ENVIRONMENTAL EDUCATION:
A PARTICIPATORY PROCESS

The Outdoor Classroom at Helmsburg Elementary
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L.A. 404
Landscape Architecture Senior Project
Ball State University, Muncie, Indiana 47306
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April 11, 1990
ACKNOWLEDGEMENT

At this time I would like to express my appreciation to the many people who have made this project possible. Their time and cooperation has helped me to better understand my role and responsibility as a future landscape architect. I thank you for your patience, participation, and encouragement:

Senior Project Committee:
Dr. Clyde Hibbs (Dept. of Natural Resources)
Professor Les Smith (Dept. of Landscape Architecture)
Mrs. Pam Sommers (Westview Elementary School)

Mrs. Carol Ann Hossler and the faculty and staff at Helmsburg Elementary

Cathy Paradise and the Brown County Soil and Water Conservation Service

Others include:
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PREFACE

Finally, the moment that all of the students within the College of Architecture and Planning (and LANDSCAPE ARCHITECTURE) anticipate the most...the fifth year (assuming that the fifth year is the last and final year of this poor hard-working student's college career): the final year, the year of the attitude and of course the year of the senior project, with free reign to each and every student to choose a project that he wishes to pursue for the last thirty weeks of his life as a student.

The choice of a project presents quite a jolt of undirected excitement. There are many different topics and ideas that run through one's mind at this time. It is as if it were the end of December and your mother has just dropped you off in front of the world's largest department store to let you do your own Christmas shopping. At first you grab everything in sight, but then you find there is no way to carry all of these wonderful packages home by yourself. So you begin to place priorities on the items that will satisfy you the most. I found that I wanted to address two issues in my senior project.

The first was that the project have an impact on my hometown. I was born and raised in Nashville, Indiana, a small southcentral town in Brown County. Due to the fact that this community has given me so many fond memories and continued support, I wanted to somehow give something back to the area that has greatly influenced my life. As I would return home, year after year, the one thing that has struck me the hardest is the acceleration of development in the Nashville area. While I realize that change will and should occur, the changes that I have begun to notice are not always responsive to the
character of the area. The jewels of Brown County (the trees, hillsides, creeks, views) are beginning to be thoughtlessly exploited, and there is an increasing need for sound evaluation and understanding of proposed development. This struck me as a problem to which I could apply my education in an effort to assist the community.

The second issue that I wanted to address was much broader issue—the apparent attitude and misunderstanding of our society toward the environment. Upon coming to school, I continued to meet and observe people with little concern for the environment. This was not just a problem I noticed in Indiana, but something that I found to exist throughout the United States and abroad. Through the profession of landscape architecture, I wanted to have an impact on reversing this degradation of our natural environment. The ultimate senior project for me to tackle then needed to be wholistic. One that addressed global concerns but could be applied to the local level of my hometown, of Nashville, Indiana.
Looking back at Nashville, I realized that this same lack of environmental awareness is one of the main reasons for the inability to perceive the impact of altering the landscape. What to do? How could this problem be guided in a more responsible direction? The solution that I am proposing is education. There is a need to educate the community about the great riches that they possess and to present the opportunities for them to better understand the environment and man's impact upon the land. The next question was to determine who to educate. I entertained the thought of placing my focus upon the adults, but chose not to for various reasons, one of which was the difficulty of equally addressing the adults. Another anticipated barrier with addressing adults was the fact that they are normally "set in their ways," meaning they have been raised with a particular lifestyle and are not subject to change easily.

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Nashville Courthouse
The other direction I considered was the education of youths. A big advantage to working with youths is that they are already assembled in a school facility five days a week, eight hours a day. As I looked at the high school students, I questioned their receptiveness and was concerned about the difficulty of integrated aspects of the environment into the curriculum. Therefore, I began to look at the elementary level. Through research and very limited information on environmental education at the elementary level, I decided to focus my case study upon Helmsburg, one of the four elementary schools in Brown County. It is my hope that the process and the project communicated in this report will be used in developing an outdoor laboratory at Helmsburg elementary. It is also hoped that this project will serve as a planning document for establishing Outdoor Laboratory and environmental education programs at the other three elementary schools (and possibly lead to a similar project at the high school, as well).
PROCESS
PROBLEM STATEMENT

Contemporary society and its economic systems are working against a balanced and healthy environment. Population has continued to increase, technology has consistently improved, yet the environment continues to degrade. Some attribute environmental disorder to the public's lack of concern, or interest. Could the problem be society's lack of a thorough understanding of its critical influence upon environmental systems? While society emphasizes economic growth, the environment and its well being continue to be neglected. "Education is necessary to make the public aware that their consumer choices play a vital role in conservation" (Sullivan, 1977, p.3). The promotion of sensitive environmental values and ethics must be nurtured in order to ensure "true" progress for the future of this nation and the global environment in general. "The solution to the environmental crisis, thus, rests neither with scientists nor with the government officials, but with a citizenry educated in environmental problem solving" (Hawkins, 1973, p.7).

