

THE INFLUENCE OF A PUBLIC SCHOOL RESIDENT  
OUTDOOR ENVIRONMENTAL EDUCATION  
PROGRAM ON THE ATTITUDES OF  
FIFTH-GRADE STUDENTS

By

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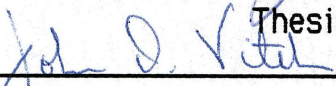
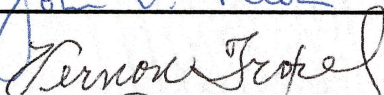
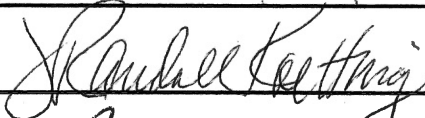
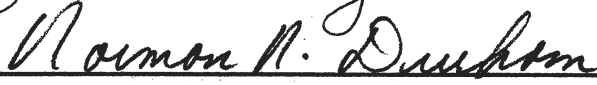
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July, 1989



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## CHAPTER I

### INTRODUCTION

The year-round public school "community" camp, considered by many as one of the finest types of outdoor education, represents a sharp departure from formal school or summer camp procedures. It involves the public school in an effort to provide children "hands on" types of learning experiences. In addition to cognitive and attitudinal goals, the atmosphere of the community camp allows students to become acquainted with other students, and also gives students and teachers an opportunity to interact outside of a formal classroom.

Outdoor education also allows students to view the world from various directions to develop ideas of their own. In the outdoor education environment, cognitive and effective means are used to present information for the student to understand. This information may in many situations have a lasting effect. The actual presentation of concepts in a viable location adds more realism for the student than the printed page. A method of teaching that provides for learning such as this should be utilized to its fullest.

D. Willard Zahn (1961) recognized that some learning experiences in the public school curriculum can best be completed outdoors. He stated that it seems correct to accept outdoor education as an integral part of one's total education. He believes that we should not accept outdoor education as haphazard or whimsical, or having no important role in education, but should

consider outdoor education as a means of extending interests, increasing scope, and providing important means of developing creative power. Such activities should aid in meeting more effectively the total objectives of the overall educative process.

The "out-of-doors" may very well have been the first "school." This type of school environment gives the teacher and children an opportunity to move about and to learn from doing. Experiences in an outdoor school camp do not usually include formalized exercises in spelling, reading, writing, and arithmetic, but do include numerous opportunities to use and sharpen these basic skills while doing outdoor activities.

The school-community type of outdoor education offers opportunities for each child to widen his/her experiences, to become motivated by informal classroom procedure, to experience the thrill of accomplishment, and to gain the bases for many conservation and recreational habits that will enrich later life. In addition, outdoor education through camping can and does offer opportunities to develop a social sense of belonging. Moreover, Smith, Carlson, Donaldson, and Masters (1972) agree that the resident outdoor education movement, with its emphasis on significant work experiences, interdisciplinary outdoor activities, and living together, offers one of the highly desirable ways to accomplish educational goals needed for the preservation of the nation.

The resident outdoor education movement continued to grow until the mid-70's, at which time the growth ceased and the number of programs began to decline. Some programs continue, but many are limited in the scope of hands on experiences or in the length of time spent in the outdoor environment. Others were terminated when funds were no longer available

in the school systems' budgets. The goal of programs at present is to provide information and instruction for complete educational experiences for youth and also adults.

As we view the importance of the resident outdoor education program, let us not forget the educational value of teaching students about the environment around them. If the trends of resident outdoor education were analyzed, it would be noted that the current trend is a return to the environment for learning about the environment through actual experiences. Many outdoor education programs have turned their attention toward the dissimulation of information about the environment. This awareness has caused programs in the schools to become outdoor environmental education programs and to set aside blocks of time for instruction in this area of study.

The future of our society is our youth, but are they sufficiently informed to make wise decisions? The natural world in which we live provides us with many instructional resources. In the setting of an outdoor environmental education program the attitudes of students are formed, reinforced or possibly even changed after a visit to a facility. Students within the resident outdoor setting have experiences which may influence their attitudes toward the environment. This investigation focuses on potential attitudinal shifts of students who participate in a resident outdoor environmental education program, with special emphasis on whether impact differences occur in males, females, and minority students.



### Statement of the Problem

The overall purpose of this study was to determine the relationship between the Camp Tyler outdoor education experience and the attitudes about outdoor environmental activities of fifth-grade pupil participants. More specifically the study compared the attitudes of male vs. female and minority vs. majority fifth-grade students toward (1) outdoor education, (2) social skills, (3) pollution, and (4) the natural environment. To achieve this goal, a two part inventory of attitudinal assessment was given to fifth-grade students--one prior to the camp experience, the other, following the experience. The results of this study can assist Camp Tyler and other resident camp staff members to discover the strengths and/or weaknesses of the program and what, if any, changes can or should be made in the techniques used and the values stressed in the curriculum.

Educators such as Jeter (1982), Childress (1978), Donaldson (1972), and Knapp (1972) state that not much research has been done in the area of outdoor education. According to Donaldson (1972), research appears to have been done on those things easiest to grasp rather than in terms of what is needed to be known. Little research has been done on the educational content that is appropriate for outdoor educational experiences. Empirical studies that compare the methods of outdoor education with the traditional methodology of the classroom, laboratory, and library are relatively rare. Even the few that have been done are legitimately subject to criticism based upon (1) inadequate research design or (2) inadequate population studied.

Knapp (1972) said that research on attitudes about environmental

issues has been limited and inconclusive. Few studies have examined the attitudes of elementary and high school students toward their environment. More studies have explored the attitudes of college students and adults, but knowledge of this population is of limited value in planning for environmental education in the public schools. Better instruments for measuring attitudes are critically needed for elementary and secondary school students. Findings by Knapp (1972), linking attitudes of college students and adults with certain personal experiences and characteristics, have been inconclusive. The few relationships that have been identified have not been demonstrated repeatedly in successive studies. The application of the findings of attitudinal research as the data relate to environmental education programs is still in its infancy.

Childress (1975) found that research data describing the general characteristics of public school environmental education curricula are generally not available. At the time of his study, no available research provided a comprehensive description of the environmental education program or project curricula developed and implemented in the nation's public elementary and secondary schools. The limited knowledge available was based on scattered research efforts that had concentrated on some subsystem or activity within a given region, state, district, or school. Consequently, this largely discontinuous and fragmentary literature mandated that practitioners utilize common sense or "hunches" as a basis for much of their curriculum planning.

The correlation between environmental attitudes and behavior toward the environment is not as strong as was once believed (Shepard and Speelman 1986). The correlation between an attitude toward a particular

behavior and that behavior itself, however, is relatively strong (Wiegel and Newman 1982). The correlation between attitudes and related behavior has also proved to be strong where the attitude has been formed or changed through direct experience with the object of the attitude (Regan and Fazio 1982). These findings suggest that a resident outdoor education program, during which the child learns about the environment through direct experience with the environment, should produce positive attitudinal changes, with a subsequent broad pattern of positive behavioral changes.

Jeter (1982) found that more emphasis seems to be placed on program development than on researching programs' effectiveness. Research on attainment of objectives, acquisition of concepts, attitude changes, acquisition of skills, and methodology is urgently needed.

The outdoor education program in Tyler, Texas, has been in operation since 1949, but has never been objectively analyzed. More specifically, no critical assessment or evaluation has been made of the impact of the Camp Tyler experience on the fifth-grade male, female, and minority students, who spend four days and three nights at the resident outdoor education laboratory of the Tyler Independent School District.

### Research Questions and Hypotheses

The research questions directing the study lead to an investigation which proposes to test the following null hypotheses. The hypotheses beginning with an "A" script are directed toward all participants in the study. The focus of the "A" hypotheses is the difference between the pre-test and post-test for all participants on the Millward-Ginter Outdoor Attitude Inventory including each sub-category of the inventory. Similarly,

the focus of the hypotheses designated by the "B" and "C" script deals with male/female and minority/majority status respectively.

Do pupils have different attitudes toward outdoor environmental activities before attending and after attendance at a residence camp?

Ho-A1. No significant difference exists between the mean pre-test (Form A) and post-test (Form B) for all participants on the Millward-Ginter Outdoor Attitude Inventory.

What attitudinal changes occur in the categories of (a) environmental attitude, (b) outdoor education, (c) environmental pollution, and (d) social skills?

Ho-A2-a. No significant difference exists between the mean scores in the pre- and post- test Environmental Attitude category.

Ho-A2-b. No significant difference exists between the mean scores in the pre- and post- test Outdoor Education Attitude category.

Ho-A2-c. No significant difference exists between the mean scores of the pre- and post- test Environmental Pollution Attitude category.

Ho-A2-d. No significant difference exists between the mean scores of the pre- and post- test Social Skills Attitude category.

Hypotheses "B" targets research of males and females in pre camp, post camp, and the difference in pre-test and post-test setting. The "B" hypotheses cover the Millward-Ginter Outdoor Attitude Inventory and sub-categories.

Do males or females have different attitudes toward outdoor environmental activities before attending a resident camp?

Ho-B1. No significant difference exists between the pre-camp attitudes of males and females as shown on the Millward-Ginter Attitude Inventory.

Do males or females have different attitudes toward outdoor environmental activities following attendance at a resident camp?

Ho-B2. No significant difference exists in post-camp attitudes between males and females on the Millward-Ginter Attitude Inventory.

Do males have different attitudes toward outdoor environmental activities after attending a resident camp?

Ho-B3. No significant difference for males occur between the pre-test mean score and the post-test mean score.

Do females have different attitudes toward outdoor environmental activities after attending a resident camp?

Ho-B4. No significant difference in females occurs between the pre-test mean score and the post-test mean score.

Do males or females have different attitudes toward outdoor environmental activities after attending a resident camp?

Ho-B5. No significant difference exists between the adjusted mean post-test scores of males and females on the Millward-Ginter Attitude Inventory.

Do males or females have different attitudes toward outdoor environmental activities after attending a resident camp in the categories of (a) environmental attitude, (b) outdoor education, (c) environmental pollution, and (d) social skills?

Ho-B6-a. No significant difference exists between the adjusted mean scores of males and females on the post-test for the Environmental

**Attitude category.**

Ho-B6-b. No significant difference exists between males and females on the adjusted mean post-test scores for the Outdoor Education Attitude category.

Ho-B6-c. No significant difference exists between the adjusted mean post-test scores of males and females on the post-test for the Environmental Pollution Attitude category.

Ho-B6-d. No significant difference exists between the adjusted mean post-test scores of males and females on the post-test for the Social Skills Attitude category.

Do males have different attitudes toward outdoor environmental activities pre- and post-test mean scores in the categories of (a) environmental attitude, (b) outdoor education, (c) environmental pollution, and (d) social skills?

Ho-B7-a. No significant difference exists between male pre- and male post-test for the Environmental Attitude category.

Ho-B7-b. No significant difference exists between male pre- and male post-test for the Outdoor Education Attitude category.

Ho-B7-c. No significant difference exists between male pre- and male post-test for the Environmental Pollution Attitude category.

Ho-B7-d. No significant difference exists between male pre- and male post-test for the Social Skills Attitude category.

Do females have different attitudes toward outdoor environmental activities pre- and post-test mean scores in the categories of (a) environmental attitude, (b) outdoor education, (c) environmental pollution, and (d) social skills?

Ho-B8-a. No significant difference exists between female pre- and female post-test for the Environmental Attitude category.

Ho-B8-b. No significant difference exists between female pre- and female post-test for the Outdoor Education Attitude category.

Ho-B8-c. No significant difference exists between female pre- and female post-test for the Environmental Pollution Attitude category.

Ho-B8-d. No significant difference exists between female pre- and female post-test for the Social Skills Attitude category.

The minority and majority groups are the emphasis of study of script "C". The "C" hypotheses direct research of minority and majority students in pre camp, post-camp, and the difference in pre-test and post-test setting. The Millward-Ginter Outdoor Attitude Inventory and sub-categories are compared.

Do minority and majority pupils have different attitudes toward outdoor environmental activities before attending a resident camp?

Ho-C1. No significant difference exists between minority or majority pupil pre-test attitude scores on the Millward-Ginter Attitude Inventory.

Do minority and majority pupils have different attitudes toward outdoor environmental activities following attendance at a resident camp?

Ho-C2. No significant difference exists between minority or majority pupils post-test attitude scores on the Millward-Ginter Attitude Inventory.

Do minority pupils have different attitudes toward outdoor environmental activities after attending a resident camp?

Ho-C3. No significant difference exists between minority pre-test mean scores and post-test mean scores.

Do majority pupils have different attitudes toward outdoor environmental activities after attending a resident camp?

Ho-C4. No significant difference exists between majority pre-test mean scores and post-test mean scores.

Do minority and majority pupils have different attitudes toward outdoor environmental activities after attending a resident camp?

Ho-C5. No significant difference exists between the adjusted mean post-test scores of minority and majority on the Millward-Ginter Attitude Inventory.

Do minority and majority pupils have different attitudes toward outdoor environmental activities after attending a resident camp in the categories of (a) environmental attitude, (b) outdoor education, (c) environmental pollution, and (d) social skills?

Ho-C6-a. No significant difference exists between the adjusted mean scores of minority and majority on the post-test for the Environmental Attitude category.

Ho-C6-b. No significant difference exists between the adjusted mean scores of minority and majority on the post-test for the Outdoor Education Attitude category.

Ho-C6-c. No significant difference exists between the adjusted mean scores of minority and majority on the post-test for the Environmental Pollution Attitude category.

Ho-C6-d. No significant difference exists between the adjusted mean scores of minority and majority on the post-test for the Social Skills



**Attitude category.**

Do minority pupils have different attitudes toward outdoor environmental activities pre- and post-test mean scores in the categories of (a) environmental attitude, (b) outdoor education, (c) environmental pollution, and (d) social skills?

Ho-C7-a. No significant difference exists between minority pre- and minority post-test for the Environmental Attitude category.

Ho-C7-b. No significant difference exists between minority pre- and minority post-test for the Outdoor Education Attitude category.

Ho-C7-c. No significant difference exists between minority pre- and minority post-test for the Environmental Pollution Attitude category.

Ho-C7-d. No significant difference exists between minority pre- and minority post-test for the Social Skills Attitude category.

Do majority pupils have different attitudes toward outdoor environmental activities pre- and post-test mean scores in the categories of (a) environmental attitude, (b) outdoor education, (c) environmental pollution, and (d) social skills?

Ho-C8-a. No significant difference exists between majority pre- and majority post-test for the Environmental Attitude category.

Ho-C8-b. No significant difference exists between majority pre- and majority post-test for the Outdoor Education Attitude category.

Ho-C8-c. No significant difference exists between majority pre- and majority post-test for the Environmental Pollution Attitude category.

Ho-C8-d. No significant difference exists between majority pre- and majority post-test for the Social Skills Attitude category.

### Limitations

Several limitations in this research project include:

1. All subjects were not tested at the same time because of administrative constraints.
2. Selection of the sample was by class group and was not random.
3. Program content was not identical in all cases.
4. The design of this study was not experimental. The students were not randomly selected from the fifth-grade classrooms nor was a control group used.

### Assumptions

1. The participants responded to the pre- and post-test honestly.
2. Variation in the times that the Millward-Ginter Outdoor Attitude Inventory was administered was not a factor.

### Definition of Terms

Attitudes. Katz (1946) defined an attitude as the predisposition of an individual to evaluate some psychological object in a favorable or unfavorable manner. For this evaluation the Millward-Ginter Outdoor Attitude Inventory will be used. The Millward-Ginter Outdoor Attitude Inventory contains four sub-categories and 43 attitudinal statements. The four sub-categories include 1) Sixteen environmental statements based on the research studies of Jensen (1965), Laug (1960), and George (1966). Statements within this category relate to attitudinal concepts about plants, animals, nature, forests, and aesthetics. 2) Eight educational statements based on studies by Jensen (1965), Olbricht (1958),

Doty (1960), and ideas contributed by outdoor educators. 3) Ten environmental degradation statements based on review of environmental magazines, books and proceedings of college seminars. 4) Nine socialization statements reflecting the ideas of Dimock (1929), Jensen (1965), Doty (1960), Sharp (1930), and other outdoor educators. (Appendixes I and J)

Educational Value. Any useful development in knowledge, skills, ability, or character by teaching, training, studying, or experiencing.

Environmental Education. The development of concepts and attitudes in humans as reflected in their behavior toward their physical environment.

Field Instruction. The instruction that takes place outside the regular classroom and away from the school campus.

Group. The children in each elementary school classroom are considered as one group.

Majority Student. Any student that comes from a home where only English is spoken.

Minority Student. Any student who comes from a home where English is not the only language spoken, i.e. Spanish, Vietnamese, or other foreign language is spoken in the home. Because of administrative constraints the minority student population could not be identified by race; therefore, a bilingual home was the criterion and was used to define minority. As a result, minorities such as Blacks and Native Americans were most likely excluded.

Natural Environment. The environment includes plants, animals, nature, forests, aesthetics, and human beings.

Outdoor Activity. An activity chosen by the students with the aid of the classroom teacher to be completed outside the confines of the school building.

Outdoor Education. Outdoor education is a generic term. Crompton and Sellar (1981) state that educators have at least three different, related interpretations of what the term implies. First, environment-oriented educators view the outdoors as a medium for learning. A second group is conservation oriented and believes that outdoor education is a medium for developing increased conservation sensitivity and awareness. A final group of educators is activity oriented. Their orientation focuses upon the location where an activity occurs and is often related to the potential of the outdoor environment for stimulating physical types of activity. For the purpose of this study, outdoor education applies to a wide variety of learning experiences that take place in an outdoor setting and to the skills, appreciations, and attitudes needed for maximum satisfaction in outdoor recreation and activities as described by Smith, Carlson, Donaldson, and Masters (1972).

Post-Resident Camp Attitude. This attitude is determined by the pupils' scores on Form B (post-test) on the Millward-Ginter Outdoor Attitude Inventory.

Pre-Resident Camp Attitude. This attitude is determined by the pupils' scores of Form A (pre-test) on the Millward-Ginter Outdoor Attitude Inventory.

Resident Outdoor Education. The educational experiences that take place when a school uses a resident camp for a period of several days and nights.

School Camping. A school program in a camp setting.

## CHAPTER II

### REVIEW OF LITERATURE

#### Introduction

A review of the literature related to outdoor environmental education revealed four major themes which provide a foundation for the current study. First, the history and direction of studies in outdoor education. Second, the status of research as it relates to issues concerning outdoor education in general. Third, the specific area of environmental education is explored including specific research relating to the development of environmental attitudes. Finally, student perceptions as a specific part of attitudes about self, teacher, school, and environment. This latter section attempts to establish the importance of a resident outdoor experience to attitude change. The chapter is organized according to these four major themes.

The literature related to outdoor environmental education is sparse. The research reached a peak between the mid-70's and early 80's. After 1980, the amount of research available and related to this topic decreased. This trend continues to the present day. Paulk (1988) concurs with the findings of this investigator by his response at a National Network for Environmental Education Regional Meeting in Orlando, Florida. Paulk is

quoted as saying that "Not much research in Environmental Education is going on." ERIC, Dissertation Abstracts, and Government Documents were among the sources that this investigator used. Various descriptors such as "outdoor education," "environmental education," "conservation education," "elementary education," "outdoor classrooms," "student attitudes," and "resident camp program" were identified to acquire current sources.

