher Support**

CAPS follows a very structured procedure when it begins working with a new school. First, it establishes a relationship with the school administration and teachers. After CAPS receives an invitation to work in a given school, they conduct two-day summer training and planning sessions for teams of interested teachers. During this workshop the teachers work with Earth Force educators and decide how to integrate the CAPS model into their curriculum. There is continuing consultation with Earth Force staff throughout the year. Furthermore, teachers are required to attend monthly planning and feedback sessions with other teachers in the region. Two additional follow-up training sessions are conducted during the school year. Leadership teams from community organizations are trained in the same way.

The program has a curriculum that follows most states' academic standards and integrates into existing science and/or social studies curricula. It incorporates three experientially-based kinds of educational activity: care for the environment, service learning, and the skills of civic engagement (Boston 2000).

### **Community Stewardship**

CAPS is community oriented in its design. Students first conduct a community environmental inventory when beginning the program. From this point, students work in their local communities and often make contacts with citizens and agencies throughout their project. As a result, students take responsibility for their local environment and work to address issues they have identified. By taking responsibility and coming up with feasible solutions, the students become stewards of their environment. Boston (2000)

reports that 85 percent of participating students believe they are working on issues important to their communities. Additionally, more than 95 percent of teachers stated that students have an increased commitment to work on environmental issues and have a better understanding of how to bring about change in their communities (Boston 2000). These reports illustrate how the majority of participating students become stewards of their local environment.

### **What is the contribution to environmental planning?**

Earth Force CAPS corresponds to Step 5: *Consulted and informed* through Step 7: *Youth-initiated and directed* on Hart's ladder of participation (see Figure 1.1). One reason CAPS achieves more child-initiated steps is exemplified by the third key element of CAPS which is that the process must be youth-led. CAPS promotes youth engagement and activism in their schools and communities.

Founded to raise awareness of local environmental concerns, while engaging children in their community, CAPS has an *indirect link* to planning. CAPS is issue-based and therefore addresses concerns that are often recognized in the community and particularly to the students. As a result of this issue-based approach, planning issues may not be recognized and addressed by the youth. However, by addressing current issues, CAPS has proven adept at forming partnerships and collaborating with various local affiliates. This could prove useful for developing a more child-initiated planning process for future projects. Planners can collaborate with children to plan future open space and recreation areas, while children educate their parents and other adults about planning issues in the community.

### **Chapter 4.3: KIDS Consortium, Inc.: Fostering youth stewardship through environmental planning.**

*“KIDS works with local teachers, administrators and students to involve students in addressing real challenges faced by their communities. Together they identify, research, and work to address local community needs.”*

*- KIDS Consortium, Inc.*

How many kids finish all their food during lunch at school? Not many! School cafeterias produce several tons of waste a year that, in many locations, ends up in the town landfill. At Ogunquit Village School in Maine, students decided there was a better alternative.

The project resulted from a collaborative process where school administration and teachers wanted to enhance their curriculum. KIDS Consortium worked with Ogunquit teachers to integrate hands-on learning throughout their curriculum. Students and teachers conducted a needs assessment at the school. Students evaluated project alternatives and decided to implement a recycling and composting project for the school cafeteria.

The students started recycling their food waste and made composting beds. Throughout the winter they measured and graphed how much waste the school was generating and the amount of compost resulting from the waste. In spring, they planted flower seeds in the compost and kept track of their growth. They conducted soil tests and experimented with growth rates by planting flowers in different soil types. Students designed and created gardens using computer software and their newfound knowledge of plants and soils.

Determined to share their knowledge and enthusiasm, the students wanted to plant their flowers in the community park. The students contacted the Town Selectmen and City Board for permission to do the project. The ensuing planning and design process for the gardens in the park led to cooperation between the students, school, and community. In

addition to the skills and knowledge the students acquired, flowers now bloom in Fireman's Park for the whole community to enjoy.

The students reduced the waste from their cafeteria, and created beautiful flower gardens. They are proud of their success and became stewards for the parks they beautified. The stewardship and partnerships created by the students through their community involvement process lead to additional community planning projects. By following the framework KIDS advocates, Ogunquit Village School joins the many other participating schools with greater involvement in community and environmental planning issues.