Although values continue to develop throughout a person's lifetime, it is in the first years of life that values and attitudes are intensively created and effected (Sanders, 1975). While it is important to remember that "today's children are tomorrow's future," one can also observe that children are major motivators and manipulators of adults - especially in this society. By creating the opportunity for more of "tomorrow's society" to form an understanding of the natural environment, we will not only increase the child's awareness, but also that of the adult public. It is the nature of the child to be inquisitive, energetic, impressionable and very demanding. By exposing young students to appreciating and understanding the environment, they in turn can, and will, influence the actions of today's responsible adult citizens. The public must understand that "ecological disasters are not inevitable" (Houston, p.152). By becoming better educated, we can avoid future environmental problems.
GOALS AND OBJECTIVES

Having decided upon the scope of the project, I have developed a set of goals and objectives to help set a foundation for the project. The three main goals are:

To have the local school teachers and community members become involved with incorporating environmental education into the school curriculum.

To involve school and community members in the planning of the project.

To provide ease of access to the laboratory for public use.

To stimulate the child's interest in becoming more involved with the natural environment.

To provide maximum opportunity for "hands-on" learning and observation.

To bring the natural environment into the classroom.

To locate the outdoor laboratory on the school grounds to increase the use of the facility.
SITE SELECTION

Following the project statement and the establishment of some general project goals, it was time to identify a site in which to work. Through the recommendation from the State Department of Natural Resources, I became aware of the local Soil and Water Conservation Service (SCS). Upon meeting with a local SCS representative, Mrs. Cathy Paradise, I discovered that they are involved in assisting the local schools in establishing outdoor laboratories. Because Mrs. Paradise is a member of the local community and familiar with the area's school system, I was able to acquire some background information that would have been otherwise difficult to obtain. After evaluating each of the four elementary schools in the county on the basis of teachers and staff, expressed interest, and existing condition of the school grounds, we chose Helmsburg Elementary as the case study.
Helmsburg is located approximately seven miles north of Nashville near state road 45 west. The facility is located in a sparsely populated residential area. Its surrounding properties consist of agricultural fields, woodlots, and pasture land. The elementary grounds consist of approximately 11 acres. The largest single asset at the school is a two acre lake, which is located directly behind the school. The remainder of the site is composed of woodland (approximately 4 acres), open area (approximately 4 acres, including three baseball diamonds), and one acre containing the school building and its nearby hard surface area of playground and parking lots (see page 7).

After selecting Helmsburg Elementary, the next step was to establish a school committee. The committee would be needed for assistance in the planning and promoting of the project. I worked with Mrs. Paradise (SCS representative) to contact the school principal and schedule a time to discuss the opportunities that exist at the school. I met with the committee composed of a SCS representative, the school principal, and two school teachers. The main objective of this
meeting was to introduce everyone and to establish the expected goals of the proposed outdoor laboratory. The establishment of a school committee is extremely crucial to the success of the project. It enables all of the needed players to present ideas, examples, and possible opportunities that might have easily been lost.

In the beginning, I was presented with a recently constructed masterplan of an outdoor environmental education laboratory for the site. At first glance the plan looked to be sparse and somewhat haphazardly done, but after closer inspection, I found that it included several good ideas. Upon observing the grounds and talking to the committee, I discovered that the plan was not being used. Due to the plan’s lack of detail and the staff’s inability to interpret the drawing, the ideas were not useable. This reinforced the fact that if the teachers, staff, and students are not involved with the process, then the plan would not be used. In order to better assure the success of the project, the designer and the school administration must work together. I saw my role as being the coordinator of the committee. It became my responsibility to observe, question, and help evaluate various ideas and expectations that of the committee.
After meeting with the committee several times, individual task were assigned to each member within the group. The SCS representative was able to provide the technical information required to understand the site (i.e. topography, and soils maps), in addition to some resource material about establishing outdoor classrooms. The teachers were assigned the task of incorporating a class assignment focusing on what should be done out-of-doors. The assignment was entitled, "what's over the fence?" The output of each student would be determined by ability (lower grade level students might produce drawings, where upper level classes would incorporate more writing). The principal was responsible for placing the existing masterplan in the teachers' study lounge and encourage all interested persons to make comments and suggestions on what they would like to see accomplished.