### Research History

Understanding what happens at a resident outdoor education program takes an insight into the approach, technique, purpose, and philosophy of an educational program such as the Camp Tyler program. Little research has been done to determine what educational content is appropriate for outdoor education experiences (Donaldson, 1972). A report by Disinger (1984) raises the question of whether a resident stay at an outdoor facility has validity for a student when he returns to the classroom. Little research-based evidence demonstrating the educational contribution of field instruction, when compared with other techniques, has been published. Hammerman and Hammerman (1973) suggest that field work is at best equivalently effective, but not superior, in terms of student learning.

Hammerman and Hammerman (1973) state:

One element lacking in many curriculums [curricula] today is the sheer joy of discovery. The classroom when extended into the outdoors provides the setting in which students may enjoy the pure thrill of discovery along with the plain, down-to-earth fun of learning. (p. 13)

Their statement implies that the out-of-doors provides a more stimulating learning environment for relevant fields of study than does the school classroom. The research of Howie (1974), Blomburg (1967), Beker (1960), and Hammerman (1957) suggests that such claims are legitimate if the subject area of concern is closely associated with the out-of-doors and if the outdoor education experience is of sufficient duration. It appears that environmental education must be in the outdoor setting because first-hand information can be obtained. Ransey and Howe (1969) and Sharp (1952), however, believe that the lasting type of learning can be more effectively taught in the classroom.

Other articles have been written concerning the area of environmental education. Most of these articles advocate the development of positive attitudes and the acquisition of knowledge toward and about the environment (Jaus, 1978). Although these articles recommend the development of cognitive and affective outcomes of environmental instruction, a strong tendency exists to consider the affective outcomes more important than the cognitive outcomes (Gabel, Kagan, and Sherwood, 1980). Moyer (1977) contends that the affective component of environmental education is probably of more value to students and society than is the cognitive.

Because many attitudes are established and fixed by the time a student reaches high school, Knapp (1972) proposes that instruction in environmental education take place in the elementary and/or middle school. This recommendation, however, presents a problem when developing curricula based on sound data. The subjects in the vast majority of environmental education studies have been high school or college students. Few studies have been conducted that investigate the effect of environmental education

instruction on elementary or middle school students' attitudes toward the environment. Knapp (1972) poses the question of whether or not elementary or middle school students who are provided instruction in environmental education are more positive in their attitudes than students not receiving this instruction. In an attempt to answer this question, Jaus' (1978) study was designed to ascertain the effectiveness of ten (10) hours of environmental education instruction on fifth-graders' attitudes toward the environment. Based on the subjects which Jaus (1978) used in his investigation, it would appear that by the time students reach the fifth-grade, they have developed positive attitudes toward the environment without any formal instruction. His study has shown that providing ten (10) hours of formal instruction in environmental education to fifth-graders can change their slightly positive attitudes toward the environment to strongly positive ones.

The fifty-three (53) students in Jaus' (1978) study were from two intact semi-departmentalized fifth-grade classes. The students were from lower to middle socio-economic backgrounds. Both classes took the same courses, at the same time and used the same textbooks and materials. The students' mathematics and verbal achievement test scores were also analyzed using t-tests. These analyses revealed no significant differences between the two classes on the two measures.

One fifth grade class was designated the experimental group and received instruction in environmental education. This instruction consisted of 15 lessons in environmental topics. The lessons occurred on 15 consecutive days. Each lesson had a duration of approximately 40 minutes. The major topics covered in these lessons were the earth's



resources, air pollution, water pollution, noise pollution, conservation of the biotic and abiotic environment, and the balance of nature. These topics and their resultant teaching objectives and lessons were taken from Environmental Education: Guidelines and Activities for Teachers by Allman, Kopp, and Zufelt (1976) and Total Environment Education (1975), an Indiana Department of Public Instruction publication which lists environmental instructional objectives by grade level. Examples of these objectives were "The student will be able to identify five causes of air pollution." "The student will be able to differentiate between resources that are renewable and those that are not." "The student will be able to name five conservation practices." Instruction was provided by the major classroom teacher via lecture-discussions, laboratory activities, and handout readings given as homework. Instruction in environmental education replaced these students' instruction in science. Upon completion of each environmental topic, the experimental students were administered a short multiple choice and/or a fill-in-the-blank test to measure their knowledge of the instructional objectives for the topic. All experimental students achieved 80% or better on these tests.

The other fifth grade class, designated the control group, did not receive any instruction in environmental education. Members were given instruction in their usual daily subjects of social studies, mathematics, science, language arts/reading, and physical education. This instruction was provided by their major classroom teacher and subject matter specialists.

Following treatment, both groups of students were administered a questionnaire designed by the investigator to measure their attitudes

toward the environment. This instrument contained 20 statements to which the subjects responded on a Likert-type scale consisting of five categories. These categories were strongly disagree, disagree, neutral, agree, strongly agree. Before responding to the statements, the students were provided the following details about the questionnaire: (1) all the statements were concepts or ideas about the environment, (2) the concepts or ideas were designed to be taught to fifth-graders, (3) the students were to respond to each statement on the basis of whether they thought fifth graders should know the concept or idea, and (4) they were not to sign their names. (The control group's questionnaires were coded for later pre-test and post-test analysis.) The students were then presented with a sample statement. A score of five was given for a "strongly agree" response progressing downward to a score of one for a "strongly disagree" response. The group of fifth-graders which received instruction in environmental education had a mean score of 89.31 and the control group had a mean score of 69.52 on the attitude measure. The mean score difference of 19.79 was significant beyond the 0.001 level.

A review of several studies entitled "Cognitive Learning in the Environment: Elementary Students" was made by Disinger (1984). Some of his findings were published in ERIC/SMEAC Environmental Education Digest, No. 2, 1987. Disinger (1984) found a number of similarities between the field instruction situations conducted in elementary and secondary schools, the most prominent similarity being that affective, not cognitive, learning has traditionally been the primary objective of field instruction at all K-12 levels. Likewise, most of the educational research dealing with learning in the environment, or outside the classroom at both elementary and secondary

levels, has centered on noncognitive areas.

The organizational patterns of elementary schools are typically such that fewer difficulties exist in arranging for out-of-school activities, in comparison with secondary schools. Primarily, the self-contained elementary school classroom allows for flexible scheduling, where the absence of rigid time frames for instruction in specific subject areas makes it more feasible for the elementary teacher to arrange to leave the classroom and engage in "outside" ventures. Also, because the elementary teacher is of necessity more of a generalist than his/her secondary school counterpart, greater potential exists for the planned intergration of knowledge which is possible through in-the-environment experiences.

Countering these factors, the elementary teacher is typically not well versed in the various specific content areas associated with field trips or environmental science concepts and generally sees his/her primary task as instruction in the historically identified "basic skills" areas, known as the 3R's. Much of this is the result of the teacher education/training required of and available to the elementary teacher. It generally does not provide depth in the sciences or social studies (Disinger, 1987).

An early study which attempted to address the merits of learning in the environment was reported by the New York City Board of Education (1947). Two experimental groups consisting of 62 fifth- and sixth-graders, and two control groups were used to investigate the effects of the Life Camps program, a residential camping experience, on academic growth in five areas: interest, arithmetic, science and health education, vocabulary, and nature study. The first report of results indicated "Initial and final superiority of the experimental group"; this report has long been cited as

conclusive evidence of the value of outdoor education in facilitating cognitive development.

An attempt to replicate the Life Camps study was made by Huntley (1979). Using 94 sixth grade boys and girls as subjects, he established an attempt to replicate the Life Camps study was made by Huntley (1979). Using 94 sixth grade boys and girls as subjects, he established control and experimental groups, the former being taught in an established classroom and the latter participating in outdoor education experiences. The groups were similar at the beginning the study; both were taught by regular school district faculty. All participants completed pre- and post-tests over four curricula areas: nature study, mathematics, science, and vocabulary. At the conclusion of this study, no statistically significant differences were found between the groups in any of the four curricula areas.

Attitudes were analyzed by Millward (1973). Pupils' responses to attitude statements within four sub-categories indicated that the resident experience affected environmental and socialization attitudes more than attitudes toward pollution and educational concepts. He found the mean attitude scores within all four sub-categories were within the positive range. This indicated that students had a positive attitude toward the resident outdoor experience.

In the environmental sub-category students generally held favorable attitudes toward plant life, nature, mountain living, and nature hikes. Students' attitudes toward outdoor educational concepts changed very little as a result of the resident experience. In general, the students' attitudes were very positive prior to and after the camp experience. Attitudes toward environmental degradation remained rather consistent throughout the

resident outdoor experience. Millward's study indicated that attitudes toward social interaction were positively influenced immediately following the resident experience. Students generally agreed that making new friends at camp was easy, living with teachers was enjoyable, and working with other student out-of-doors was fun.

Based on the results of his study involving fifth-grade students, Howie (1974) determined that students need extensive and structured programs of advance organization in order to gain maximum benefit from field experiences. He concluded that environmental education field programs should be built as extensions of the classroom, not as unique, isolated events; "the most exciting outdoor program is only as beneficial to the students as the preparation their classroom teachers were competent enough to prepare." His prescription for "the most effective program identified four phases -- teacher in-service training, classroom development of advance organization, the field experience, and follow-up in the classroom, with further application and conceptualization.

Gross and Pizzini (1979) analyzed the effects of a treatment consisting of advance organizers and a one-day field experience on environmental orientations of upper elementary students. Environmental orientations are described as expressed responses of individuals to both general and specific areas of their environments and reflect both affective and cognitive inputs. Students' interactions are involved in making environmental decisions where affective and cognitive inputs are intergrated. The results of this study indicated an observable change in the environmental orientations of fifth- and sixth-grade students. The authors attributed the change to the combination of advance organizers and field experience.

In summarizing the research, Disinger (1984) stated that none of the recent studies reported in his reviews had made claims that out-of-classroom learning experiences are sufficient in themselves to produce significant cognitive gains with elementary students. Factors such as lack of readiness, or too much novelty, can mitigate against successful cognitive instruction of such situations.

He did, however, note that ample evidence of in-the-environment instruction is useful in promoting and achieving cognitive gain when effectively planned and managed. Advance organizers for students and coordination with other modes of instruction appear to be effective in promoting cognitive gain through use of field activities. In addition, care in the selection of learning environments, recognition and mitigation of the effects of novelty, and attention to readiness factors also promote cognitive gain. According to Disinger, little doubt exists that elementary students can profit cognitively from outside-the-classroom experience, but much more must be learned about how to structure and intergrate them with other modes of instruction to take full advantage of these possibilities. Longitudinal studies should also be made, beginning three months after the resident experience, to determine the long-term impact of these modes of instruction.

### Outdoor Environmental Research Issues

The research in the literature on outdoor environmental education was for the most part in agreement with the idea that attitudes can be measured and they can be changed by experience in the outdoors. A problem exists, however, in that high quality attitude measurement assessment

instruments need to be developed and redefined. In " 'State of the Art' for Measurement and Evaluation of Environmental Objectives," an article in the Journal of Environmental Education, Doran (1977) stated that the immediate purpose for undertaking his study was to provide a framework for analyzing and critiquing some measurement instruments existing in the environmental education field. He recommended that attempts be made by experts in the field of environmental education to work with scholars from other fields, such as sociology and psychology to create new and improved measuring devices in environmental education.

In the last few decades, interest in and concern about the environmental problems we have experienced have encouraged a series of attempts to solve the environmental problems "educationally." A great number of environmental instructional materials have been produced by commercial publishing companies and by state, federal and local agencies. Many of these materials emphasized an outdoor, nature study, or camping component. Helgeson, et al. (1971) surveyed a large number of these environmental education programs in a document entitled A Review of Environmental Education for School Administrators. Based on information collected during the spring and summer of 1971 from the program directors, Helgeson, et al., concluded that "Evaluation of the effect of programs and materials on student and communities is needed." Very few schools and curriculum developers obtained "hard" evaluative data regarding the effects of their programs and materials. Many based their evaluations on open-ended, qualitative data gathered by the program staff. One such evaluation said, "While no data are currently available, it has been reported that students show evidence of increased awareness, sharpened sense of the environment

and of the interweaving of self and the world." Some programs and material have stated specific (sometimes even behavioral) objectives for the cognitive, affective, and behavioral domains, but have failed to follow through with a measurement of these objectives. Swan (1971) and others agree that "We do not have effective tools for evaluating the effectiveness of environmental education programs."

In the literature examined, environmental education has yet to accomplish the first of a series of steps of required validity to evaluate the effects of the myriad of experiences within the field. Hendee (1973) clearly and emphatically stated the need for defining the objectives of environmental education programs so strategies for evaluating their achievement can be devised. Similarly, Bennett (1976) has stated that the "affective, cognitive, and skill goals of environmental education must be translated into behavioral terms before any meaningful evaluation can be attempted."

One difficulty in evaluating environmental education programs is that environmental education is still a relatively young field and is an interdisciplinary undertaking. Because of these characteristics, a healthy disagreement still exists among the authorities in the field over the emphases and directions that should be pursued. Two major schools of thought have emerged, one stressing cognitive objectives and the other, affective objectives. The view that cognitive objectives should be the predominant thrust of environmental education has been championed by Hendee (1972), Roth (1972), and Stapp and colleagues (1969). Other noted environmental educators have argued for stressing the affective objectives in environmental education programs. Paul Brandwein (1971), a pioneer in



the field, stated that "Conservation is an ethic--it is a value." Similarly, Abram and Rosinger (1972) stated that "Human attitudes and values are at the heart of the new conservation."

In Hendee's opinion, transmission of facts and information should be the primary concern of environmental education (EE) programs, and changes of attitudes, values, and cultural perspectives a secondary one. Quite similarly, Stapp and colleagues (1969) recommended that EE be aimed at "producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution."

In December 1970, George Lowe described the environmental education movement as being at stage three--"the re-evaluation of attitudes, values, and beliefs." He felt this important trend would influence what we are going to have to do in the next two or three decades in education, society, technology, science, and religion.

According to Knapp (1972), "Few people would disagree that students should be assisted in the development of their attitudes and values about environmental problems. Disagreement often arises, however, when specific methods are suggested for changing attitudes and values and when certain attitudes and values are advocated over others."

Tanner (1974) summarized several arguments for stressing one or the other approach and concluded that positions favoring the cognitive thrusts seemed to be more prevalent in the small sample of available literature on the subject. Tanner suggested a judicious mix of the cognitive (knowledge) and affective (attitudes) at all grade levels until more is known. This is reasonable because it is very likely that a totally cognitive or a totally

affective approach is neither possible nor desirable.

Stapp (1971) concurred with this view. He wrote:

Schools have an important responsibility in providing the opportunity for youth to explore their environment, both physically and intellectually, in order to obtain both the factual knowledge (cognitive domain of an attitude) and the motivating concern (affective domain of an attitude) regarding man's relationship and responsibility within the human ecosystem. (p. 79)

Swan (1971) and Bennett (1976) utilized theories from the social sciences, especially psychology, to hypothesize relationships among the many elements integral to environmental education. Swan inspected numerous social psychology theories, noticeably those of Rokeach, (1969) and concluded the following about EE objectives:

Beliefs are cognition, or the recognition of simple pieces of information about almost anything. By themselves, beliefs have little relationship to behavior. Groups of beliefs, both cognitive and affective, may cluster toward a common object and collectively produce attitudes which represent a behavioral predisposition toward that object. Groups of attitudes cluster to form values which in turn produce behavior.

Beliefs, attitudes, and values change when those that are held are no longer satisfying to the individual who holds them. (p. 41)

Despite the large amount of cognitive information and understandings which are related to environmental education, surprisingly few tests have been developed to measure these outcomes. One of the first cognitive measures in this domain was the Test of Reasoning in Conservation developed by the Conservation Foundation (1960). This test was designed to measure "knowledge of essential facts, concepts, or principles of conservation, understanding of the implications of various aspects of conservation," and to provide "opportunities to indicate a preference for one of various solutions of courses of action." Since 1960, the objectives of environmental education have begun to include much more than the principles of conservation.

The widely accepted view is that many of our environmental problems are actually problems of human behavior (Swan, 1969). According to Ames (1971), in the final analysis the success of environmental education will be measured in terms of an individual's ability to change the behavior of society.

Few studies involve assessment of attitude changes resulting from outdoor education programs. Most of these studies have shown positive results. (e.g. Hounshell and Liggett, 1976; Rocchio, 1971; Kallingal, 1974; Wilson, 1975; Richmond and Morgan, 1977; Huckestein, 1976; Coons, 1973; Stronck, 1972; Hart and McClaren, 1978; Hepburn, et al., 1978; Simons, et al., 1977; and Horsley, 1977). In the study by Kallingal (1974), a semantic differential instrument was used on one group of grade six students to assess the effectiveness of an outdoor education program. More than 60% of the students were found to be in the ideal quadrant of the semantic space, from which it was inferred that the majority of the students had developed

desired levels of favorable attitudes toward the environment. Coons (1973) studied the effect of a two-week residential outdoor camp program on the attitudes of disadvantaged children (ages 10-13) toward the environment and toward their interpersonal development. In that study, the students in the experimental group were found to have developed a more positive attitude toward the environment than the control group. A longitudinal study -- a follow-up of the same participants be it a year or more -- by Hounshell and Liggett (1973, 1976) assessed students' (grade six) attitudes toward the environment and environmental issues. The same instrument was used and the data were analyzed to determine the changes in the students' attitudes or the constancy of the responses. The study showed that the students' attitudes became more positive and remained so after more than a year.

These studies have not been limited to only grade six students. Huckestein (1976) undertook a study involving the use of a pre-test and post-test with grade five students. In that study he found that those who were involved in a one week residential outdoor education program had developed a more positive attitude toward the environment and environmental issues than those who were in the control group. Another study involving grade five students was undertaken by Richmond and Morgan (1977). Their study showed that students who had participated in various outdoor programs had more positive attitudes toward the environment than students who had not participated.

Other studies have, however, shown that not all programs have been able to produce significant changes in the attitudes of students (e.g., Carter, 1973; Quinn, 1976; Kostka, 1976; Day, 1971; Baker, 1975; Crater, 1977;

Koch, 1975; and Howell and Warmbrod, 1974). The study by Kostka (1976) examined the effect of an ongoing nature center program on the attitudes of inner city grade six students and found that the program made little impact on the environmental attitudes of the students.

Marlatt (1980) investigated the influence of nature on the cognitive and affective domains of four basic environmental education conceptual areas. His descriptive study was conducted during the summer of 1977 at four selected southwestern Michigan nature centers involving 450 youth. Information identifying environmental knowledge and attitudes was collected by designing statements around the broad environmental education concept areas of Energy, Interdependence, Adaptation, and Cycles. These areas are considered by environmental educators to be fundamental to the understanding of the natural environment. This study indicated that the four day long nature center program was most effective in the cognitive domain, particularly within the concept areas of Interdependence and Cycles. The little measurable changes which were noted in the affective realm, primarily a decline in preferred score, were assigned to the Energy concept area.