### **Program Structure**

KIDS (Kids Involved Doing Service) Consortium, Inc. is an organization striving to promote learning through community involvement as a way to strengthen students, schools, and communities. KIDS, Inc. is a non-governmental organization funded through private grants. *KIDS as Planners* (hereafter KIDS) was created to address incorporating children in planning issues. KIDS was founded jointly by planners and teachers because they saw a need to include children in the planning process. They have worked with over 20,000 people in New England and are expanding their efforts into Florida, Maryland, Pennsylvania, and Texas.

There are three core principles to the KIDS program outlined and defined by the Consortium:

1. *Academic Integrity*: educators identify academic and curriculum requirements to be met through a project, use multiple methods for assessing student learning, and ensure students have a well-rounded experience.
2. *Student Ownership*: students identify a community issue or problem, students exercise leadership and decision-making skills, and students gain skills needed to accomplish project tasks.
3. *Apprentice Citizenship*: students address a significant issue or need in the community or school, identify a community or school audience who will

value the contribution, and engage the expertise of community members.  
(KIDS website)

These principles form the foundation of the KIDS program and provide the building blocks of all the projects conducted by participating schools. By working in their local communities, students apply academic knowledge and skills to identify and pose solutions to real-life problems. Within these principles, KIDS promotes the following framework for its projects:

1. *Discovery*: Students take ownership of a problem or issue affecting the school, neighborhood or town.
2. *Research*: Students research and collect information about the problem or issue.
3. *Goals*: Students establish short and long term goals to address the problem or issue.
4. *Alternatives*: Students consider alternatives and design a solution.
5. *Action*: Students take action to implement their solution.
6. *Stewardship*: Students become stewards of their vision.

While each project follows this framework, each differs in scope and structure. Teachers tailor the projects to suit their students and curriculum. This flexibility leads to a wide range of projects such as streamside clean-up, newspaper publications, and designing ‘rails to trails’ pathways. Each project a class or school undertakes traces back to the needs assessment conducted by the students in the community during the *discovery* step of the framework. As the project advances, the students advance in tandem along the step-by-step framework.

### **Adaptability and Teacher Support**

KIDS lacks a pre-designed curriculum. However, KIDS works with teachers and school administration to implement their core principles and project framework into existing curriculum to meet state academic standards. KIDS projects meet regional and state academic standards, in part because of this adaptability. Furthermore, organizers at

KIDS advocate using project work as a benchmark to assess how much and how well the students are learning when involved in their projects.

KIDS conducts several workshops and training sessions in order to better prepare participating teachers and citizens. Workshops such as *Service Learning 101*, *Collaboration*, and *Systems Thinking/Action Planning* can each be tailored to meet the needs of the specific audience. According to research conducted at the University of Southern Maine, more than 70 percent of students and teachers reported that “KIDS increased or greatly increased students’ problem solving skills, social competence, pride in work, and positive attitudes toward school and community” (KIDSNET 1996). Furthermore, over 85 percent of teachers believe the model provides students with opportunities to “construct knowledge, engage in in-depth learning, develop the skills to communicate effectively and apply their learning beyond school most or all of the time” (KIDSNET 1996).

### **Community Stewardship**

Since the basic tenant of KIDS applies knowledge and skills to real community needs, community stewardship is their ultimate goal. Area planners and community leaders report that KIDS increases positive relationships among young people, schools, and communities (KIDS website). KIDS also promotes integrating youth into community life to improve stewardship and cooperation.

Because the students and teachers work collaboratively with citizens, local officials, and planners, community involvement is inherent in all of the projects the students undertake. This is a win-win situation for everyone involved when talking about the importance of students getting to know their community and the community getting to know the students.

### **What is the contribution to environmental planning?**

In part because it was founded by planners and educators, KIDS achieves the highest steps in Hart’s ladder of participation. Step 6: *Adult-initiated, shared decisions with*

*youth* through Step 8: *Youth-initiated, shared decisions with adults*, exemplify the program. KIDS works with planners on planning issues and develops child-initiated processes that are implemented into schools. KIDS accomplishes child-initiated processes by children serving on leadership teams with adults, participating in identifying, planning, and implementing the project, and assessing community needs through research and surveys (KIDS 1998).