I then contacted the State Department of Natural Resources personnel in charge of establishing outdoor laboratories in Indiana. I was able to receive a copy of the criteria used when establishing an outdoor lab facility. After gathering information, then I made a presentation to the committee of the opportunities that exist upon the Helmsburg Elementary site (see page 9). Following the accumulation of all the resources, the committee established two main goals for the site:

To develop a masterplan that would represent an ideal outdoor laboratory while respecting both the curriculum and the environment.

To maximize the opportunities for learning through:

views, location of the trail and station points, and proposed supplemental elements
MASTERPLAN
MASTERPLAN

After the above described information gathering, student/teacher input, and site analysis, the next step was to fit together a composite of the school curriculum the teachers expectations and the site's capabilities in a physical plan. The final masterplan was then developed and presented to the school. Although excited with the end product, the idea of the plan becoming a reality was inconceivable to most.

Realizing that neither Rome nor Helmsburg could be built in a day the masterplan was segmented into areas of priority. In this way the entire project could eventually become reality, but would be constructed in phases to fit the needs and the budget of the school and the community.
PLAN OF PROPOSED MARSH OBSERVATION DECK
(scale: 1/4"=1')

VIEW OF PROPOSED FOOTBRIDGE CROSSING
OVER MARSH AREA
(looking North)

SECTION OF MARSH OBSERVATION DECK
PROPOSED VIEW OF WEATHER MONITORING/ROCKET LAUNCH AREA
(looking Southwest)
PROPOSED VIEW FROM NATURE OBSERVATION AREA
(looking South)
VIEW OF PROPOSED AGRICULTURE PLOTS  (looking West)
VIEW FROM PROPOSED ANIMAL TRACKING PLOT
(looking Northeast)
SUMMARY

While opportunities for learning within the outdoors are endless, the success of an outdoor laboratory lies within the caring hands of the faculty and staff of the respective school. As a landscape architect, I have completed, to the best of my ability, the establishment of a network of opportunities that will enhance learning (in all subjects) and promote environmental awareness. Although this document was completed on April 11, 1990, it was never considered the "only" answer. It is recognized that other opportunities are likely to arise as this site and program continue to develop. These unanticipated opportunities should be utilized and modifications to this proposed plan are expected. In such instances, I strongly encourage additions and modifications to this plan and any proposed revisions comply with the stated goals of the project.
CRITERIA
THE OUTDOOR CLASSROOM at HELMSBURG ELEMENTARY

PROPOSED STUDY AREAS IN OUTDOOR LABORATORY DEVELOPMENT

ANIMAL TRACKING PLOT:
Description: an area to observe and document the various animal that visit the site.
Purpose: to expose students to the different animal species on the site, and to introduce animal behavior, diet, and adaptation.
Criteria: a clear area (approximately 4’ x 4’ in size)
soft ground to allow foot prints to develop
located on edge of woodland, stream, lake, meadow
located on or near an existing animal crossing

ARBORETUM:
Description: planting and labelling fifty trees of Indiana on the school grounds
Purpose: to familiarize the students with regional forest material
Criteria: trees to be planted in areas most suitable to their growing conditions (ie, sun, shade, air, water, soil type)
Recommendation: it is advised to mass as many of the species together as possible to increase efficiency and impact.

BERRY PRODUCING SHRUBS:
Description: the majority of the plant material that will be used on the site will be largely adaptive to animal food and habitat.
Purpose: to attract animals to the site while helping to beautify the school grounds and add to the success of enthusiastic learning
Criteria: plant material to be located in areas most suitable to their growing conditions (ie. sun, shade, air, water, soil type)
Recommendation: it is advised to use mainly indigenous/native plant material

BIRD FEEDERS:
Description: both natural and built feeders can be introduced in laboratory.
Purpose: to encourage wildlife upon the school grounds, and allow for student observation and identification
Criteria: feeders should be adapted to a large variety of bird species and located in areas that will attract the largest population while allowing student observation to occur.
Recommendation: birds may become dependant upon the feeders as a source of food, so it is important that they are supplied with food throughout the year (including school holidays).