O'Conner (1983) (1) examined what happened to self-concept as a result of a one week residential outdoor education program, (2) investigated attitudes to the "outdoors" and the "environment", and (3) investigated the process of the program to discover the characteristic ways in which the students categorize and define their own experiences. A total of 150 students from four private schools in Baltimore, Philadelphia, and Annapolis took part in the Echo Hill Outdoor School program. One week prior to the experience and two weeks after the experience, students were administered

the Coopersmith Self-Esteem Inventory, the Michigan Self-Concept of Ability Test, and the Student Outdoor Education Inventory. The Outdoor Education experience was effective in promoting understanding of global environmental problems and growth of positive self-concepts, in producing positive change in attitudes to the "outdoors," and an increased awareness of the need for environmental responsibility. The more intellectually able and the more environmentally conscious students generally received the greatest benefits from the experience. Although this investigator did not have the access to confidential records of students' IQ scores for the students in the study, he observed during conversations with the students and from listening to peer-to-peer talks that those students who had been exposed to travel to state parks and national forests tended to be more aware of environmental issues. Those who had participated or were participating in the Boy Scouts, Girl Scouts, Camp Fire, or other groups which have camping and exploration as a part of their programs were more alert during expeditions and the identification of trees and plants.

In addition, some of the students come from families who own tree farms--fruit, nut, and/or ornamental. Tyler is located in the eastern section of Texas and has many hills and plains. Those students who live in hilly areas are well aware of soil erosion caused by heavy rainfall, and their parents have built either brick or rock retaining walls. Some students who live in low-lying areas which are prone to flash floods and have poor drainage systems use cement or asphalt to prevent as much soil erosion as possible.

The eastern section of Texas is frequently referred to as the piney woods of Texas because of its abundance of pine trees. Some of the

participants in this study have relatives who work as forest rangers. From them, the students learn the need to protect the forests and their inhabitants from human-made fires and natural disasters. The rangers also protect the forests from those who would like to illegally harvest trees to be used for fire wood.

In a somewhat similar situation, Shaw and Mills (1981) also found "educationally involved" sixth-graders made strong attitude gains when compared with the "uninvolved pupils." Personal observations by this investigator of pupils is congruent with both the O'Conner (1983) and Shaw/Mills studies. The intellectually able and environmentally conscious students derive great benefit from outdoor education.

Historically, residential outdoor education programs purport to teach toward the development of positive attitudes about the environment. They claim success and hope that these attitude changes will be translated into behavioral changes (Stapp et al., 1970). This mode of thinking assumes that behavior is a logical consequence of an attitude or interaction of attitudes. Studies on the relationship between attitudes and behavior in general show inconsistent results (Pettus, 1976; Barnett, 1971).

### Environmental Education

Almost twenty years ago James Swan (1969) in "The Challenge of Environmental Education," states emphatically that no other society in history is so materially rich and so environmentally degraded. Yet, he believes that it would be unfair not to acknowledge that by the late 1960's major legislative advances had been made in the areas of air and water pollution and urban blight. After having highlighted some of the types of

environmental problems -- air pollution, pesticides, water pollution, smokestacks, lack of emission control -- Swan chooses to refer to the problem as an "environmental education" problem rather than the familiar "outdoor education" or "conservation education."

Traditionally, conservation education has concerned itself with "basic" resources such as forestry, game, and soils. Whereas a great need exists to conserve these resources, the most pressing problems which directly affect the overwhelming majority of Americans are problems of human impact on the environment: air and water pollution, urban blight, traffic congestion, indiscriminate use of pesticides, and the like. Teaching an inner-city child about why we should prevent forest fires has little meaning to the child. And it may not be very important to him if he is breathing polluted air and cannot go fishing or swimming because of polluted water.

Philosophically, outdoor education has some goals that are closely related to some of those of environmental education, as both are concerned with helping individuals to become more aware of their environment. Outdoor education, however, is basically nature-study and outdoor recreation oriented. Whereas it is possible to take an inner-city child to a natural area and interest him in it, there is no guarantee that he will return home and be more aware of his urban settings. To expect so great a transfer seems unrealistic.

What is environmental education and how does it differ from either outdoor or conservation education? According to Swan (1969), environmental education may be conceived as being directed toward developing a citizenry that is knowledgeable about its environment and related environmental problems and aware of the opportunities for citizen



participation in environmental problem solving. It might be said, therefore, that environmental education is concerned with developing informed attitudes of concern for environmental quality. Environmental education is different in that it is concerned with involving people in environmental problem solving. Total involvement is essential, for different components of environmental attitudes have varying susceptibility in influence at different age levels.

Grant (1981) analyzed and evaluated the impact the National Environmental Education Act of 1970 on four environmental education programs in Illinois and Michigan. These particular programs compared a state which has a mandated Environmental Education Program (Illinois) as opposed to a state that does not have one (Michigan). The findings by Grant were that the National Environmental Education act of 1970 had little or no effect on environmental education programs in the selected states and their individual cities. Respondents in each state were knowledgeable that an act at the federal level had passed concerning environmental education, but they had little knowledge of its aims or functions. There was a great diversity in how environmental education programs were conducted in the individual school districts. The programs utilized a variety of instructional strategies, such as small group projects, class discussions, and camping and field trips to ecology and nature centers. Within each school district, monies were inadequate for the support of environmental programs, mainly because environmental education was not considered to be one of the top priorities.

The number of universities and organizations providing environmental education programs has grown rapidly since the early 1960's, as identified

by Henry and Driver (1973). An increasingly diverse range of environmental education opportunities are being provided to individuals throughout the United States. One of the more popular types is the environmental living practicum. These experiential courses focus on actual environmental living, as a mechanism to provide individuals with an opportunity to learn about and master the skills necessary for safe, enjoyable, and ecologically sound use of the environment.

According to Wood (1974), environmental education should convey at least three aspects of environment awareness:

1. Exposure to knowledge concerning the man - environment relationship
2. Development of skills and abilities
3. Development of attitudes of responsibility and appreciation toward the environment.

Perdue and Warder (1981) stated that the purpose of their research was to assess the degree to which participation of undergraduate students in an environmental living practicum contributes to the development of environmental attitudes. Specifically, the nature and pattern of change in attitudes toward the various characteristics, features, and uses of the wilderness were studied relative to participation in the Wilderness Survival Course offered at the University of Wyoming, Summer School 1976. The focus of the course was a seventeen-day wilderness backpacking trip.

Perdue and Warder's conceptual model was first used by Clawson and Knetsch (1966). The model suggests an environmental experience is comprised of five social-psychological stages: anticipation, travel to the

site, on-site activity, travel from the site to home, and recollection. Because of several unavoidable hindrances, attitudes were measured at three points: at the beginning of the on-site activity; at the end of the on-site activity; during the recollection phase. The subjects of their research included all participants in the wilderness survival course.

Their pre-test post-test research design was modified to include a longitudinal post-test measurement. Specifically, the pre-test was administered on the first day of the trip. The first post-test was administered prior to the completion of the experience, on the morning of the seventeenth day. The longitudinal post-test was administered six weeks after the completion of the trip. As the recollection phase implies, participants had returned to standard living environments. Consequently, the longitudinal test was administered by mail. In all testing situations, however, the same self-administered instrument was completed by the participants. Only the introductory information was changed to reflect different testing conditions. One of the conclusions of the study was that the activity setting and orientation of the environmental living practicum were not a significant influence on either the wilderness attitudes scores or patterns of attitude change.

As Perdue and Warder retraced their activities and reflected on the data of their study, it seemed that the implications of their research to other environmental education evaluation efforts were of importance. They point out that if the development of more favorable attitudes toward the environment is a major objective or goal of environmental education, then the research emphasis must be on a longitudinal measure. To them, significant attitude change does not appear to be an immediate result of a

short term environmental living practicum.

In 1982, Gerald Lewis reviewed the empirical classroom methodological studies which had been included within the last ten years of The Journal of Environmental Education (1970-1980, Vols. I to II). His review of classroom methodology had two objectives: (1) to summarize the findings of the reported studies to provide a foundation for curriculum planning and (2) to look at the quality of the research. He found only a few studies on instructional strategies in the ten year review of articles in The Journal of Environmental Education.

Lewis (1982) considered statements of philosophy, attitude studies, and articles discussing environmental problems as important information, but judged these topics to be outside the parameter of classroom methodology. One recurring question in environmental education concerns whether an outdoor environmental education program is more effective than an indoor program. Howie (1974) conducted a study to examine this question. The study used an experimental design with a control. The indoor treatment consisted of 10 one-hour or less sessions devoted to the introduction and discussion of environmental education topics in a typical classroom setting. Topics included ecological principles and conservation practices. Also stressed were concepts and related vocabulary.

The outdoor treatment was a two-day experience at an environmental study center. The first day included a nature trail plant study, a farm study, and a woodland discovery experience. Day two included a demonstration of colonial life, splitting wood, a swamp and marsh nature trail, a food web study, and creative art. A third group received both the indoor and outdoor treatments.

The results suggest that a combined indoor/outdoor strategy produces significantly higher achievement than either alone. The outdoor treatment alone was significant, but marginal, over the indoor treatment alone. As a result of this study, Howie proposed a four-stage treatment to prepare teachers in environmental education:

1. A period of teacher inservice training
2. The use of classroom preparation as an advance organizer
3. An outdoor experience component
4. a discussion of classroom application and conceptualization

Is it possible to change student behavior as a result of an environmental education program? Asche and Shore (1975) explored this question with fifth-grade students from a Montreal inner-city school. Twelve students were randomly selected from a class of 31 as the experimental group. A control group of 12 students was randomly selected from another inner-city school class.

The treatment consisted of a full year program that stressed environmental problems and included planned field trips to a nature center. Students were later taken into various ecological areas and given an environmental problem. Observers recorded whether the subjects exhibited conservation behavior in both action and word. Asche and Shore concluded from their study that formal environmental education programs can have a positive effect on students' conservation behavior. Also noted was a decrease in destructive behavior.

Hounshell and Leggett (1976) had two objectives in conducting a study with a sixth-grade population. The first was to inform the students about

the environment and their relationship to it. The second objective was to create a positive attitude toward the environment. The treatment was designed to influence the students by increasing teacher knowledge and understanding and changing teacher behavior. This was done by having the teachers participate in an inservice activity. During the inservice, the teachers participated in the preparation of instructional materials for the subsequent classroom activities. This was followed by an outdoor experience with the teachers' students at an environmental center. The entire experience consisted of four parts and lasted for a period of ten weeks.

In a pre-test post-test design, students' progress was evaluated with a researcher developed instrument called EKOS (Environmental Knowledge and Opinion Survey). Results confirmed a significant increase in environmental awareness attributable to the treatment, i.e., teacher inservice. Hounshell and Liggett (1976) concluded that teacher inservice training supplemented by follow-up class activities yields increased student knowledge of the environment and fosters positive environmental attitudes.

Landbech and Ward (1976) reported on an environmental education program conducted at the School of Australian Environmental Studies of Griffith University, Queensland. The subjects were college students, principally high school graduates from Queensland. In a field-based environmental program, the students examined Tallebudgera, a coastal valley with a variety of ecological environments and land uses. Students and staff resided in barracks-like accommodations. Learning activities included formal lectures, group discussions, as well as field trips. Results of the experience were judged to be "completely successful" and effective in

allowing students to conceptualize the complexity of the activities in Tallebudgera and the coastal interrelationships.

Carlson and Baumgartner (1974) studied the effects of attending a natural resource camp on youths' environmental attitudes. They reported a pre-test post-test study of residents, ages 13-19, of natural resource camps in Idaho and Washington. The authors concluded that a one-week intensive session, taught by professionals, appeared to favorably alter some environmental attitudes.

#### Student Perceptions

Stack (1960) conducted a study concerned with attitudes possessed by fifth and sixth graders toward classmates, school, teachers, school camping, self, and friends. Data were obtained from forty-four girls and forty-four boys who engaged in a one-week camping experience. Stack concluded that, despite the limited duration of the camp, it provided greater freedom of choice companions and led to the formation of many new friendships. Shaw and Mills (1981) used a ten item attitudinal survey to assess involved and uninvolved sixth grade students' perceptions of teachers, school, and self in three settings: (1) the regular classroom situation two weeks before an outdoor education experience; (2) immediately following a two day outdoor education experience; and (3) two weeks after the outing in the regular classroom. The students had a significantly more positive perception of the regular classroom two weeks after the outing than two weeks before the outing. The evidence indicates that outdoor education is an highly appropriate mode of instruction for improving the uninvolved and involved students' perceptions of school, teachers, and self.

Research on attitudes about environmental issues has been limited and inconclusive. Some research has indicated that favorable attitudes about the environment are associated with specific characteristics of people such as age, sex, extracurricular activities, school courses, and socio-economic status. Hess and Torney (1967), in their study of 17,000 elementary school children throughout the United States, revealed that

1. Changes in political attitudes occur as age increases, but an unexpected degree of political learning and experience occurs at the pre-high school level. (The most pronounced change in children's political attitudes occurred between the fourth and fifth grades.) (pp. 27-28)
2. Girls acquire attitudes less rapidly than boys. (p. 201)
3. The school seems to have somewhat less effect upon children from low socio-economic areas than it does on the children from more prosperous sections. (p. 249)

In many cases, researchers' conclusions were based on information derived by comparing the results of pre- and post-tests with experimental and control groups. Beker (1960), in a study with relatively large samples of sixth-graders, found that results from post-tests obtained immediately after resident camp experiences showed that participants in the experimental group had marked increases in how they viewed the environment over the members of control groups. When further post-tests were administered ten to twelve weeks after the initial experience, the difference between the two groups was even more pronounced. Crompton and Sellar (1981) found that sixth-graders who had gone to camp as a group experienced increased



feelings of competence to an extent that was not transient. It was evident in greater magnitude after a lapse of more than ten weeks.

Kranzer (1958) sought to measure objectively the effects of a five-day camping experience on social and democratic behavior among two sixth-grade classes. A control group was used and data were obtained from pre- and post-tests. He concluded that the resident outdoor education experience effected desirable social and democratic behavioral changes among sixth-graders more rapidly than were likely to take place in the regular classroom.

These findings by Kranzer were supported by data gathered by Fletcher (1973). She reported that about half of the students in her sample of 100 sixth-graders indicated that their classmates were more friendly after the camp experience. She further noted that all of the children seemed to fight less at camp than in school. Fletcher found that there was a moderate transfer of these positive trends back into the classroom situation after the outdoor education experience. Pieroeth (1955), working with sixth-graders, similarly found socialization significantly improved over the period of the resident experience, but little of this improvement transferred back into the school situation.

Alikhani (1986) studied the perceptions of sixth-grade male and female students toward their teachers, school and self in three settings: (1) the regular school day one week before an outdoor environmental education experience; (2) at the end of a one day outdoor environmental education experience; and (3) the regular school day three weeks after the outdoor environmental education experience. A ten-item questionnaire was administered to 314 sixth-grade students, both male and female. Alikhani

found a significant change in students' attitudes, particularly those of boys, following the outdoor experience. For both sexes, students' responses were more positive toward teachers in a regular school day three weeks following the outdoor experience. It was concluded that outdoor environmental education is an appropriate way of instruction to move students' perceptions of their school, teacher, as well as themselves, in a positive direction. Bateson's (1981) study supported the conclusion that students change their perceptions of their teachers in a positive direction when compared to students who had not participated in a residential outdoor program.

This investigator in an unannounced, follow-up visit to the classrooms of students who had participated in the Camp Tyler experience found that the teachers' attitudes changed in a positive direction toward their pupils. Teachers seemed to have become less authoritarian in their methods of classroom control. Teachers said that they had underestimated the ability of what children could plan and accomplish as a group. The teacher seemed to be less a director of a classroom of fifth-graders, but the utilizer of student ideas and student planning. There seemed to be a change in pupil-teacher relationships.

## Summary

Four major themes concerning outdoor environmental education which were found in the review of the literature provide the bases for the current study and establish the importance of a resident outdoor experience to attitude change. They are 1) the history and direction of studies in outdoor education, 2) the status of research as it relates to issues concerning outdoor education in general, 3) specific research relating to the development of environmental attitudes, 4) student perceptions as a specific part of attitudes about self, teacher, school, and the environment.

The literature related to the history and direction of studies in outdoor education is sparse. It is difficult to say when camping experiences began in school programs. In 1861, Frederick William Gunn, who is often regarded as the founder of organized camping in the United States, and who was head of the Gunnery School for Boys in Washington, Connecticut, took the student body for a two weeks' trip into the outdoors. Since that time, other camping programs related to the school have been reported; but usually they have been under the sponsorship of some other agency for the summer months, such as a recreation department or a youth serving organization. Such programs were reported in Los Angeles, California, in the mid-twenties and in the public schools in Atlanta, Georgia, about the same time.

In Michigan, the Tappan Junior High School, Ann Arbor, and the Cadillac Public Schools acquired property, constructed buildings, and operated camps for trips and summer sessions. Many other schools have used camps for such activities, but not as a regular part of the school program. In the earlier literature about camping, reference is often made to the desirability

of camping under the auspices of schools. With the establishment of Life Camps in the thirties, L. B. Sharp, director, began to encourage school camping. It was not until 1940, however, that the first year-round camp went into operation on the assumption that school camping should be an integral part of the curriculum. This first camp was made possible by the W. K. Kellogg Foundation of Battle Creek, Michigan. The Clear Lake Camp and staff were made available to three Michigan Schools--Battle Creek-Lakeview, Decatur, and Otsego--for one year. Students from grades 4-12 went to camp for two-week periods, and the new venture was so successful that the schools of Calhoun County, including Battle Creek, initiated a similar program in the early forties at the St. Mary's Lake Camp, which was leased by the W. K. Kellogg Foundation. In 1947, the Clear Lake Camp was leased to the Battle Creek Public Schools. An extensive year-round school camping program was operated for Battle Creek and several schools of the area.

In 1946, San Diego, California, organized the City-County Camp Commission, which for ten years provided extensive camping opportunities for children in the city and county schools throughout the school year. Other California school districts such as Long Beach, Los Angeles, Bellflower and Norwalk, now operate on a year-round basis. Tyler, Texas, was the first school system to construct a facility for a year-round school camping program. George W. Donaldson, Donald Hammerman, and Clifford Knapp were prominent leaders of outdoor environmental education during the mid-60's to the early 80's. During this time little research existed in the area of outdoor environmental education. Much of the research available at this time asked the question "Do students acquire more of a knowledge base

through outdoor environmental education as those who remain in the school classroom doing the same type of activity?" After 1980, the amount of research available and related to this topic has decreased. No clear cut evidence or reason for the decrease has been cited.

Little research has been done since the early 1980's to determine what educational content is appropriate for outdoor education. Unanswered questions remain about the validity of a resident stay at an outdoor facility after the students return to the classroom. Very little documented research-based evidence demonstrating the educational contribution of field instruction, when compared with other techniques, has been published. Several researchers (authors) have made statements which imply that the out-of-doors provides a more stimulating learning environment for relevant fields of study than does the school classroom, but only if the subject area of concern is closely associated with the out-of-doors and if the outdoor education experience is of sufficient duration.

Most of the articles written concerning the area of environmental education recommend the development of cognitive and affective outcomes of environmental instruction. There are those who contend that the affective component of environmental education is probably of more value to students and society than is the cognitive. Few studies have been conducted that investigate the effect of environmental education instruction on elementary or middle school students' attitudes toward the environment.

Even though research on attitudes about environmental issues has been limited and inclusive, some research has indicated that favorable attitudes about the environment are associated with specific characteristics of

people such as age, sex, extracurricular activities, school courses, and socio-economic status. In a ten item attitudinal survey to assess sixth-grade students' perception of teachers, school, and self in three settings, the researchers found that the students had a significantly more positive perception of the regular classroom two weeks after a two-day outdoor education experience than two weeks before the outing. The evidence indicates that outdoor education is a highly appropriate mode of instruction for improving students' perceptions of teachers, school, and self.