KIDS has a *direct link* to planning and youth engagement due to its program structure. At Hall Elementary School in Maine, students are planning a nature trail in cooperation with the Water District, Stream Team, Americorps, and Public Works Department. Their goal is to improve water quality in an impaired stream in their neighborhood. These youth are enabled to make decisions and take the lead on projects while collaborating with planners and other local businesses, groups, and citizens at the outset. Because Earth Force CAPS is easy to integrate into existing planning processes, planners can adapt the program to meet specific local planning issues such as open space and habitat conservation.

## Chapter 5: Evaluation of Environmental Education Programs

*“Kids want to make a difference; but they want to do it on terms that mean something to them.”*

– Bruce Boston

As the cases illustrate, children are getting involved in environmental issues and are often driving their own communities toward better ecological management practices. Youth in Maine are designing fish ladders so Atlantic Salmon can return to their native breeding grounds without removing the dams that provides water to their towns. Youth in Georgia are raising awareness of chemical pollution in their neighborhoods while becoming advocates for environmental justice/racism. Youth in Oregon are creating a series of children’s books that illustrate how the actions of one individual can be seen hundreds of miles away. Moreover, all of these children are part of a larger group composed of planners, teachers, citizens, and agencies that have formed partnerships to collaborate on addressing local environmental planning issues.

These cases provide a great deal of valuable information to consider when deciding what type of program to use to involve children in environmental planning in our communities. The evaluative framework presented in Chapter 4 is used to examine the cases and assess their link to environmental planning.

### PROGRAM STRUCTURE

Table 5.1: Program Structure

	<b>NatureMapping</b>	<b>CAPS</b>	<b>KIDS</b>
<b>Funding</b>	Federal, Donors & Grants	Donors & Grants	Donors & Grants
<b>Sponsors</b>	Agency	Organization	Agency & Organization
<b>Expansion</b>	Expanding	Expanding	Expanding
<b>Staffing</b>	Full-Time	Full-Time	Full-Time

Program Structure describes the foundation the program is built on and the current management practices. As seen in Table 5.1, NatureMapping, CAPS, and KIDS all vary

in organizational structure. NatureMapping was founded by state government agencies. CAPS and KIDS began as a result of private and public interest. As each case study has shown, they are all increasing in popularity and expanding into other states.

Funding sources initially differed in that NatureMapping was supported through the efforts of state agencies, whereas CAPS and KIDS were funded by grants and private donations. They currently all receive support, whether it is monetary, personnel, or information, from all levels of government. However, they rely mostly on grants and donor sponsors for the majority of their financial support. Their continued contact with government is a result of the partnerships and collaboration they have had with projects over the years and may be at least partly responsible for program continuity and expansion.

***What are the implications for planning?*** The structure and overall management of the programs lend themselves to greater participation of students and teachers. All three programs have a full-time staff and are expanding throughout the United States. They have sound financial and personnel support and have established a wide variety of partnerships. Partly as a result of this, involving the participating children in local environmental planning issues is more likely to be a positive, constructive experience.

## **ADAPTABILITY and TEACHER SUPPORT**

Table 5.2: Adaptability and Teacher Support

	<b>NatureMapping</b>	<b>CAPS</b>	<b>KIDS</b>
<b>Academic standards</b>	Yes	Yes	Yes
<b>Teacher Support</b>	Yes	Yes	Yes
<b>Pre-existing curriculum</b>	Yes	Yes	No
<b>Adaptable curriculum</b>	Yes	Yes	Yes
<b>Cross-Curricular</b>	Yes	Yes	Yes
<b>Common Subjects</b>	Science, Social Studies	Science, Social Studies	All

Adaptability and Teacher Support describes how well the program meets individual needs of teachers, students and communities. Table 5.2 shows that KIDS differs from NatureMapping and CAPS in that it does not have a curriculum designed and ready to incorporate into the existing framework at participating schools. However, all three have full-time national level staff that works with teachers and administrators to adapt the principles and guidelines of a program to suit the curriculum and needs of a school. The program staff also provides training to citizens, teachers, and administrators in any specific skills needed.

One of the fundamental principles of environmental education is its ability to be incorporated into subjects across the school curriculum. Realizing this, each of these programs has made it possible to do just that, if the school administration and teachers are willing to do so. There are examples in each program where environmental education was incorporated into many subjects, as well as where it was not. KIDS implements its program at a wider scope than do the other two in that it is not solely environmentally based. KIDS projects range from environmental planning, to assisting elder townspeople with their shopping, to translating local signage into Spanish.