BULBS, Corms, TUBERS:
Description: planting of different perennials and annuals.
Purpose: to provide added opportunity for student involvement while beautifying the school grounds.
Criteria: plantings should be located in areas most suitable to their growing conditions. Recommendation: massing of plants will increase the impact of the plants. Massings should consist of a minimum of ten plants.

BUTTERFLY GARDEN:
Description: an area that is planted to attract and feed butterflies.
Purpose: to allow students to observe and collect species of butterflies and moths.
Criteria: located in an area that is most adaptive to producing conditions to attract butterflies. Colorful plantings to attract colorful visitors (i.e. columbine, foxglove, asters, daisies, wildflowers).
Area should be a minimum of 500 square feet.

PRAIRIE PLOT:
Description: an area allocated for the development of a prairie area
Purpose: to introduce students to an important natural environment
Criteria: located in an open area absent of shade and woody material preferably in an area of limited use a contained area that would allow for the area to be burned once
Recommendation: it takes time and patience to establish a successful prairie area should be a minimum of 500 square feet.

CREEK:
Description: an area of continual or annual flow.
Purpose: to show students how a watershed operates.
Criteria: operating watershed near the school.

DINOSAUR STUDY AREA:
Description: an area devoted to student exploration of prehistoric time.
Purpose: to give student an idea of size, scale, and evolution of the earth and its creatures.
Criteria: located on a large hard surfaced area (i.e. parking lot).

EXISTING TIMBER STAND:
Description: an area of existing woodlot
Purpose: to allow students to see and identify an undisturbed area
Criteria: an undisturbed woodlot located on/near school grounds

COMPOST PILE: an area designated to accumulate and observe organic decomposition of materials
Purpose: to present aspects of the food chain and to provide organic/natural fertilizer for the garden plots.
Criteria: located in an area that does not encroach upon other activities, near garden plots, minimize space
Recommendation: only organic materials are to be placed in compost (i.e. food leaves, grass, etc.). Two separate compost bens: for urban garbage and one for natural material.

EROSION CONTROL DEMONSTRATION AREA:
Description: an area used to show characteristics of erosion.
Purpose: to demonstrate the effects of erosion and some measures used to control it.
Criteria: an area of moderate slope(s)
Recommendation: may be best to develop a study model rather than promote erosion on the site.

FENCE ROW:
Purpose: to explain the purpose and function of a fence row and its construction and materials.

FOSSIL PATH:
Description: an area designated to the study and exploration of fossils.
Purpose: to study forms of life that are no longer living

GROUNDWATER MONITORING HOLE(S):
Description: an area to observe and document groundwater conditions.
Purpose: to present students to the importance of clean water and chemicals and actions that effect it.
Criteria: holes to be located in areas of contrasting conditions
holes to have safe and controlled access points.

AGRICULTURE DEMONSTRATION PLOTS:
Description: areas developed for various agricultural crop demonstrations.
Purpose: expose students to the different agricultural crops in the area and their required conditions for production.
Criteria: located in a flat, open area with close accessibility to a watering supply
Recommendation: constructed at a manageable size
use small raised beds to minimize soil compaction

WEATHER MONITORING STATION:
Description: a designated area used for observing/documenting various weather conditions.
Purpose: increase student observation and documentation skills
Criteria: located in a flat, open area and approximately four feet off the ground.

HISTORY/PIONEER AREA:
Description: an area to study and teach history.
Purpose: to present historic material and culture to students in a pioneer setting.
Criteria: to provide some shelter from outside conditions. area to take upon a pioneer setting.

MARSH AREA:
Description: wet area that holds water for a period of time.
Purpose: to expose students to nature's most productive wildlife and outdoor learning area.
Criteria: area of water that is three feet deep or less.

NESTING BOXES:
Purpose: to attract more wildlife and allow students to study characteristics of small animals.
NOXIOUS WEED PLOT:
Description: small area designated to establish weeds and other evader plant species.
Purpose: to enable students to identify noxious weeds and how to control them
Criteria: located in a small, easily contained area of low traffic.

ORCHARD:
Description: an area planted with a variety of fruit bearing trees.
Purpose: to teach students about fruit tree management, while beautifying the school grounds, attracting wildlife, and possibly raising money for the outdoor lab.
Criteria: located in an area most suitable to the growing conditions of the trees
Recommendation: located in an area to promote ease of maintenance.