The review of literature identified several issues which appear as major concerns. One of these issues involves the relative importance of concepts vs. attitudes as the major objective of environmental education. No consistent agreement exists on the focus of environmental education regarding the development of attitudes. This investigator agrees with the thought that emphasis should be placed upon influencing attitudes of persons involved as opposed to concepts. However, it must be recognized that the two, i.e., concepts and attitudes, are inseparable.

Although the authors of the literature reviewed used different approaches to gather their data and form conclusions and opinions, they generally agree that too little information is in print about environmental education (outdoor education) programs in the elementary grades. No cut and dried approach to collect data was dominant. Generally, the "hands on" experience and small group "show and tell" discussions, preferably led by students, produced favorable environmental attitudes.

Another factor commonly agreed upon in the literature is that the camp experience should be an extension of the classroom. It is commonly

accepted that both the camp staff and the classroom teacher coordinate the curriculum to make the camp a stimulating learning environment.

Controversy does exist over the effectiveness of formal classroom instruction vs. outdoor resident camp instruction. The problems arise from environmental education on specific environmental topics such as the earth's resources, air pollution, water pollution, noise pollution, conservation of the biotic and abiotic environment, and the balance of nature. Many authors believe that environmental education must be in the outdoor setting because first hand information can be obtained. Others believe that a lasting type of learning can be more effectively taught in the classroom.

It is generally proposed that instruction in environmental education take place in the elementary and/or middle school. Elementary or middle school students who are provided instruction in environmental education appear more positive in their attitudes than students not receiving this instruction. There is, however, some evidence that by the time students reach the fifth grade they have developed positive attitudes toward the environment without any formal instruction.

Resolution of these philosophical and pedagogical issues is hampered because, as many researchers agree, few effective tools exist for evaluating the effectiveness of an environmental education program whether in or out of the classroom.

The flexibility of scheduling in the elementary school appears to be an asset for scheduling outdoor environmental experiences. In the self-contained elementary classroom, there is an absence of rigid time frames for instruction in specific subject areas. Therefore, it is more feasible for

the elementary teacher to arrange to leave the classroom and engage in "outside" ventures than in the higher grade levels.

Environmental education should convey at least three aspects of environment awareness: exposure to knowledge concerning the human-environment relationship; development of skills and abilities; development of attitudes of responsibility and appreciation toward the environment.



## CHAPTER III

### METHODS AND PROCEDURES

#### Introduction

The content of Chapter III contains a description of the fifth-grade population and an overview of the Camp Tyler program. The Millward-Ginter Outdoor Attitude Inventory is described and the procedure for its administration and statistical analysis is presented in relation to testing the hypotheses directing the study.

#### Description of the Sample

The population consisted of those students who participated at the Camp Tyler Outdoor Laboratory in the 1986-87 school year. From a total of 51 classrooms, 14 classrooms with an average of 25 students were chosen for this study. As in most field studies the sampling unit was the classroom; however, the statistical analyses were based on responses of individuals. No bias was known to exist in the classes. Compromises occurred in selecting class groups partly because of scheduling conflicts. Each group, however, contained students from representative socio-economic backgrounds. A total of 269 fifth-grade students, 142 males and 127 females, ranging in age from 10 to 13 years, participated in the school-related resident outdoor laboratory study. They came from the

same school district in the Piney Woods of East Texas. The classroom teacher joined his/her homeroom students during the outdoor program. The environmental education program was taught by the Camp Tyler faculty as a resident program of four days and three nights. The Camp Tyler faculty consisted of six certified teachers of the Tyler Independent School District with specific teaching assignments at the outdoor laboratory. They carried the title of teacher/counselor.

### The Camp Setting

The students met at their respective schools on Tuesday mornings as they do on any other school day. Accompanied by their homeroom teacher, they went by school bus to Camp Tyler and spent four days and three nights at the facility. When they reached the camp, they were welcomed by the teacher/counselors and other adults who were part of their lives during their stay. On Friday afternoon, the children returned by bus to their home school.

Soon after their arrival, a talk session was held in front of a glowing fire if the weather was cold; under the trees if it was warm. The teacher/counselors and children discussed camp conditions and together came to a democratic decision about the necessary rules of living. Only general plans were made in this first meeting, for additional planning meetings would take place during the week. The children were assigned to cabins and individual beds and "Operation Living and Learning Together" began.

One of the main events of the camping experience was the planning period when teachers and children got together to choose the activities. Every effort was made to avoid the "scheduled" atmosphere of tension

which too often exists in the regular school. The daily camp program was non-routine and flexible; it was carried on as leisurely as possible so as to eliminate that "I must hurry lest I miss something" attitude. Naturally, on Tuesday much of the planning and discussion centered around the routines relating to the basic needs of eating, sleeping, and resting. Certain definite health and safety regulations were, of course, outlined.

Although the specific activities engaged in by the children varied with the seasons and the weather and the groups' interests, the basic purposes were the same. Fundamentally, this "living and learning" program was based on two premises, the first of which was "children learn by doing," and the second, "things that are best learned in the school will be learned there; things that are best learned out-of-doors will be learned in that environment."

The activities for the children grew out of the natural offerings of the camp environment. For example, items such as clay beds yielded materials for making pottery; pineneedles and willow trees were sources for basket making; roots and berries provided interesting substances for making dye; wood carving, whittling, and similar quiet activities were made possible by "on-the-grounds" resources.

Wild flowers, insects, birds, and marine life which are native to the area were the center of experimentation and discussions. On the other hand, tennis courts, baseball diamonds, soccer grounds, and provisions for other such types of playgrounds activities were absent from the camp site. The camp's program placed a great emphasis upon the natural sciences, i.e. ecology, biology. Much time was spent in actual working to improve the natural resources of the area.

**Exploration** trips included bird watching and study of insects, marine life, **rocks**, plants, and farm life. Investigations and research dealing with the use of the compass, map study, and weather observation followed the exploration trips. The counselors helped students understand what they discussed and observed.

Planning and discussing also related to other active camping activities and needs such as shelter care (care of living quarters), instruction in use and care of tools, fire building, and cookouts. Menus had to be planned for cook-outs. Evaluating the results of their plans and efforts played an important part in the children's daily discussion periods.

In like manner, there was a "carry over" from the trips to such language arts activities as writing letters home, making reports and evaluations, learning new words, writing poetry, using the dictionary for definitions, writing stories of the trips and explorations, reading reference books on insects, plants, soil, and animals, telling stories, and reciting poems in the cabins before bedtime. What the children saw and heard on the trips often led to the art and craft work that they did--pencil sketches, wood carving, and clay modeling.

Music activities were planned to include sing-songs, singing while hiking, and in a moderate tone when riding on the school bus to and from camp. **Each** child had a memory book and was provided time to work on it. **Material** in it included notes of the activities experienced, aims of the activities, sketches, lists of new experiences, and crossword puzzles using camp vocabulary words. Working at the school farm and preparing a pioneer type of cookout were two required activities. A number of weeks were spent by the classroom teacher and the children in planning for the events at

the camp. In fact, the camping experience itself would be thought of as a culmination of classroom activities. A challenge was given to children and parents for the children to earn all or part of their camp fee. Teachers, parents, principals, and children plan and work together to make a genuine learning experience of earning and saving the camp fee. (For a detailed outline of a typical day's instruction, see Appendix B.)

#### Millward-Ginter Outdoor Attitude Inventory

The Millward-Ginter Outdoor Attitude Inventory (MGOAI) was used in research conducted by Robert E. Millward in 1973 at the Pennsylvania State University. Permission to use his research instrument was granted in writing to this investigator by Millward (Appendix H). He used the testing instrument in his studies to evaluate a resident living experience of sixth-graders from Jefferson Hills School District, Pleasant Hills, Pennsylvania, during the spring of 1970. The MGOAI consists of Pre-test (Form A) and Post-test (Form B) with four sub-categories containing 43 statements each. Paired statements between Form A and Form B had reliability coefficients above .80 and significant measures of internal consistency were reported for both forms (Millward 1973). The attitude statements to which students are to respond are not clustered by category but listed in numerical sequence. Millward, however, identified four sub-categories: (1) sixteen environmental type statements, (2) eight educational type statements, (3) ten environmental pollution type statements, and (4) nine socialization statements. The assignments of statements are as follows.

1. Environmental Attitude:

Form A - 2, 6, 8, 14, 15, 26, 28, 31, 33, 34, 35, 36, 37, 38, 40, 42

Form B - 10, 42, 14, 25, 3, 16, 43, 27, 21, 29, 35, 11, 36, 31, 6, 17

2. Outdoor Education:

Form A - 7, 12, 13, 20, 24, 27, 32, 41

Form B - 37, 18, 26, 30, 40, 12, 24, 22

3. Environmental Pollution:

Form A - 1, 3, 4, 9, 21, 22, 29, 30, 39, 43

Form B - 20, 15, 38, 39, 7, 23, 5, 13, 32, 2

4. Social Skills:

Form A - 5, 10, 11, 16, 17, 18, 19, 23, 25

Form B - 1, 4, 41, 9, 33, 8, 28, 19, 34

A commonality exists between any one statement on Form A and a comparable statement on Form B in that many pairs of the statements are similar, simply worded differently and placed in a different numerical position on the forms. Some are worded exactly alike, but placed in different numerical positions. Consider the following examples: Item 3, Form A: "No one should drop even one piece of paper outdoors." Item 15, Form B: "When outdoors you should not drop even one piece of paper." Item 4, Form A: "Pollution is not really as bad as people say it is." Item 38, Form B: "Pollution is not really as bad as people say it is." Item 8, Form A: "I would enjoy living in the mountains," and Item 14, Form B: "I would enjoy living in the mountains."

Sixteen statements within the environmental sub-category focused on students' attitudes toward animals, plants, nature, forests, and aesthetics.

Attitude statements within the education sub-category focused on the students' reactions to the outdoors as an educational environment. An example statement of this sub-category would be Item 12, Form A: "Learning in the outdoors is fun." The ten statements comprising the pollution sub-category can be grouped into the following clusters: the action cluster, the litter cluster, and the environmental concern cluster. The action cluster relates to statements that focus on what an individual or a group can do to slow down environmental degradation. The focus of the litter cluster was on the problems related to litter. Statements within the environmental concern cluster focus on attitudes related to the students' perceptions of environmental degradation. The statements within the socialization sub-category focus on attitudes toward working with peers in the out-of-doors, working with their teacher, and student interaction within the camp environment.

#### Administration of the Pre-test and Post-test

Forms A and B of the MGOAI were administered during this study. Students were tested at Birdwell, Bell, Gary, Douglas, and Dixie Elementary schools in Tyler, Texas. Four weeks and two weeks prior to attending camp, teachers and pupils were respectively given information on the objectives, policies, and procedures for attending Camp Tyler. The students of the fourteen classrooms responded to the pre-test (Form A) a week before each classroom participated in the outdoor experience. The same students were administered the post-test (Form B) a week after they had been to Camp Tyler.

All student questionnaires were identical in construction and were

administered by homeroom teachers during a fifty minute class period. The students were instructed to use a number 2 pencil to darken in their answers on a computer answer sheet and to completely erase any changed answers. A cover page was attached to each questionnaire for students to indicate their sex, age, name of school, and second language if spoken in the home. The students were directed to select the response from the five alternatives: strongly agree, agree, undecided, disagree, and strongly disagree that most expressed their feelings. All students were assured that the survey would not affect their grades. The responses were electronically tabulated by the Oklahoma State University Bureau of Tests and Measurements. The total score was calculated in the following manner:

1. Each statement on the attitude inventory has a score range from 1 to 5. A score of 5 on an individual statement would indicate a favorable attitude; in contrast a score of 1 would indicate a negative attitude. Of the 43 items on Form A and B, 21 are negative statements. It was necessary to reverse the weighted values for the following items as they were negative statements on the Millward-Ginter Outdoor Attitude Inventory. Questions reversed were:

Form A - 2, 3, 8, 10-12, 15, 17-19, 20, 22, 23, 30-34, 36, 37, 39, 41

Form B - 3, 4, 8, 10, 11, 13-15, 18, 19, 21, 22, 24, 27-30, 32, 33, 35, 39.

2. The attitude inventory contains 43 statements. The highest score that one can attain is 215. This is calculated by multiplying the total number of statements by 5. The lowest score that can be made is 43.

3. A score of 3 on one individual attitude statement represents a neutral or non-committal attitude. A range from 2.6 to 3.5 is defined by



Millward as a neutral attitude range. Total scores between 108 to 153 are defined as neutral attitudes. Score range is determined by multiplying  $2.6 \times 43$  and  $3.5 \times 43$ . Total scores ranging from 154 to 193 are defined as positive attitudes. Total scores above 193 are defined as highly positive attitudes. Total scores below 108 are defined as negative attitudes.

4. Each sub-category can be summed separately, thus enabling the investigator to determine which attitudinal concepts are most influenced in a resident setting. The score ranges for the sub-categories are as follows:

1. Environmental Attitude: Range 16 to 80

Very Negative - 16 to 24

Negative - 25 to 40

Undecided - 41 to 56

Positive - 57 to 72

Very Positive - 73 to 80

2. Outdoor Education: Range 8 to 40

Very Negative - 8 to 12

Negative - 13 to 20

Undecided - 21 to 28

Positive - 29 to 36

Very Positive - 37 to 40

3. Environmental Pollution: Range 10 to 50

Very Negative - 10 to 15

Negative - 16 to 25

Undecided - 26 to 35

Positive - 36 to 45

Very Positive - 46 to 50

#### 4. Social Skills: Range 9 to 45

Very Negative - 9 to 14

Negative - 15 to 23

Undecided - 24 to 32

Positive - 33 to 41

Very Positive - 42 to 45

An analysis of variance was used to compare mean pre-test scores and mean post-test scores for the total population and sub-categories. This statistical method was used to compare male/female and minority/majority mean pre-test scores, male/female and minority/majority mean post-test scores; pre-test/post-test mean scores for males; and pre-test/post-test mean scores for females. This tool was used for pre-test/post-test mean scores for minority and majority groups. The following null hypotheses were tested with analysis of variance: A1, for all participants; A2a-d, for all participants in each sub-category; B1, males and females pre camp; B2, males and females post camp; B3, males pre-test/post-test; B4, females pre-test/post-test; B7a-d, males pre-test/post-test in each sub-category; B8a-d, females pre-test/post-test in each sub-category; C1, minority and majority pre-test; C2, minority and majority post-test; C3, minority pre-test/post-test; C4, majority pre-test/post-test; C7a-d, minority pre-test/post-test in each sub-category; and C8a-d, majority pre-test/post-test in each sub-category.

For the null hypotheses B5, B6a-d, C5, and C6a-d the analysis of covariance was used to compare adjusted post-test mean scores between male/female -- pre-test/post-test and minority/majority -- pre-test/

post-test. The adjusted mean scores were compared for each group to determine which group might have a significantly greater adjusted mean post-test. Analysis of covariance equated pre-test scores. These comparisons were calculated for the total test and its sub-categories. Using analysis of covariance in a 2x2 factorial design increased the sensitivity of the comparisons.

#### Ranking of Questions

Each individual question for male/female and minority/majority groups was ranked according to mean score values in each of the four sub-categories. The question with the highest mean score was listed first with the question with the next highest listed second and so forth until all questions in each category have been listed. Negatively stated questions were reversed causing the values of the negative statements to change. If the student disagrees with a negatively stated question, the student indicates a favorable attitude toward the statement. These statements receive higher mean scores as compared with unfavorable attitudes which would receive lower mean scores.

## CHAPTER IV

### ANALYSIS OF DATA

#### Introduction

The purpose of this study of fifth-grade students was to identify the relationship of environmental attitudes before and after a resident camp experience. Pre- and post-test results were analyzed at The Oklahoma State University Computer Center using the Statistical Analysis System (SAS) computer program. The analysis of variance was the primary tool utilized; some comparisons were tested with the analysis of covariance.

Gross' (1977) study used a separate sample pre-test-post-test experimental design. He stated that his design did not concentrate on the effects of history or maturation. These effects were minimal for the fifth grade post-test group in the study because of the short time span between pre-testing and post-testing. The short duration of the treatment did limit the amount of change which could be expected compared to those possible with a longer treatment.

**Mean attitude** scores between pre- and post-testing were compared, **between and within** groups. Tables 1-3 illustrate the descriptive comparison of means of males, females, minority, and majority groups. The first row identifies column headings: category and range, group, male, female, majority, minority, and total mean score. The category column notes each sub-category and the range of these categories. In the group

**category**, the majority/minority groups and total are labeled. The male column indicates the mean for majority males, minority males, and total mean for each category. Also in this column is a mean total for all males. The female column lists the means as it does for males including the total for all females. In the majority column, the means for the majority group in each category are listed and the total for all majority students. The minority column indicates the same means for minority group including the total for all minority students. In the final column the total mean score indicates the total pre-testing means for each category and the total for all students. For example, in Table 1 the mean of 37.66 is the mean score for the total male population in the environmental attitude category. This is the highest mean of all the groups in this category. This can be found by locating the EA (environmental attitude) category in the first column, the total for this group in the second column, and row three under the males column.

In Table 2, the minority males in the OE (outdoor education) category had the lowest post-test mean score in this category of 29.00. The location of this mean score is in the positive range.

The post-test means in Table 3 are adjusted to control for various differences in group size.

The means for the pre-test are listed in Table 1; the means for the post-test are listed in Table 2; and the adjusted means for the post-test are cited in Table 3. The statement assignment for each sub-category is shown in Table 54. The ranking of questions for the Environmental Attitude category is listed in Table 55; the Outdoor Education category questions are listed in Table 56; the Environmental Pollution category questions are listed

in Table 57; and the Social Skills category questions are listed in Table 58. The difference of the pre-test and post-test for male/female and minority/majority is listed in Table 59. The null hypotheses in Chapter 4 are coded to be congruent with the coded questions and hypotheses in Chapter 1.

Using a modified version of Millward's study (1973), Chapter IV is divided into four sections: statistical programs used in analyzing the attitude inventory; the statistical analysis of the overall results of the attitude inventory and the categories of sex, majority and minority groups. The major categories are labeled as follows: EA - Environmental Attitude; OE - Outdoor Education; EP - Environmental Pollution; SS - Social Skills. Little research has been conducted on outdoor education programs that claim to 1) to improve a student's environmental attitude, 2) to improve a student's self-concept, and 3) to help the students with their social skills (Miller, 1979). Since the creation of Camp Tyler over 35 years ago, the Tyler Independent School District has never critically examined the camping program using an empirical research model.