***What are the implications for planning?*** By design, KIDS takes a more active role in the planning process as it was developed by teachers and local planners to specifically address the need to involve children in the planning process. Including children in this process was one of the founding principles of the program, and continues to be a significant part of their agenda in their expansion. To a lesser degree, NatureMapping and CAPS also incorporate children in local issues through their projects. By focusing on raising awareness and promoting stewardship, each of these programs has the potential to serve as a valuable forum in which child-initiated planning can occur.

## COMMUNITY STEWARDSHIP

Table 5.3: Community Stewardship

	<b>NatureMapping</b>	<b>CAPS</b>	<b>KIDS</b>
<b>Children feel empowered</b>	Yes	Yes	Yes
<b>Activism beyond program</b>	Yes/No	Yes/No	Yes/No
<b>Children see results</b>	Yes	Yes	Yes
<b>Activism beyond school grounds</b>	Yes/No	Yes	Yes
<b>Community-school relationship</b>	Improved	Improved	Improved
<b>Community participation</b>	Yes	Yes	Yes

Community Stewardship provides an overview of the community-school connection and degree of ownership students feel towards their local environment. Each program incorporates stewardship and community involvement as part of their mission and exemplifies this through their projects, as shown in Table 5.3. All three programs have demonstrated their involvement in community stewardship. Each programs' projects are conducted largely at the school or within the local community. As a result of this local focus, citizens within the community have gotten to know the students and schools better, and thus view the students in a more positive light. Likewise, students have more pride and understanding of their communities.

Two categories have both yes and no answers. Because NatureMapping has a wide range of programs and caters to the needs of a particular community, *Activism beyond school grounds* varies. This results in the implementation of some programs that stay within the schoolyard perimeter, as well as programs much broader and regional in scope. *Activism beyond program* is mostly due to the whim of students. Not everyone involved in a program will become an active participant after completing a project or program. This is true for children and adults alike. However, partly as a result of being a participant of these programs, more students are likely to become stewards and active members of communities as they are taught the necessary life skills.

***What are the implications for planning?*** Each of these programs embodies the life skills that can aid children in reaching informed and knowledgeable decisions for local environmental planning issues. Through their very composition NatureMapping, CAPS, and KIDS teach children more than rudimentary ecology. They teach children how to think critically, make responsible decisions, and be part of a team. The pride and confidence that comes from learning these skills is evident as you look at the projects of participating students. Life skills such as these are crucial in the planning process. The empowerment and stewardship generated by programs such as these can make a positive impact on the environmental planning process.

## **SUMMARY**

Each of these programs offers the fundamentals of a good environmental education program: a solid structural foundation, adaptability to meet the needs of local educators, and fostering youth stewardship in the community. These programs were chosen to illustrate ways in which environmental planning could be accomplished through environmental education programs and do not necessarily exemplify the wide array of programs that exist. Because of this, NatureMapping, CAPS, and KIDS are all strong in the *Adaptability and Teacher Support* and *Community Stewardship* categories.

Based on this framework, KIDS and CAPS appear to be more involved in community participation processes than NatureMapping. Unlike the other two, NatureMapping was not originally structured to include planning issues or improve child participation in community issues. The NatureMapping Program will adapt to suit the needs of an individual school. This adaptation is central to the success of implementing environmental education in a curriculum. However it may negatively impact involving children in planning in the short-term as schools may not be initially ready to have a broader connection and commitment to community-oriented activities.

The ability of a program to work with teachers and to tailor a curriculum to suit the school is also important. Without these two characteristics, programs may get scant attention from schools and would therefore not demonstrate the success they have shown

to date. Once programs are established in a school curriculum and have grown to achieve the support of community, educator, and student, they can then begin incorporating more child-initiated environmental planning.

As these programs were each founded on different grounds and incorporate slightly different approaches to environmental education, they vary in the *Program Structure* category. Despite these differences, they are all successful in the implementation of their programs in school curricula. This may be due to the programs' commitment to support educators. They accomplish this by being flexible and having the full-time staff who work with the schools and treat them as individuals. Cookie-cutter curriculum can rarely be implemented into an existing school curriculum as it rarely fits and educators often view it as an imposition of outside beliefs on teaching local issues. Being adaptable and flexible go a long way to creating a cooperative partnership that lends itself to greater child participation.