OUTDOOR SEATING AREA:
Purpose: to provide and area for rest and discussion
Criteria: located in a dry, partially shaded area adaptable to seating (approximately 30 students)

POND:
Purpose: to study and observe aquatic plants and animals while gaining skills in water resource management.
Criteria: large enough to support a fish population.

ROAD/PARKING LOT:
Purpose: to study surface water runoff

ROCK PILE:
Description: an area designated to the collection of rocks
Purpose: to study geology, weight, mass, geometric shapes.
Criteria: located in a dry area away from mowing operations.

SHELTER AREA:
Description: an outdoor structure in which to hold classes.
Purpose: to establish an area outside of the traditional classroom to hold classes and display educational materials.
Criteria: located on a dry, level area that would cause minimal disturbance to the natural setting.

SIGNAGE:
Description: locating directional, and informational signage on the school grounds.
Purpose: to provide order and understanding of various aspects of the outdoor lab.

SOIL STUDY AREA:
Purpose: to observe and identify the different soil types on the school grounds and to become familiar with their characteristics.
Criteria: located in areas of varying soil types but not to interfere with other activities.

STORAGE BUILDING:
Description: an area to store tools and other frequently used items.
Criteria: located in a dry, secure place.
SUCCESSION AREA:
Description: an area allowed to grow wild.
Purpose: allow area to become more diversified and to enable students to observe and recognize the various succession stages
Criteria: located in a low traffic, undisturbed area of the site.

SUNDIAL:
Purpose: to study the earth’s movement and historical aspects of keeping time.
Criteria: located in an open area absent of shade.

TRAIL:
Purpose: to serve as a guide for students through the laboratory.
Criteria: to provide a surface to reduce erosion and allow for two way traffic.

WILDLIFE BRUSHPILE:
Purpose: to promote wildlife habitat on or near the school grounds.
Criteria: located in a natural setting and constructed of fallen or pruned limbs to be effective, piles should be at least 12’ wide and 5’ tall.

WOOD DECAY TEST SITE:
Description: an area to observe the decay of various types of wood.
Purpose: for students to develop an understanding of decomposition.
FOOD for THOUGHT

Upon beginning this project, I set down to write my unsuppressed ideas concerning our society in relationship to the environment. However, these writings were not literally incorporated in the final document and I wanted to include them as if "food for thought." They do lend suggestion to some of my concerns and observations, and I would hope they might spark a reaction by those who read them.

When was the last time you found yourself encountering the bite of the crisp morning air while you watched the sun slowly enter the horizon bringing life to another day? For most, an experience such as this can not be readily retrieved from memory. Possibly this event is yet to be experienced, or even understood? Perhaps a more appropriate question would be, "When was the last time you found yourself leaning out of a sputtering automobile and groggily barking out an order for your first meal of the day?" Dependence upon fast food chains and numerous other convenience stores have nearly become mandatory to keep up with the growing demands of today, leaving us with little choice but to become victims of society.

Tracy Smith  sept. 1989'

Due to misconstrued values for "advancement," we are misplacing our priorities. While we assume that our basic human needs will continue to be satisfied, we are taught to press on, excel!!!! This competitive behavior has led us to a point where continued actions in this direction will result in the degradation of the quality of life. It has been said time and time again, that this generation will be responsible for determining the future of mankind. Such a powerful statement is warranted by our actions which have pushed our environment to its threshold. If this problem/opportunity continues to be ignored—if we remain on our path of self destruction, we may very well be the last generation.

Tracy Smith  sept. 1989'

Why does our society place little to no value on the environment? Why must we continue to breed generations with capitalistic values and teach them to ignore and exploit the environment for short-term gain. This disrespect has decreased the quality of the environment. Our waters and air are polluted; acid rain is being found in growing volume and increasing concentrations, and our tropical rain forest are disappearing. There must be an increased effort to reduce this cancer of our nation. I feel that a solution lies within the masses. In order to
approach such global issues as acid rain, depletion of the tropical rain forest, etc., we must
begin with educating our society.

Tracy Smith  sept. 1989'

At the present time, environmental issues are not formally discussed until the stages of
secondary education, and even then the environment is far from a priority. What we are doing
is merely scratching the surface. In order to bring about a change, more of society must become
familiar with the environment. We must approach the environment at the household level. We
must educate our society to the importance of our environment. We must begin to form a
lifestyle which is more cooperative with the environment! We must make our society more
conscience of its behavior in relationship to the environment!! We must begin to instill value
on the environment!!

Tracy Smith  sept. 1989'
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