Table 1

## PRE-TEST MEANS OF MALES, FEMALES, MINORITY, AND MAJORITY GROUPS

Category (Range)	Group	Male	Female	Majority	Minority	Category (Total $\bar{x}$ Score)
EA (16-80)	Majority	38.01	37.01	37.05		
	Minority	36.19	34.12		35.19	
		37.66	36.44			37.09
OE (8-40)	Majority	29.62	29.88	29.74		
	Minority	28.93	28.96		28.94	
		29.49	29.70			29.59
EP (10-50)	Majority	35.11	35.27	35.19		
	Minority	33.67	33.28		33.48	
		34.84	34.88			34.86
SS (9-45)	Majority	16.90	16.82	16.86		
	Minority	17.15	16.64		16.90	
		16.94	16.79			16.87
Total		118.93	117.81	119.33	114.52	118.40

EA - Environmental Attitude, OE - Outdoor Education, EP - Environmental Pollution, SS - Social Skills

Table 2

## POST-TEST MEANS OF MALES, FEMALES, MINORITY, AND MAJORITY GROUPS

Category (Range)	Group	Male	Female	Majority	Minority	Category (Total $\bar{x}$ score)
EA (16-80)	Majority	63.30	59.60	61.56		
	Minority	58.85	57.56		58.23	
		62.46	59.20			60.92
OE (8-40)	Majority	29.18	29.41	29.29		
	Minority	29.00	29.60		29.29	
		29.15	29.45			29.29
EP (10-50)	Majority	34.40	35.24	35.32		
	Minority	33.74	34.40		34.06	
		35.08	35.07			35.08
SS (9-45)	Majority	34.46	34.90	34.67		
	Minority	33.59	33.84		33.71	
		34.30	34.69			34.48
Total		160.99	158.41	160.84	155.29	159.77

EA - Environmental Attitude, OE - Outdoor Education, EP - Environmental Pollution, SS - Social Skills



Table 3

POST-TEST MEANS OF MALES, FEMALES, MINORITY, AND MAJORITY GROUPS  
(ADJUSTED)

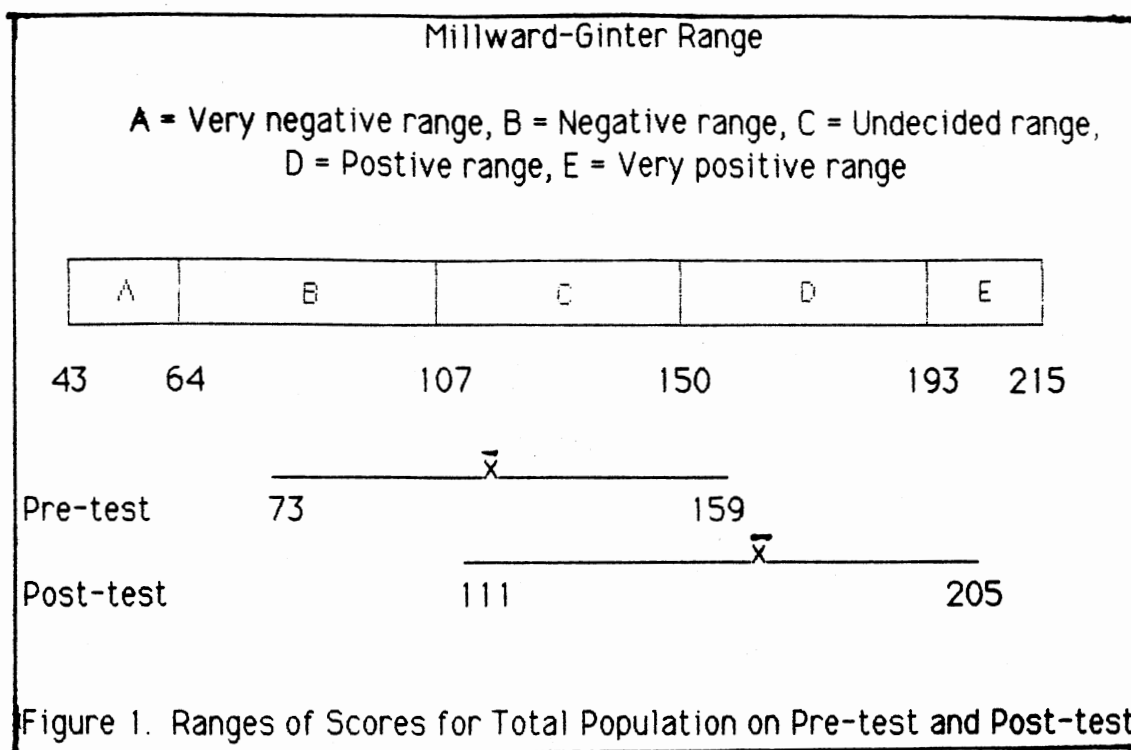
Category (Range)	Group	Male	Female	Majority	Minority	Category (Total $\bar{x}$ score)
EA (16-80)	Majority	62.56	59.66	61.11		60.92
	Minority	59.58	59.96		59.77	
		61.07	59.81			
OE (8-40)	Majority	29.17	29.29	29.23		29.29
	Minority	29.28	29.86		29.57	
		29.22	29.58			
EP (10-50)	Majority	35.28	35.04	35.16		35.08
	Minority	34.30	35.15		34.72	
		34.79	35.09			
SS (9-45)	Majority	34.45	34.92	34.68		34.48
	Minority	33.50	33.91		33.71	
		33.98	34.42			
Total		159.25	159.13	160.04	158.33	159.77

EA - Environmental Attitude, OE - Outdoor Education, EP - Environmental Pollution, SS - Social Skills

### Null Hypotheses

Ho-A1. No significant difference exists between the mean pre-test score (Form A) and post-test score (Form B) for all participants on the Millward-Ginter Outdoor Attitude Inventory.

Students who have gone through the experience of resident outdoor camping in Tyler, Texas, have acquired increased positive attitudes of the environment. These "hands on experiences" at Camp Tyler, which are strongly focused in the areas of the environment and social skills, such as the surrounding forests, wildlife habitat and working together in the camp setting, have improved fifth-graders attitudes about the environment. Even though significant positive attitudes were achieved in the categories of the environment and social skills, outdoor education and environmental pollution categories did not achieve positive attitudes. A possible indication of the lack of positive attitudes is because of Camp Tyler's lack of concentration in the areas of outdoor education and environmental pollution. Complete information produced by the ANOVA test is presented in Table 4. It is important to note on the post-test that not only the  $\bar{x}$  values shifted in a positive direction but the lower and upper range shifted in a positive direction as well.



This positive increase gives the indication that students have developed a better understanding of their relationship to the physical and social environment. With a possible total score of 215, the minimum range score produced by the total population on the pre-test was 73 the middle of the negative range. The minimum score on the post-test was 111 which is located in the upper third of the undecided range where these students had not reached a decision. (Fig. 1) The lower pupils responses upon entering camp were at the middle of the Millward-Ginter negative range and following camp shifted to the middle of the undecided range. The mean score shift from the mid undecided to the mid positive range. The increase of 47.37 in the mean score was a 30% increase.

Table 4

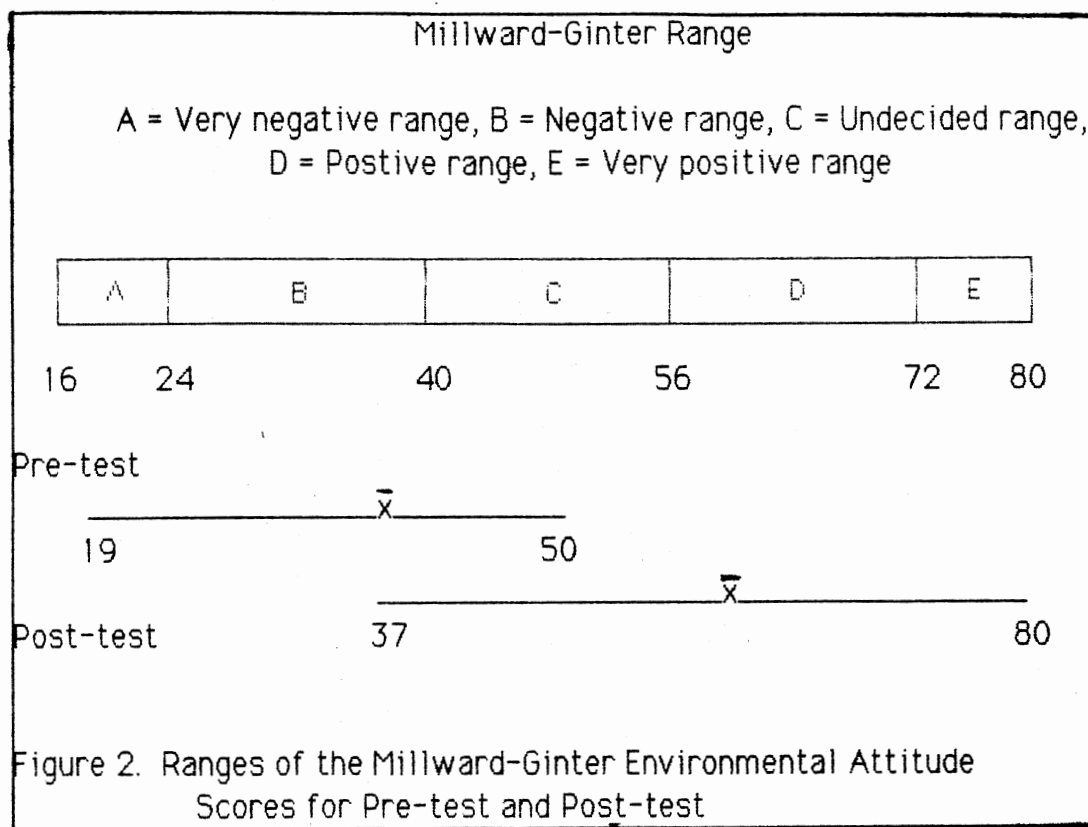
COMPARISON OF THE PRE- AND POST-TEST MEAN OF ATTITUDE  
INVENTORY SCORES FOR THE TOTAL POPULATION

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	118.40					
		1	230,171.72	230,171.72	890.42	.0001
Post-test	159.77					
N = 269    p < .05						

The comparison of means (Table 4) revealed a significant difference in the pre-test and post-test scores for all participants on the Millward-Ginter Outdoor Attitude Inventory. The ANOVA test conducted with the pre-test and post-test scores produced a p value of .0001. These values indicate a significant difference in scores between the pre-test and post-test. As a result, null hypothesis A1 was rejected.

**Ho-A2-a.** No significant difference exists between the mean scores in the pre- and post-test Environmental Attitude category.

The ranges of the Environmental Attitude scores are compared with the corresponding Millward-Ginter range in Figure 2. Pre-test scores ranged from 19 to 50 and post-test scores ranged from 37 to 80 (Figure 2).



For the Environmental Attitude category the highest possible score is 80 and the lowest is 16. Before receiving this outdoor experience many students had very negative and negative opinions about the environment. After this experience few students fell in the negative opinions range. The educational influence of the experience at camp with regard to environmental education is positive. The shift in mean scores from a negative pre-test attitude to a positive post-test score supports this general conclusion.

The ANOVA test of mean score differences by pre-test and post-test



Ho-A2-b. No significant difference exists between the mean scores in the pre- and post-test Outdoor Education Attitude category.

The range of observed scores was compared with the Millward-Ginter range in Figure 3. Pre-test scores ranged from 14 to 40, while post-test scores ranged from 13 to 40. The highest possible score on the Outdoor Education Attitude category was 40 and the lowest possible score was 8. Some students scored the highest possible score on the pre-test and there was a ceiling effect in that the pre-test x was already high. A possible interpretation is that fifth-graders have a positive perception of the use of education in the outdoor environment. Another possibility is the classroom teacher may have stimulated the students in a positive way. It is possible that perceptions were developed from teacher/counselor visits to the classroom before the resident experience. At that time, a presentation was made to familiarize the students with the administration of Camp Tyler. Following the presentation, a question and answer period was held to clarify any information. Perhaps responses to student questions influenced responses on the MGOAI. The specific curriculum and staff emphasis on Outdoor Education may be a major contributor to the lack of pre/post differences.

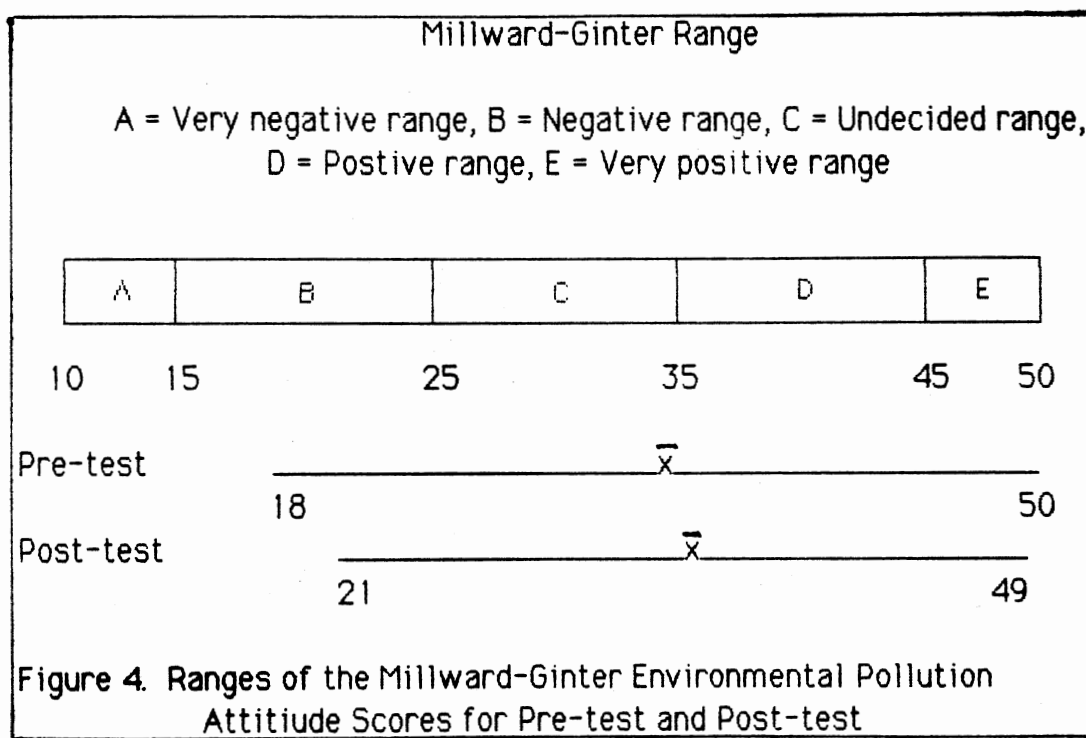
A comparison of mean values showed a decrease in post-test mean scores of 0.30, which was not statistically significant (Table 6). As a result the null hypothesis A2-b was not rejected.





Ho-A2-c. No significant difference exists between the mean score of the pre- and post-test Environmental Pollution Attitude category.

The range of observed scores was compared with the Millward-Ginter range in Figure 4. Pre-test scores ranged from 18 to 50, whereas the post-test scores ranged from 21 to 49. For Environmental Pollution Attitude category, the highest possible score is 50 and the lowest is 10.



Again as with Outdoor Education category there is evidence of a ceiling effect in that the pre-test mean was already high. The changes in ranges and mean scores measured in the Environmental category give an indication of topics on which the Camp Tyler curriculum does not focus -- the problems of litter and environmental degradation. No discussion is held on what action each child or group can do to slow down degradation to the extent that a major shift in opinion occurs.

A comparison of pre- and post-test mean scores shows a slight increase in mean post-test scores (Table 7). The increase was not statistically significant at the .05 level of confidence and the null hypothesis A2-c was not rejected.

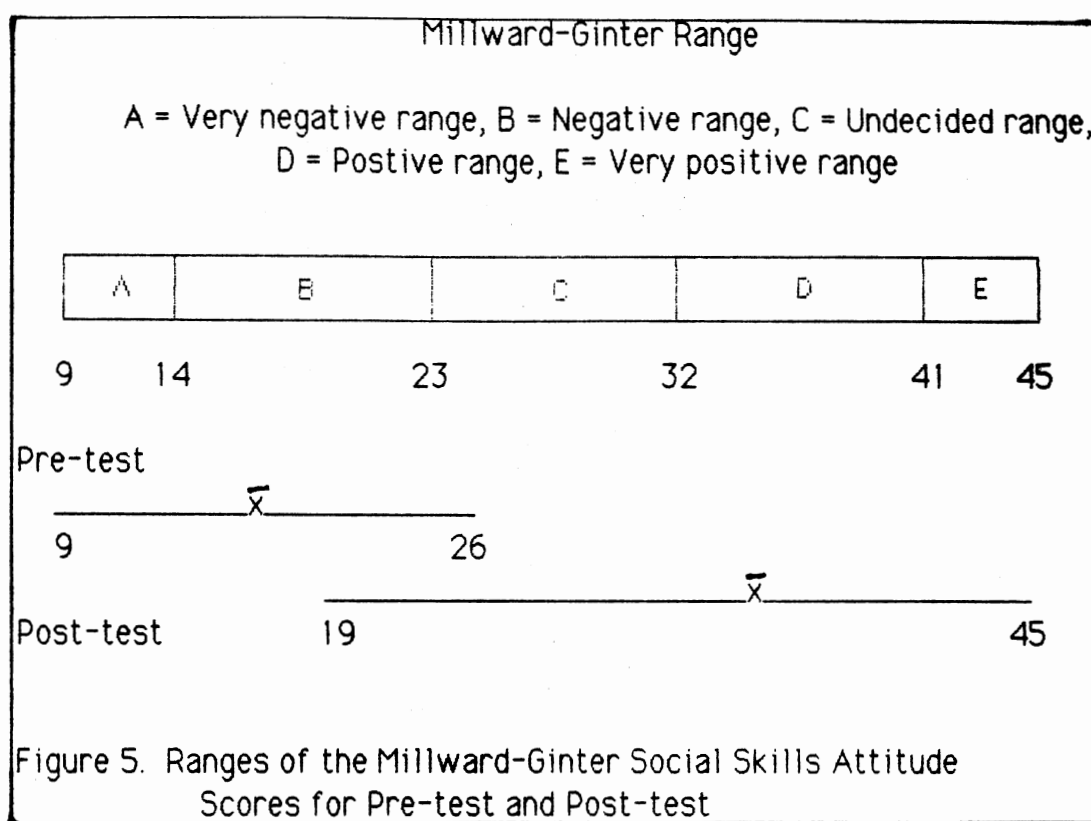
Table 7.

COMPARISON OF THE PRE- AND POST-TEST MEAN OF ENVIRONMENTAL  
POLLUTION ATTITUDE SCORES FOR THE TOTAL POPULATION

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	34.86	1	6.47	6.47	0.26	0.61
Post-test	35.08					

N = 269    p > .05

Ho-A2-d. No significant difference exists between the mean scores of the pre- and post-test Social Skills Attitude category.



The ranges of scores were compared with the Millward-Ginter range in Figure 5. Pre-test scores ranged from 9 to 26, while post-test scores ranged from 19 to 45. The highest possible score on the Social Skills Attitude category is 45 and the lowest is 9. The social development takes

many forms including self development, working with peers, and also getting along with the teacher. In an outdoor environment, the students are in a more relaxed atmosphere with fewer restrictions placed on them than in a normal classroom. That is, bells don't ring to change classes, exploring is permitted, and talking to other students while they do their work is acceptable. Competition is not emphasized; therefore, the student is not pressured into trying to be the first to finish a chore or an activity. This does not mean, however, that the student may deliberately kill time in order to get attention or to have someone volunteer or be assigned to assist him.

All participants are encouraged to withhold the attitude of destructive criticism concerning the way a classmate has chosen to create an object. If the creator made an object that appeals to him/her, who is to say that the object is created improperly? What he/she sees is what he/she sees internally.