One area in which KIDS excels is that of incorporating children in the environmental planning process from day one. They were originally founded on the premise of child-initiated participation and have shown success in achieving this mission. CAPS is doing this to a somewhat smaller degree and NatureMapping has real opportunity to expand and further develop the child driven environmental planning aspects of their programs.

## Chapter 6: Lessons learned

*“By taking part, I learned that one person can make a difference in their community and in their environment.”*

*- Student (Mordock and Krasny 2001)*

NatureMapping, CAPS, and KIDS all demonstrate the ways in which schools can implement environmental education curriculum and begin the process of including children in environmental planning. By using the existing structure and capabilities of schools and educators, children express their visions for their communities and adults listen. Each program differs in its approach and outcome. However all three strive to provide an enhanced learning environment where children can express their views and cooperate with communities on local issues important to them.

Although not always a stated goal, in each program presented, children became more engaged participants in their communities while learning new skills. Additionally, the level of commitment students made when given the opportunity impressed teachers. Teachers enumerated the benefits of incorporating environmental education in their curricula. Community members often became involved with the projects and their attitudes towards the schools and students improved.

When incorporating youth in any decision-making process, it is important to keep in mind some of the challenges as well as the benefits from their participation. First, there is a preconception in the adult community that kids cannot make educated decisions. By giving children the knowledge and a structure in which they are comfortable making decisions, they are quite able to do so. Integrating environmental education into existing curricula adds to students' knowledge and gives them the skills to make more well-informed, educated decisions.

Second, environmental planning is complex. The technical jargon, local and state government hierarchy, and traditionally slow political process can frustrate youth enthusiasm. Again, education and learning-by-doing are the most consistent way to better prepare students to face this adversity. Quite often students surprise you. At one

participating Earth Force CAPS school, students presented their project to the local government board and were told it would be a lot of work and too timely to pursue. Instead of giving up, the students were spurred on to greater action and successfully completed their project. The students earned the support and respect of the town officials and community in the process. Planners can work with programs to include children in the early stages of planning projects to gain their input and stewardship.

Lastly, it should be made clear to students at the outset that when it comes to local government, children ultimately have no official power to make decisions. They cannot vote, and at the end of the day, they cannot make planning decisions. However, this is not to say they cannot present their ideas and participate with local planners and government to reach mutually beneficial solutions. Children have wonderful creativity and imagination that can be used to everyone's advantage when they are properly included in decision-making processes. Environmental education can provide a structured forum for planning processes and can facilitate the exchange of information between planners and children.

The benefits of involving youth in environmental planning are numerous. Involving youth promotes community activism and stewardship. Programs such as these enrich adult thinking and teach life skills such as cooperation, teamwork, and decision-making. Involving youth in local environmental issues influences their future perceptions on land use, communities, government, and the roles they can take.

Many educators would respectfully submit that the question should not be *whether* we should promote the union of environmental education and school curriculum, but to what degree? How can we cultivate this integration in order to reap the greatest benefits for our youth? These questions are not easily answered, nor should they be. Overcoming challenges teaches a lasting lesson. As many of the young program participants will say, people learn most about issues by rising to a challenge and take more pride in accomplishments when they are harder to achieve.

Planners, educators, and community organizations have many opportunities afforded to them in the form of children's visions. The unique perspective and dynamic that children possess is often undermined and overlooked. By providing background education and a familiar forum for children, educators and planners could overcome the traditional barriers to incorporating child-initiated planning. Furthermore, programs exist to suit most communities and are often adaptable to fulfill local needs, as NatureMapping, Earth Force CAPS, and KIDS Consortium, Inc. show. Shortages in budget and personnel strain many planning departments and agencies. KIDS saved a planning district several thousand dollars due to their work in environmental planning. NatureMapping has become a valuable information source for State Fish and Wildlife Departments. These are only two examples of many. Can we afford to continue overlooking the visions of our youth? This is a risk we cannot entertain. Increasing pressures placed on land use and the environment makes it necessary to involve all members of our communities, including the children. The rewards of working with these creative minds are well worth the challenge.

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## **Vita**

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Erica Clark is a Master's student in the Department of Urban Affairs and Planning at Virginia Tech. Focusing in the field of environmental planning and management, she adapted a visual stream monitoring database for use in middle schools. While completing her studies, Erica worked at the Economic Development Assistance Center at Virginia Tech and served planning districts in southwest Virginia.

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