In an outdoor environment, the students may take on different personalities. The results may be that students see each other in a different light. The lack of formality in clothing could increase the self-worth of a student who in the regular classroom has developed an inferiority complex. Because his/her family cannot afford designer jeans, he/she may try to stay in the background at school. When he/she goes to camp where almost any kind of clothing is acceptable, it may develop that he/she is a natural organizer. His/Her attitude about himself and those around him/her change and so does his/her attitude about the camp experience.

Because at least two sections of the fifth-grade from the same school go to camp at the same time, opportunities exist for students to get to know

each other better so that they can at least learn to call each other by their first name. Under the scheduling pattern, all fifth-graders are in self-contained classrooms. Friendships are established and they can share in the development or expansion of certain skills which they may have known before going to camp.

Living and learning together for four days and three nights is a real plus when the teachers are in their "rough and tough" camp gear and participating with the students. The students may teach the teacher an outdoor skill. When the groups return to their classrooms, they may have discussion time and opportunities to repeat the skills that they have learned.

Table 8.

COMPARISON OF THE PRE- AND POST-TEST MEAN OF SOCIAL SKILLS  
ATTITUDE SCORES FOR THE TOTAL POPULATION

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	16.87					
		1	41,726.10	41,726.10	2,530.11	.0001
Post-test	34.48					

N = 269    p < .05

A comparison of pre- and post-test mean scores shows an increase in the post-test mean of 17.61 or a 51% increase (Table 8). The difference in mean values was found to be significant at the .0001 level of confidence. As a result, the null hypothesis A2-d was rejected. Living together in a residential environmental atmosphere for a length of time requires teamwork. Living without the routine of home and school requires greater teamwork and self-discipline. The students are divided into groups with each group assigned certain responsibilities for the daily activities such as setting tables, cleaning their cabins, making their beds, meal time clean-up, and farm chores. Each student is, however, an individual and has personal responsibilities such as daily attention to personal hygiene including a shower, brushing his/her teeth, changing underwear and socks, and keeping up with his/her personal belongings. Each student is also expected to control his/her emotions to the extent that the rights of others are respected. Additionally, positive social skills such as using good table manners, waiting his/her turn to be served, and engaging in conversation suitable for meal time are reinforced through practical application.

Ho-B1. No significant difference exists between the pre-camp attitudes of males and females as shown on the Millward-Ginter Outdoor Attitude Inventory.

The range of scores was compared with the Millward-Ginter range in Figure 6. Male scores ranged from 73 to 159, whereas the female scores ranged from 89 to 154. The highest possible score is 215 and the lowest is 43 on the Millward-Ginter Outdoor Attitude Inventory (Form A). Sensory and perceptual awareness of the natural world and environmental problems is a

prerequisite for the development of positive environmental attitudes. One major goal of the Camp Tyler experience is to help students develop through their five senses the interrelationship of human beings and nature. Gross (1977) stated that activities should be designed to develop in students sensory and perceptual skills and feelings about their natural world. Explaining what is meant by "feelings," he stated that it is important for a young person to see the exquisite lines, the interrelatedness, the formidability yet fragility of all life. Students need to see the pattern, the delicate harmony, and a balance of all living things. They must be taught to recognize a sense of the interrelatedness of life and a respect for the wholeness of the environment.

By extending the learning environment beyond the classroom, textbook knowledge is enriched by practical knowledge gained through first-hand experiences with people, places, and things. The knowledge obtained through the direct approach should help each student see the unity of all life.

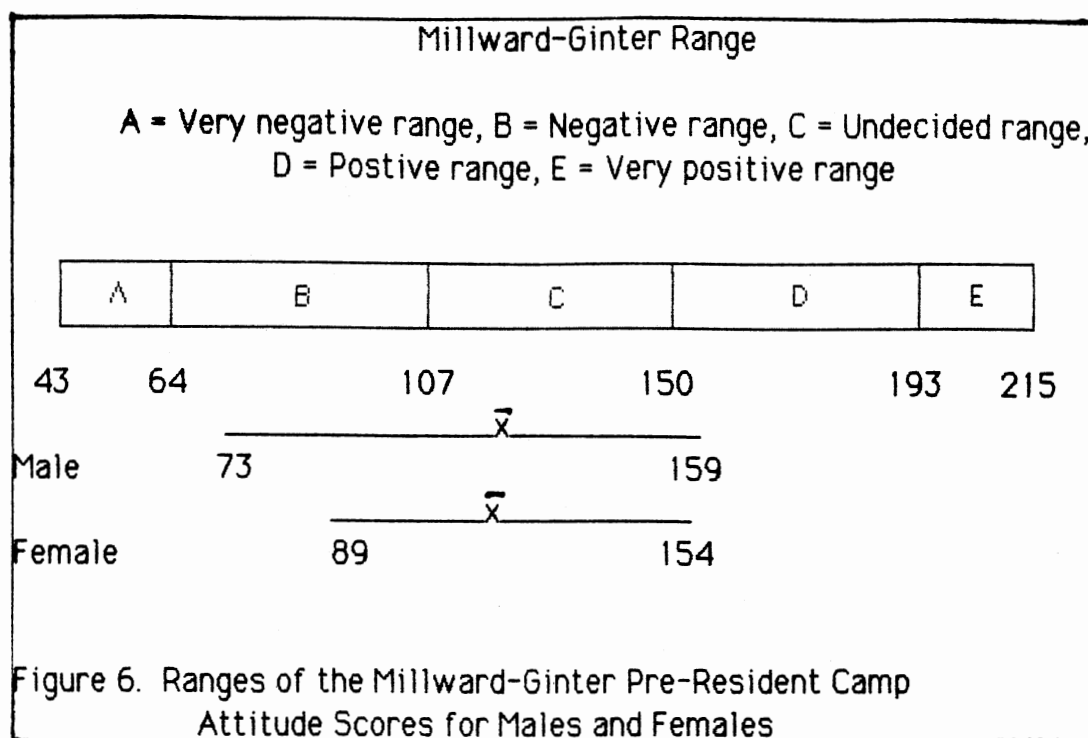


Table 9.

### COMPARISON OF MALE AND FEMALE PRE-RESIDENT CAMP ATTITUDE SCORES

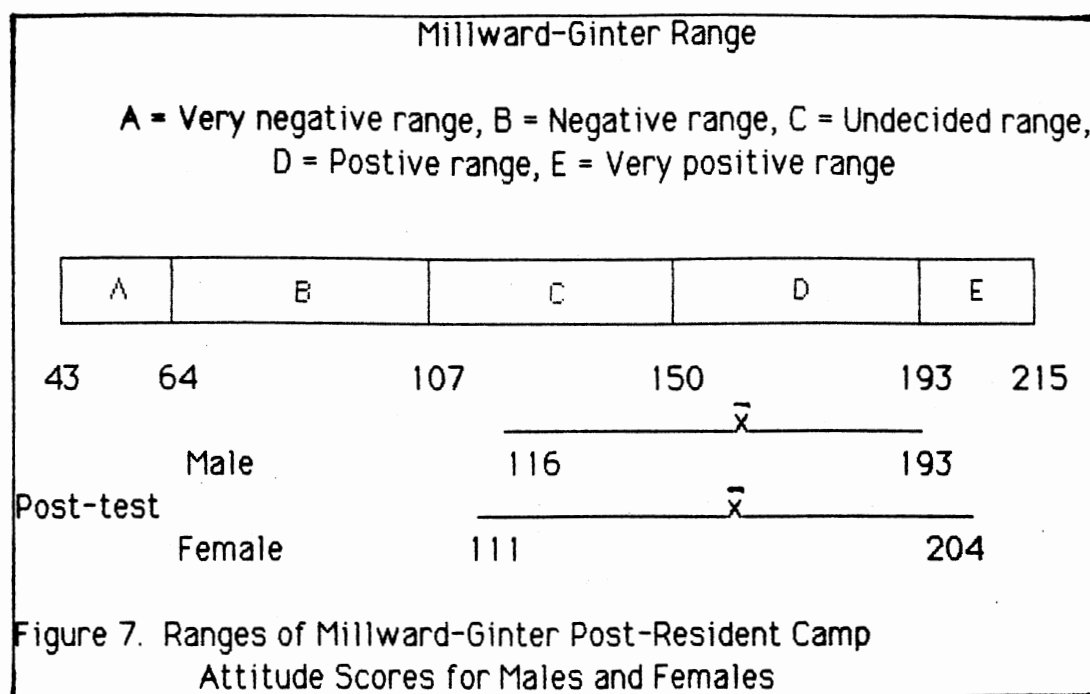
Source	$\bar{x}$	df	SS	MS	F	p
Male	118.93	1	83.88	83.88	0.42	0.5152
Female	117.81					
N = 269    p > .05						



A comparison of male and female pre-resident camp mean scores shows a 1.12 difference in mean pre-test scores (Table 9). The difference was not statistically significant at the .05 level of confidence and the null hypothesis  $H_0-B1$  was not rejected.

$H_0-B2$ . No significant difference exists in post-camp attitudes between males and females on the Millward-Ginter Outdoor Attitude Inventory.

The range of scores was compared with the Millward-Ginter range in Figure 7. Male scores ranged from 116 to 193, whereas the female scores ranged from 111 to 204. The highest possible score is 215 and the lowest is 43 on the Millward-Ginter Outdoor Attitude Inventory (Form B). In the resident outdoor program, males and females gain from this experience. Not one group is singled out to be exposed to the outdoor activities, but all students have an opportunity to participate in the outdoor experiences. This approach gives males and females the same experiences and not different ones.



A comparison of male and female post-resident camp mean scores shows a 2.58 difference in mean post-test scores (Table 10). The difference was not statistically significant at the .05 level of confidence and the null hypothesis  $H_0-B2$  was not rejected.

Table 10.

COMPARISON OF MALE AND FEMALE POST-RESIDENT  
CAMP ATTITUDE SCORES

Source	$\bar{x}$	df	SS	MS	F	p
Male	160.99	1	445.03	445.03	1.39	0.2389
Female	158.41					
N = 269    p > .05						

Ho-B3. No significant difference for males occur between the pre-test mean score and the post-test mean score.

The gain made by males from an undecided status to a positive range gives an indication that outdoor experiences such as cooking out and forestry activities, to name a few, change the outdoor perception of fifth-grade males. One of the keys to motivation is a sense of excitement about discovering for one's self. The program of study at Camp Tyler is **designed to develop** the perceptions of elementary students concerning the **value of a resident** outdoor education program.

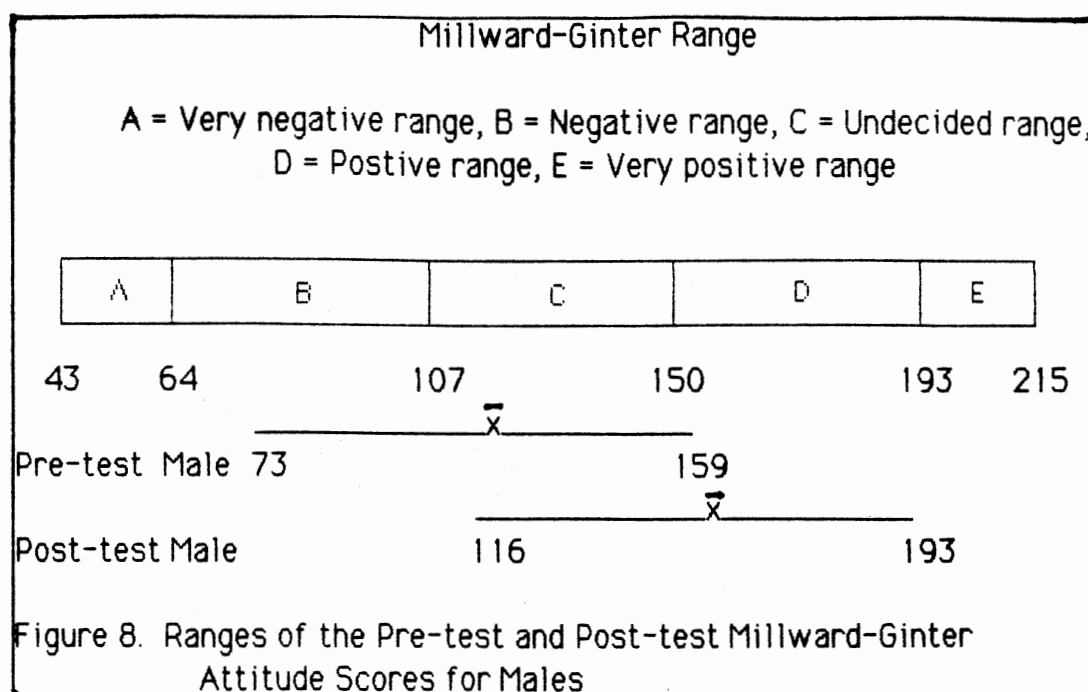


Table 11.

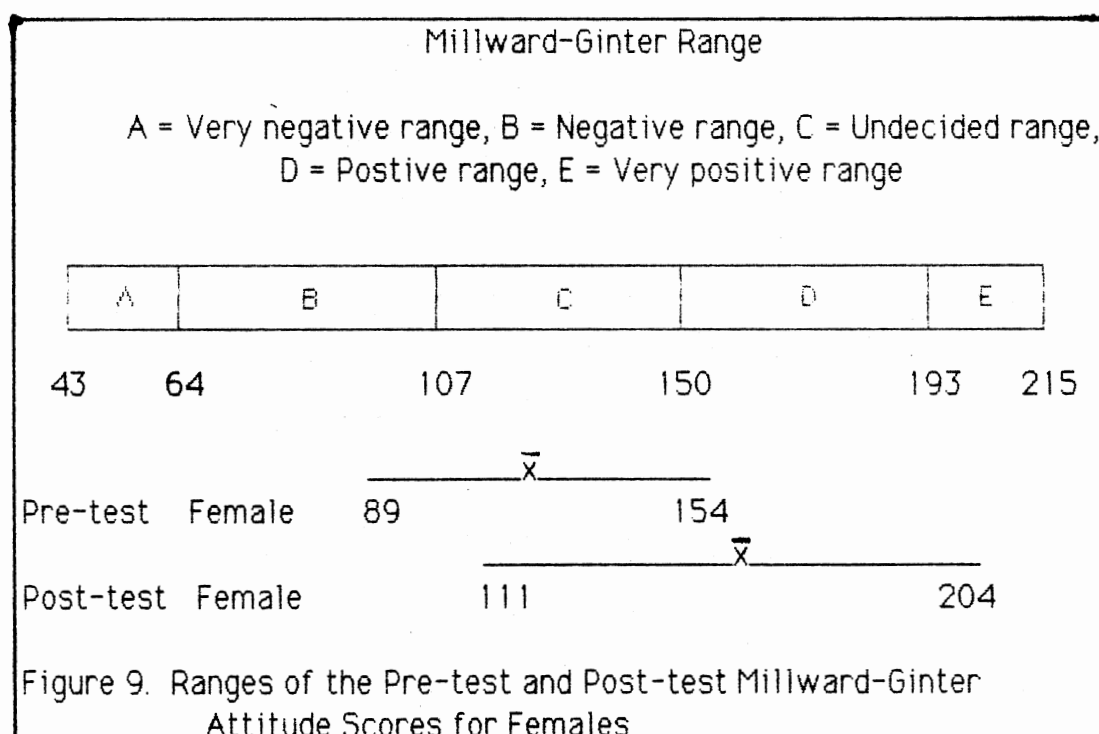
### COMPARISON OF THE PRE- AND POST-TEST ATTITUDE SCORES FOR MALES

Source	$\bar{X}$	df	SS	MS	F	p
<b>Male</b>						
Pre-test	118.93					
		1	125,580.23	125,580.23	434.18	.0001
Post-test	160.99					
N = 142    p < .05						

A comparison of male pre-test and post-test mean scores shows a 42.06 difference in mean post-test scores. (Table 11) The increase was statistically significant at the .0001 level of confidence and the null hypothesis Ho-B3 was rejected.

Ho-B4. No significant difference in females occur between the pre-test mean score and the post-test mean score.

The females positive gain in attitude is indicated by their change in social skills. An attitude toward being with their classmates and being with teachers in the outdoor setting is a key to the fact that females want to discover more about their teacher and this outdoor environment allows for a relaxed atmosphere for this to occur. Both males and females appear to gain a more positive overall attitude. This is shown in Figures 8 and 9.



A comparison of female pre-test and post-test mean scores shows a 40.60 difference in mean post-test scores (Table 12). The difference was statistically significant at the .0001 level of confidence and the null hypothesis Ho-B4 was rejected.

Table 12.

COMPARISON OF THE PRE- AND POST-TEST ATTITUDE  
SCORES FOR FEMALES

Source	$\bar{x}$	df	SS	MS	F	p
<u>Female</u>						
Pre-test	117.81					
		1	104,662.74	104,662.74	467.14	.0001
Post-test	158.41					

N = 127    p < .05

Ho-B5. **No** significant difference exists between the adjusted mean post-test scores of male and female on the Millward-Ginter Outdoor Attitude Inventory.

A comparison of the adjusted post-test mean scores for males and females shows a probability value of .9581 (Table 13). After applying pre-test scores as the covariate, the difference between the adjusted post-test means is 0.12. This difference was not significantly different

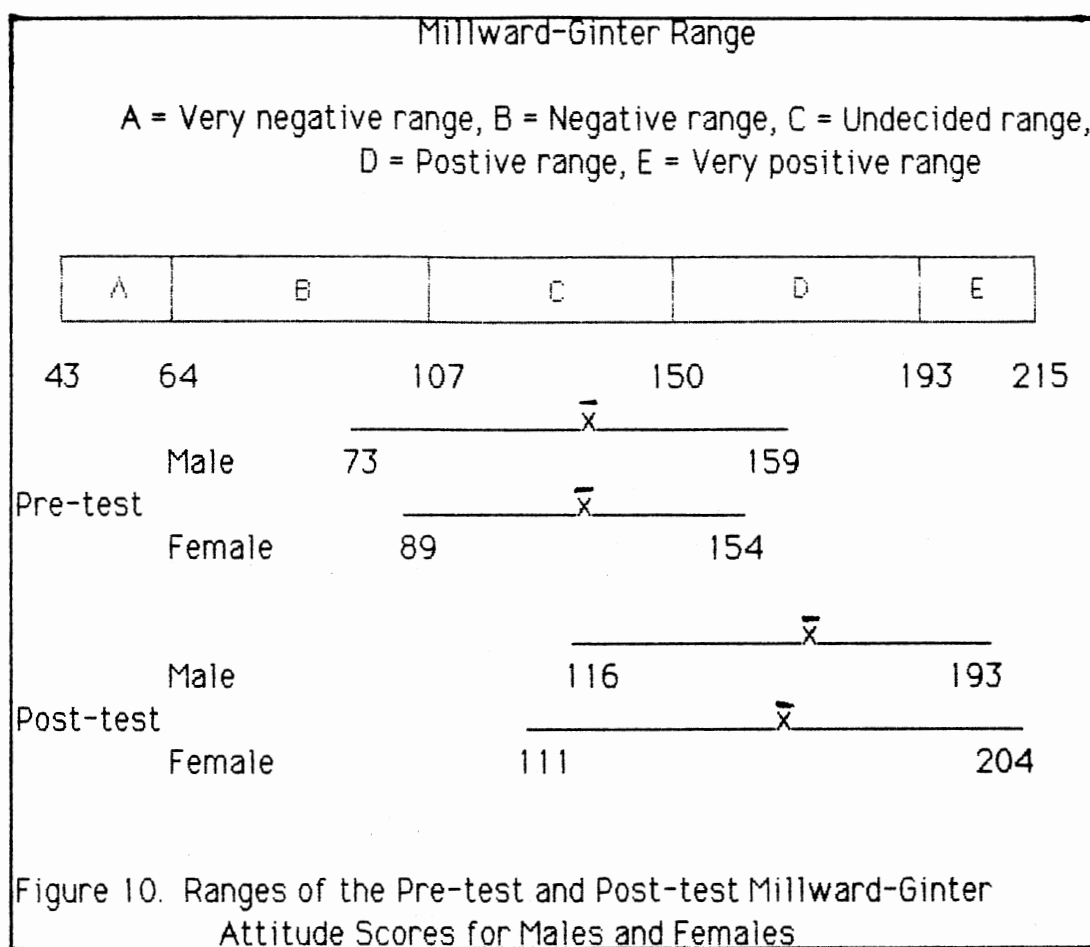
at the .05 level of confidence. As a result null hypothesis B-5 was not rejected. Males scored slightly higher on the post-test (Figure 10). The higher gain by males could, however, have resulted from chance. The difference between the post-test scores of the males and the females were similar to the extent that each group made positive gains. There is a possibility that the mean scores could favor the females on another post-test.

TABLE 13.

ANALYSIS OF COVARIANCE OF THE MEAN SCORES FOR MALE/FEMALE  
AND MINORITY/MAJORITY GROUPS ON THE MILLWARD-GINTER  
OUTDOOR ATTITUDE INVENTORY

Source	df	SS	MS	F	p
Male/Female	1	0.56	0.56	0.00	0.9581
Minority/Majority	1	120.50	120.50	0.60	0.4395
Within Groups	264	53,065.78	201.01		
Total	268	85,719.71			

$p > .05$



The Camp Tyler curriculum is apparently aiding students in increasing their attitudes about the environment. The increase is not specific to any group of students, but all students. The camp activities are evidently designed so that all participants can formulate a more positive attitude. Although the net change in attitude differs from individual to individual, all students experience a positive increase. This may result from the great number of activities in which all students experience success. Examples of these activities would be gathering eggs, feeding the pigs, setting up the

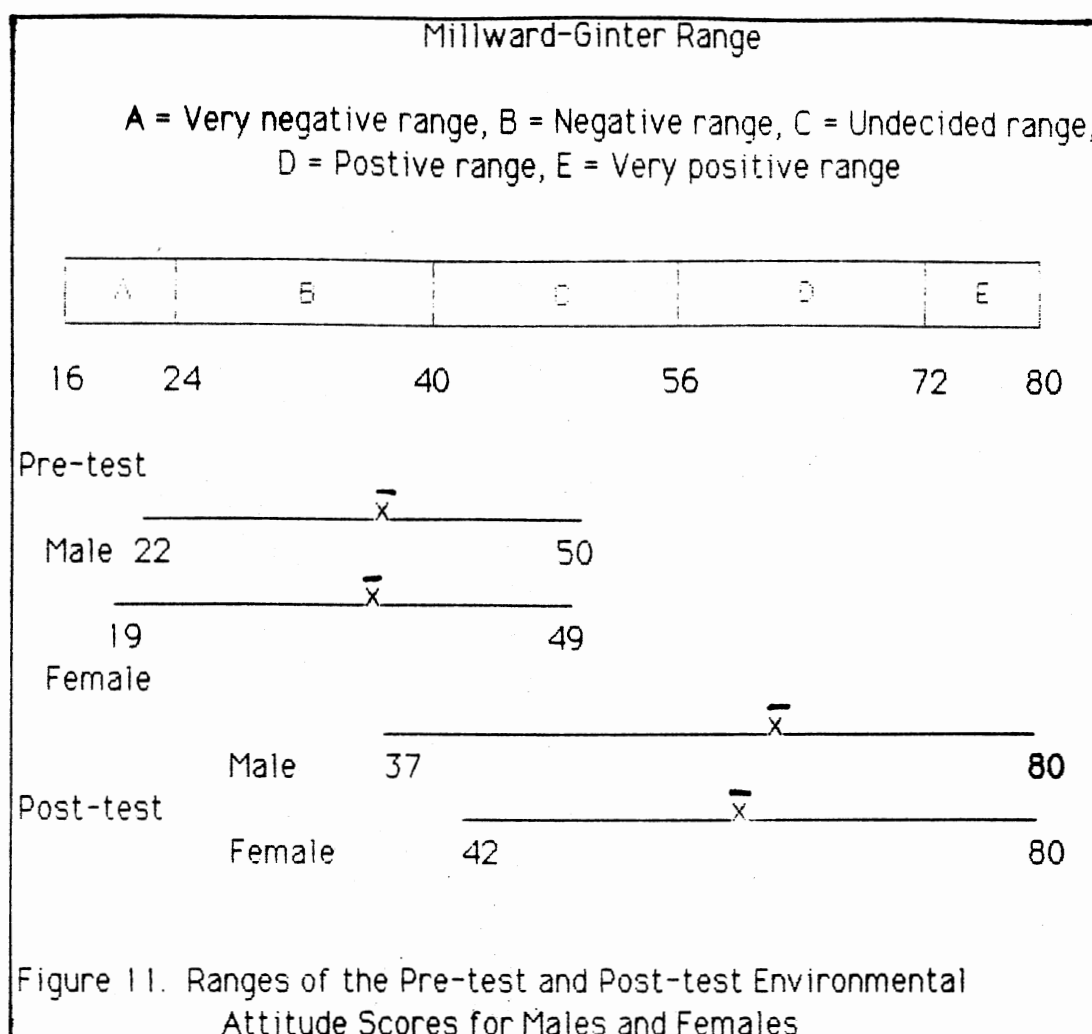


tables for meals, doing wood carving, identifying trees on a nature hike.

Ho-B6-a. No significant difference exists between the adjusted mean scores of males and females on the post-test for the Environmental Attitude category.

The range of Environmental Attitude scores is compared with the corresponding Millward-Ginter range in Figure 11. The pre-test scores ranged from 19 to 50, while post-test scores ranged from 37 to 80 for the Environmental Attitude category.

Some males and females had a negative attitude toward learning about plants and animals in the outdoors, worrying about soil conservation, and believing that bees are not helpful to the environment prior to the outdoor experience. After the experience, both groups developed a positive attitude toward small streams in the woods, the fact that wild animals won't harm you if left alone, and that being with classmates in the outdoor environment is fun. Attitudinal change was accomplished through the camp's outdoor activities.



When a teacher is trying to initiate positive change, he/she must **involve the students** in the planning of activities, get them committed to a **project**, **get them** to search for information about the project, and get them to freely interact with the teacher and classmates. The environmental or classroom atmosphere must be conducive to freedom of speech and freedom of action. These freedoms must be kept within the confines of respect for others. The student who becomes so involved and committed to an activity

may in the proper atmosphere freely volunteer to discuss or pursue a particular topic.

A comparison of adjusted post-test Environmental Attitude mean scores shows a probability value of .2364 between males and females. After applying pre-test scores as the covariate, the difference between the adjusted post-test means was 1.26. (Table 14) This difference was not significantly different at the .05 level of confidence. As a result the null hypothesis B6-a was not rejected.

Table 14.

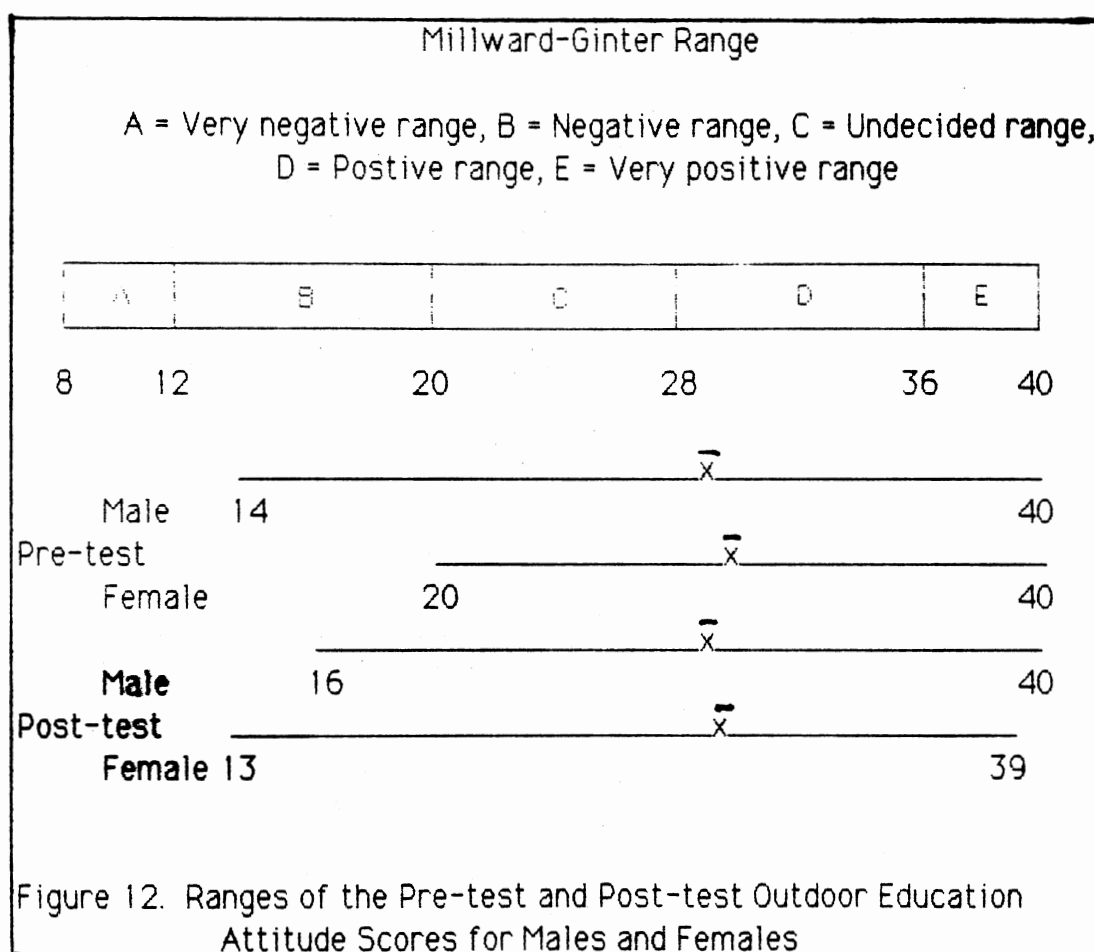
ANALYSIS OF COVARIANCE OF THE MEAN SCORES FOR MALE/FEMALE  
AND MINORITY/MAJORITY GROUPS FOR THE ENVIRONMENTAL  
ATTITUDE CATEGORY

Source	df	SS	MS	F	p
Male/Female	1	65.88	65.88	1.41	0.2364
Minority/Majority	1	73.40	73.40	1.57	0.2114
Within Groups	264	12,347.58	46.77		
Total	268	19,406.20			

$p > .05$

Ho-B6-b. No significant difference exists between males and females on the **adjusted mean** post-test scores for the Outdoor Education Attitude category.

The ranges of Outdoor Education Attitude scores were compared with the corresponding Millward-Ginter range in Figure 12. The pre-test scores ranged from 14 to 40 and post-test scores ranged from 13 to 40 for the Outdoor Education Attitude category.



A comparison of adjusted post-test Outdoor Education Attitude mean scores shows a probability value of 0.6138 between means for males and females (Table 15). After applying pre-test scores as the covariate, the difference between the adjusted post-test scores was .36. This difference was not significantly different at the .05 level of confidence. As a result the null hypothesis B6-b was not rejected.

The pre-test scores in this category ranged to the highest score possible. Mean scores were the same before and after the resident outdoor experience. The comparatively high pre-test score did not allow for growth to be measured following the outdoor experience. The mean score was already in the Millward-Ginter positive range which makes an increase more difficult to achieve. Those students who scored very positive, i.e. 40, could have had an increased positive attitude, but the Millward-Ginter Inventory was unable to measure the gain.

Table 15.

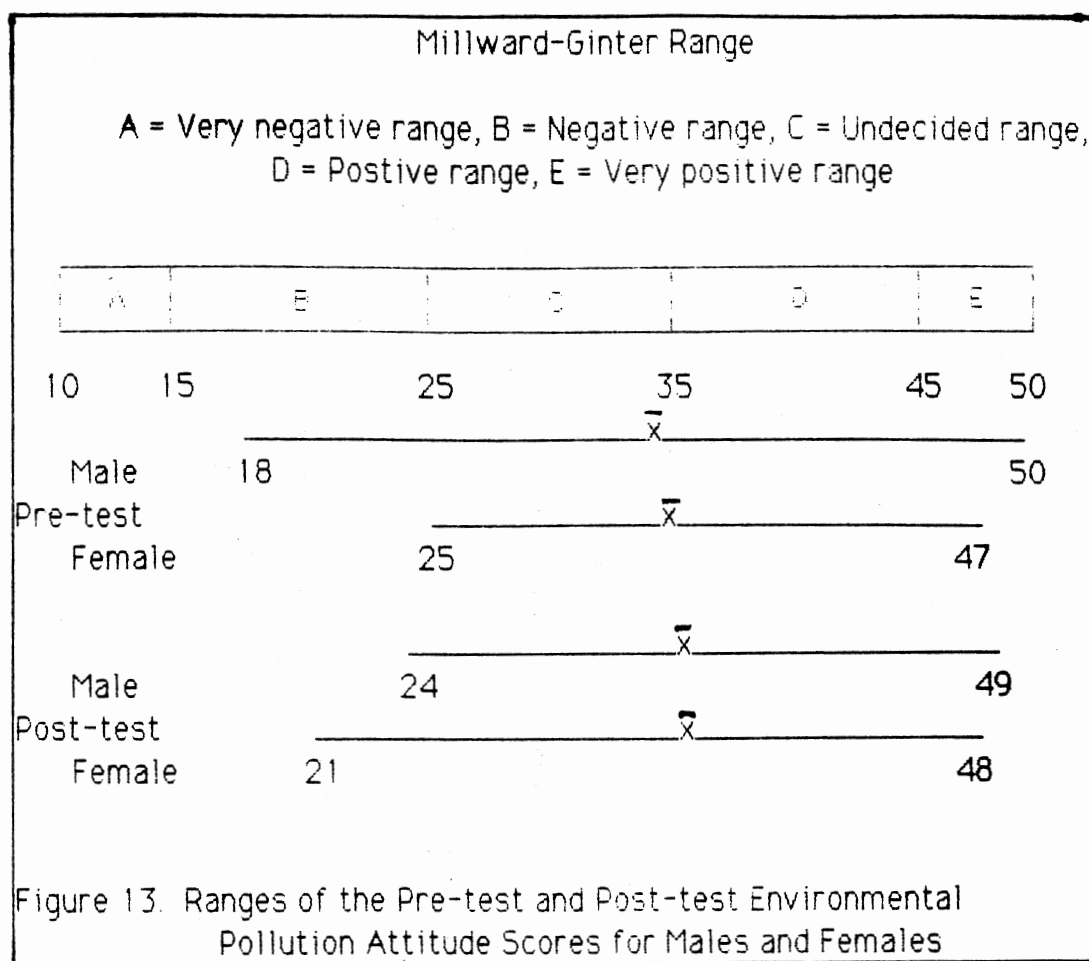
ANALYSIS OF COVARIANCE OF THE MEAN SCORES FOR MALE/FEMALE  
AND MINORITY/MAJORITY GROUPS FOR THE OUTDOOR  
EDUCATION CATEGORY

Source	df	SS	MS	F	p
Male/Female	1	5.20	5.20	0.26	0.6138
Minority/Majority	1	4.79	4.79	0.24	0.6279
Within Groups	264	5,373.81	20.36		
Total	268	6,585.38			

p > .05

Ho-B6-c. No significant difference exists between the adjusted mean post-test scores of male and female on the post-test for the Environmental Pollution Attitude category.

The ranges of Environmental Pollution Attitude scores were compared with the corresponding Millward-Ginter range in Figure 13. The pre-test scores ranged from 18 to 50 and the post-test scores ranged from 21 to 49 for the **Environmental Pollution Attitude** category. As with the **Outdoor Education** category, a maximum score of 50 may have distorted the ability to measure the true influence of the camp experience. High post-test scores for 142 boys could have been restricted by the maximum score limits of the Millward-Ginter Attitude Inventory.



A comparison of adjusted post-test Environmental Pollution Attitude mean scores shows a 0.6493 difference between means for males and females (Table 16). After applying pre-test scores as the covariate, the difference between the adjusted post-test means was .30. This difference was not significantly different at the .05 level of confidence. As a result the null hypothesis B6-c was not rejected.

Table 16.

ANALYSIS OF COVARIANCE OF THE MEAN SCORES FOR MALE/FEMALE  
AND MINORITY/MAJORITY GROUPS FOR THE ENVIRONMENTAL  
POLLUTION CATEGORY

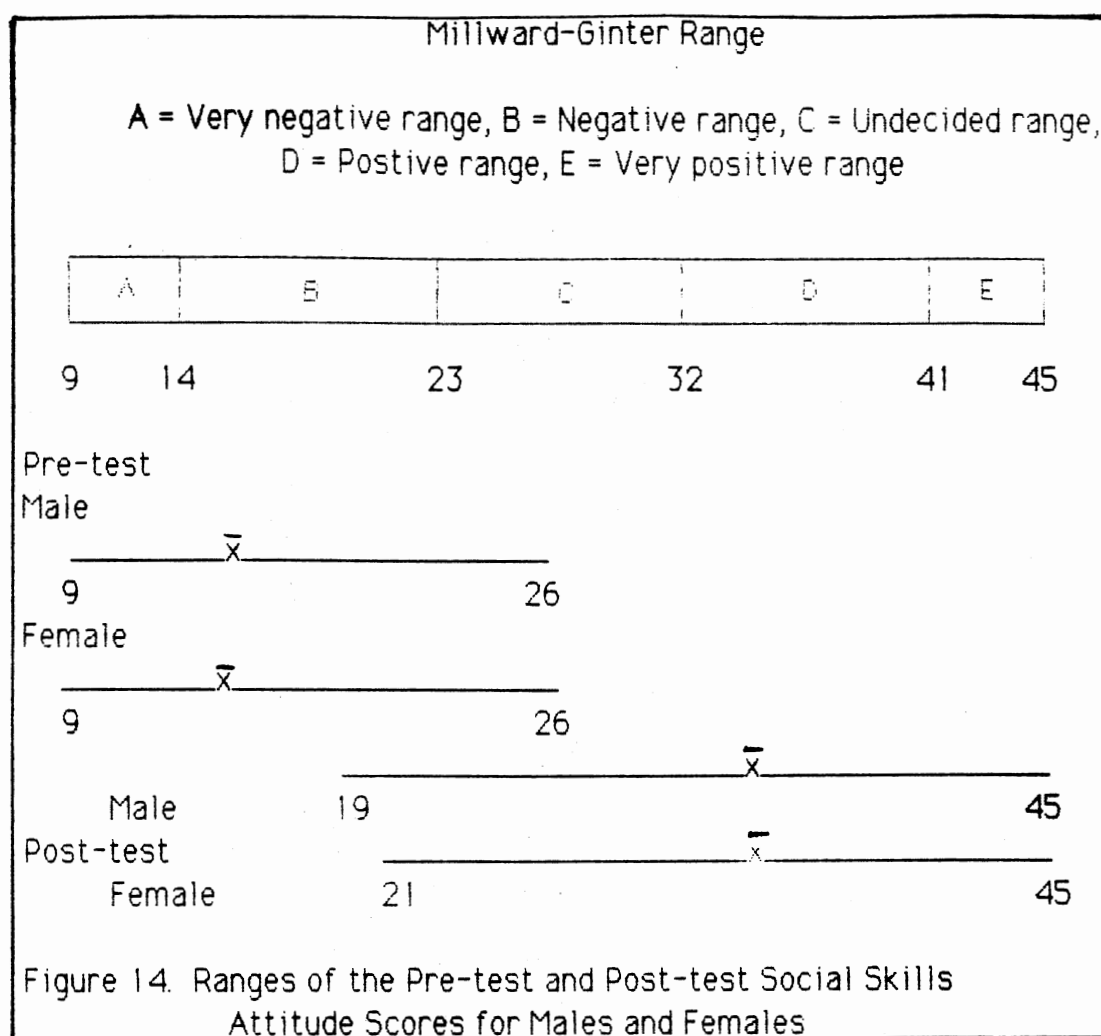
Source	df	SS	MS	F	p
Male/Female	1	3.78	3.78	0.21	0.6493
Minority/Majority	1	7.77	7.77	0.43	0.5144
Within Groups	264	4,814.48	18.24		
Total	268	6,429.36			

p > .05

Ho-B6-d. No significant difference exists between the adjusted mean post-test scores of male and female on the post-test for the Social Skills Attitude category.

The ranges of Social Skills Attitude scores are compared with the corresponding Millward-Ginter range in Figure 14. The pre-test scores ranged from 9 to 26 and the post-test scores ranged from 19 to 45 for the Social Skills Attitude category. The social interaction through students communicating and working together had benefit for both groups. Males and females gained and this gain did not favor a particular gender.





Students generally agreed on the pre-test that working with their peers in the outdoor would be fun. On the post-test, the students were still in favor of working with the students in the outdoors. Between the adminstration of the pre-test and the post-test, the students' attitudes toward "getting along with their teacher" improved in their reaction to the statement "I enjoy being with my teacher in the outdoors." It is this investigator's opinion that the students developed a closeness to their

teachers because both were in a learning situation with each other on the same level and that the teachers were not in an authoritative position. The students also believed that teachers would not be judging how well they completed a project or how long it took them to do it. Grades were not a factor and the students were not in a stressful situation. Female attitudes toward the teacher made more of a positive gain on the post-test than males. This gain could be attributed to the fact that most of the fifth-grade teachers were female and they also spent one night in the female cabin during the resident outdoor experience.

The statement, "It is easy to make friends at camp during dinner," focused on students' attitudes toward the mealtime environment and student interaction within this environment. This investigator observed that after the first evening meal was completed some of the students from the same homeroom group mingled with the students whom they did not know. The meals (family style) were not served until all of the students were seated. There were always extra seats at the tables; thus no student had to give up his/her right to sit where he/she wanted. The resident experience affords the student an opportunity to meet and make new friends.

In analyzing the social skills sub-category, the investigator found that the resident experience had a positive influence on students' attitudes. The following examples seem to bear this out: students generally agreed that it was fun to work together outdoors; they seemed to believe that it was easy to make friends during mealtime; and most students had a positive attitude toward working with their teachers.

A comparison of adjusted post-test Social Skills Attitude mean scores shows a probability value of 0.52 between means for males and females

(Table 17). After applying pre-test scores as the covariate, the difference between the adjusted post-test means was .44. This value was not significantly different at the .05 level of confidence. As a result the null hypothesis B6-d was not rejected.

Table 17.

ANALYSIS OF COVARIANCE OF THE MEAN SCORES FOR MALE/FEMALE  
AND MINORITY/MAJORITY GROUPS FOR THE SOCIAL  
SKILLS CATEGORY

Source	df	SS	MS	F	p
Male/Female	1	7.98	7.98	0.41	0.5240
Minority/Majority	1	39.89	39.89	2.04	0.1548
Within Groups	264	5,173.80	19.60		
Total	268	5,557.17			

$p > .05$

**Ho-B7-a.** No significant difference exists between male pre- and male post-test for the Environmental Attitude category.

Learning is enhanced through the active participation of the student. The essential means of an education are the experiences provided and not the vicarious experiences to which the student is exposed. These concrete experiences can be accomplished through experiences such as nature hikes,

aquatic observations, and investigations. Table 18 indicates that male students have a more positive attitude toward feeding birds in the winter; leaving wild animals alone; and realizing that forests are important after their resident environmental experiences which was a negative response to a negative statement. Males tend to agree that hunting should be allowed all of the year was a positive response to a negative statement. They disagree that the environment is helped by snakes, that the forest is harmed when you take living plants home with you, and that we have many things to use in place of wood, therefore, forests are not important. The listing of the most positive responses of males according to rank for the Environmental Attitude is shown in Table 18. In this table, reverse scoring for negative statements was done by this investigator to indicate positive responses. Such is the case of question 25 in Table 18.

A comparison of pre- and post-test scores for males in the Environmental Attitude shows a value of 24.80 between means for males (Table 19). This difference was significantly different at the .0001 level of confidence. As a result the null hypothesis B7-a was rejected.

TABLE 18.

ENVIRONMENTAL ATTITUDE CATEGORY QUESTIONS STATED  
ACCORDING TO HIGH POST-TEST RANKING FOR MALES

- 
- 21. Small streams in the woods are nice.
  - 10. If you leave most wild animals alone they will not harm you.
  - 25. We have many things to use in place of wood; therefore, forests are not important.
  - 17. Nature hikes are not exciting.
  - 29. In winter we should feed the birds.
  - 27. I am interested in nature.
  - 11. We need all kinds of plant life.
  - 43. It is wise for man to kill hawks, because hawks kill rabbits.
  - 16. Animals that live on land are more important than animals that live in the water.
  - 14. I would enjoy living in the mountains.
  - 42. Bees are not helpful to man.
  - 31. Plants that live on land are more important than plants that live in the water.
  - 36. Spiders are not helpful to man.
  - 6. Hunting should be allowed all of the year.
  - 3. Our environment is helped by snakes.
  - 35. Forests are harmed when you take living plants home with you.
-

TABLE 19.  
COMPARISON OF THE PRE- AND POST- MEAN SCORES IN THE  
ENVIRONMENTAL ATTITUDE CATEGORY FOR MALES

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	37.66					
		1	43,652.96	43,652.96	748.84	.0001
Post-test	62.46					
N = 142    p < .05						

Ho-B7-b. No significant difference exists between male pre- and male post-test for the Outdoor Education category.

The pre- and post-test scores were in the positive range with a ceiling effect occurring which could have limited the ability of the instrument to measure growth on the post-test. Males agree that outdoor subjects are interesting and that learning in the outdoors is fun. The male students disagree that studying in the outdoors is a waste of time and learning about plants and animals is not interesting as was indicated by questions stated **negatively**. The listing of the most positive responses of males according to rank for the Outdoor Education category is shown in Table 20.

A comparison of pre- and post-test scores for males in the Outdoor Education category shows a value of -.34 between means for males (Table 21). This difference was not significantly different at the .05 level of confidence. As a result the null hypothesis B7-b was not rejected.

TABLE 20.  
OUTDOOR EDUCATION CATEGORY QUESTIONS STATED ACCORDING  
TO POST-TEST RANKING FOR MALES

- 
- 24. Outdoor subjects are interesting.
  - 18. It is fun to learn in the outdoors.
  - 26. It is a waste of time to study in the outdoors.
  - 37. Learning about plants and animals in the outdoors is not very interesting.
  - 40. I should not have to learn about the outdoors if I am not interested in it.
  - 22. The books I like are about nature.
  - 30. We do not learn enough about conservation in school.
  - 12. Outdoors is a place for playing--not for school.
- 

TABLE 21.  
COMPARISON OF THE PRE- AND POST- MEAN SCORES IN THE  
OUTDOOR EDUCATION CATEGORY FOR MALES

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	29.49					
		1	8.11	8.11	.30	.5820
Post-test	29.15					

N = 142    p > .05

**Ho-B7-c.** No significant difference exists between male pre- and male post-test for the Environmental Pollution category.

Students are more likely to become involved in environmental issues if they are aware of how they can have some effect upon decision-making. The Camp Tyler curriculum does not include many activities directed at achieving awareness of environmental pollution. Students receive instruction on pollution mainly from the classroom discussions, but sometimes discussions take place in the outdoor setting when identified by the teacher/counselor. For example, pollution along the shoreline of Lake Tyler on whose shore Camp Tyler is located. The pollution includes bottles, cans, and other discarded materials and scattered paper dropped during snack time. This material is used as lessons of instruction on pollution. The listing of the most positive responses of males according to rank for the Environmental Pollution category is shown in Table 22.

A comparison of pre- and post-test scores for males in the Environmental Pollution category shows a value of .24 between means for males (Table 23). This difference was not significantly different at the .05 level of confidence. As a result the null hypothesis B7-c was not rejected.



TABLE 22  
ENVIRONMENTAL POLLUTION CATEGORY QUESTIONS STATED  
ACCORDING TO POST-TEST RANKING FOR MALES

- 
- 38. Pollution is not really as bad as people say it is.
  - 39. The whole community must work together before the environment can be improved.
  - 32. Pollution is caused by litter.
  - 15. When outdoors you should not drop even one piece of paper.
  - 7. We do not have to worry about litter where I live.
  - 13. Writing to a senator about improving the environment will help.
  - 20. You do not have to worry about soil conservation if you live in a city.
  - 5. Other planets can provide the earth with natural resources when ours run out.
  - 2. I can do little to stop pollution.
  - 23. Factories cause more pollution than do people.
- 

TABLE 23.  
COMPARISON OF THE PRE- AND POST- MEAN SCORES IN THE  
ENVIRONMENTAL POLLUTION CATEGORY FOR MALES

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	34.84					
		1	4.31	4.31	.16	.6904
Post-test	35.08					

N = 142    p > .05

Ho-B7-d. No significant difference exists between male pre- and male post-test for the Social Skills category.

The observed gain could result from the fact that Camp Tyler uses teaching methods and materials that take the learner's feelings and concerns into consideration. Camp Tyler provides the students of the Tyler (TX) Independent School District an opportunity for outdoor education to experience actual learning situations that cannot be found within the four walls of the classroom. The student is less likely to forget the need for conservation of natural resources if he/she has actually planted a tree, decided which trees should be felled and which should remain standing, or helped to work out a method of stopping the erosion of a hillside. Perhaps he/she has provided a place for birds and other wildlife to feed and to find shelter. What students learn by doing is seldom forgotten.

Each fifth-grade teacher prepares his/her students for their trip to camp. The teacher and students are provided with the available activities that can be used at camp. The teacher discusses these activities with his/her students and together they vote on the selections that will best fit in with what is being learned in the classroom at that time. After activities are chosen, the students decide which learning experiences they wish to gain from the activity. The results of these democratic choices are listed on a special form which is sent to Camp Tyler. Camp Tyler teachers then plan the students' visit to camp with the input received from classroom teachers and students. Camp provides for fifth-graders the practical experiences that go along with textbook learning for a total learning experience. Some of the things students have an opportunity to practice are self-reliance, cooperation with others, appreciation of nature,

farming, conservation, and knowledge of homemade entertainment. The listing of the most positive responses of males according to rank for the Social Skills category is found in Table 24.

TABLE 24.  
SOCIAL SKILLS CATEGORY QUESTIONS STATED ACCORDING  
TO POST-TEST RANKING FOR MALES

- 
- 4. Being with other classmates in the outdoors is fun.
  - 33. I enjoy working with a group of students outdoors.
  - 41. I don't get along well with teachers in the out-of-doors.
  - 28. It is exciting to be alone in the woods if you are not lost.
  - 19. It is easy to make friends with others at camp during dinner.
  - 34. It is hard to make new friends at camp.
  - 8. It is nice to be with teachers in the outdoors.
  - 1. Undressing before going to bed with other classmates in the cabin bothers me.
  - 9. Planning activities with a group of classmates is difficult since it is hard to agree with each other.
- 

A comparison of pre- and post-test scores for males in the Social Skills category shows a value of 17.36 between means for males (Table 25). This difference was significantly different at the .0001 level of confidence. As a result the null hypothesis B7-d was rejected.

TABLE 25.  
COMPARISON OF THE PRE- AND POST- MEAN SCORES IN THE  
SOCIAL SKILLS CATEGORY FOR MALES

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	16.94					
		1	21,377.80	21,377.80	1239.13	.0001
Post-test	34.30					

N = 142    p < .05

Ho-B8-a. No significant difference exists between female pre- and female post-test for the Environmental Attitude category.

As was the case for males, females' attitudes shifted in a positive direction. This shift could be attributed to the experiences obtained at Camp Tyler's outdoor environment. The following is a representative sample of the choices teachers and students make in advance of their camp experience.

#### **Activity -- Nature Hike**

- Aims:**
1. See and learn the habitats of different animals, both farm and wild.
  2. See and learn about food chains, involving both plants and animals.

3. See and learn about edible plants and animals and learn principles of natural selection.

Activity -- Blacksmith/Soap Making

- Aims:
1. Acquaint students with some of the early tools used by man.
  2. Teach students the role of the blacksmith in pioneer living.
  3. Learn the history of soap making.
  4. Learn where ingredients were obtained in early days and actually make soap.

Activity -- An Indian Village

- Aims:
1. Learn more about Indian tribes who lived in East Texas.
  2. Make various types of Indian articles used in everyday living -- pottery, wooden trenchers, or toys.
  3. Learn about and make dyes used by Indians to color cloth.

The listing of the most positive responses of females according to rank for Environmental Attitude category is in Table 26.

A comparison of pre- and post-test scores for females in the Environmental Attitude category shows a value 22.76 between means for females (Table 27). This difference was significantly different at the .0001 level of confidence. As a result the null hypothesis B8-a was rejected.

TABLE 26.

ENVIRONMENTAL ATTITUDE CATEGORY QUESTIONS STATED  
ACCORDING TO POST-TEST RANKING FOR FEMALES

- 
- 21. Small streams in the woods are nice.
  - 10. If you leave most wild animals alone they will not harm you.
  - 25. We have many things to use in place of wood; therefore, forests are not important.
  - 17. Nature hikes are not exciting.
  - 6. Hunting should be allowed all of the year.
  - 29. In winter we should feed the birds.
  - 27. I am interested in nature.
  - 16. Animals that live on land are more important than animals that live in the water.
  - 31. Plants that live on land are more important than plants that live in the water.
  - 11. We need all kinds of plant life.
  - 43. It is wise for man to kill hawks, because hawks kill rabbits.
  - 42. Bees are not helpful to man.
  - 36. Spiders are not helpful to man.
  - 35. Forests are harmed when you take living plants home with you.
  - 14. I would enjoy living in the mountains.
  - 3. Our environment is helped by snakes.
-

TABLE 27.  
COMPARISON OF THE PRE- AND POST- MEAN SCORES IN THE  
ENVIRONMENTAL ATTITUDE CATEGORY FOR FEMALES

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	36.44					
		1	32,882.28	32,882.28	725.38	.0001
Post-test	59.20					
<hr/>						
N = 127    p < .05						

Ho-B8-b. No significant difference exists between female pre- and female post-test for the Outdoor Education category.

The females experienced what the males faced as a ceiling effect that limited the amount of growth. The pre- and post-test means were located in the positive range. A score of 40 was reached limiting the ability to measure the females on the Outdoor Education category. The listing of the most positive responses of females according to rank for the Outdoor Education category is shown in Table 28.

A comparison of pre- and post-test scores for females in the Outdoor Education category shows a value of -.25 between means for females (Table 29). This difference was not significantly different at the .05 level of confidence. As a result the null hypothesis B8-b was not rejected.





Ho-B8-c. No significant difference exists between female pre- and female post-test for the Environmental Pollution category.

A high response was scored by females in this category on the pre-test. The high range in scores and positive mean scores indicate that a limited amount of gain could be expected by females on the post-test. This same occurrence was noted by males in this category, where some scored the highest possible score on the pre-test. The listing of the most positive responses of females according to rank for the Environmental Pollution category is cited in Table 30. Question 15, the first question in the list indicates the most positive response of females with question 23, the last question being the least positive response.

TABLE 30.

ENVIRONMENTAL POLLUTION CATEGORY QUESTIONS STATED  
ACCORDING TO POST-TEST RANKING FOR FEMALES

- 
- 15. When outdoors you should not drop even one piece of paper.
  - 38. Pollution is not really as bad as people say it is.
  - 32. Pollution is caused by litter.
  - 39. **The whole** community must work together before the environment can be improved.
  - 7. **We do not have** to worry about litter where I live.
  - 13. Writing to a senator about improving the environment will help.
  - 20. You do not have to worry about soil conservation if you live in a city.
  - 2. I can do little to stop pollution.
  - 5. Other planets can provide the earth with natural resources when ours run out.
  - 23. Factories cause more pollution than do people.
-

A comparison of pre- and post-test scores for males in the Environmental Pollution category shows a value of .19 between the means for females (Table 31). This difference was not significantly different at the .05 level of confidence. As a result the null hypothesis B8-c was not rejected.

TABLE 31.  
COMPARISON OF THE PRE- AND POST- MEAN SCORES IN THE  
ENVIRONMENTAL POLLUTION CATEGORY FOR FEMALES

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	34.88	1	2.27	2.27	.10	.7541
Post-test	35.07					
N = 127    p > .05						

Ho-B8-d. No significant difference exists between female pre- and female post-test for the Social Skills category.

Because of the structure of social development at Camp Tyler, students are in situations where they have to interact with classmates and communicate with teachers. These situations not only help female, but also

male students to grow in social skills. The listing of the most positive responses to the least positive responses of females for the Social Skills category is shown in Table 32.

TABLE 32.

SOCIAL SKILLS CATEGORY QUESTIONS STATED ACCORDING  
TO POST-TEST RANKING FOR FEMALES

- 
- 4. Being with other classmates in the outdoors is fun.
  - 8. It is nice to be with teachers in the outdoors.
  - 41. I don't get along well with teachers in the out-of-doors.
  - 33. I enjoy working with a group of students outdoors.
  - 19. It is easy to make friends with others at camp during dinner.
  - 34. It is hard to make new friends at camp.
  - 28. It is exciting to be alone in the woods if you are not lost.
  - 1. Undressing before going to bed with other classmates in the cabin bothers me.
  - 9. Planning activities with a group of classmates is difficult since it is hard to agree with each other.
- 

A comparison of pre- and post-test scores for females in the Social Skills category shows a value of 17.90 growth between means for females (Table 33). This difference was significantly different at the .0001 level of confidence. As a result the null hypothesis B8-d was rejected.

TABLE 33.

COMPARISON OF THE PRE- AND POST- MEAN SCORES IN THE  
SOCIAL SKILLS CATEGORY FOR FEMALES

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	16.79					
		1	20,358.57	20,358.57	1,294.80	.0001
Post-test	34.69					

N = 127    p < .05

Ho-C1. No significant difference exists between minority or majority pupil pre-test attitude scores for the Millward-Ginter Outdoor Attitude Inventory.

The environmental perception of the students before the outdoor experience was different. This investigator believes that the difference in socio-economic status, educational activities, and personal experiences caused the minority pupils to be more alike in their opinions than the majority pupils (Figure 15).

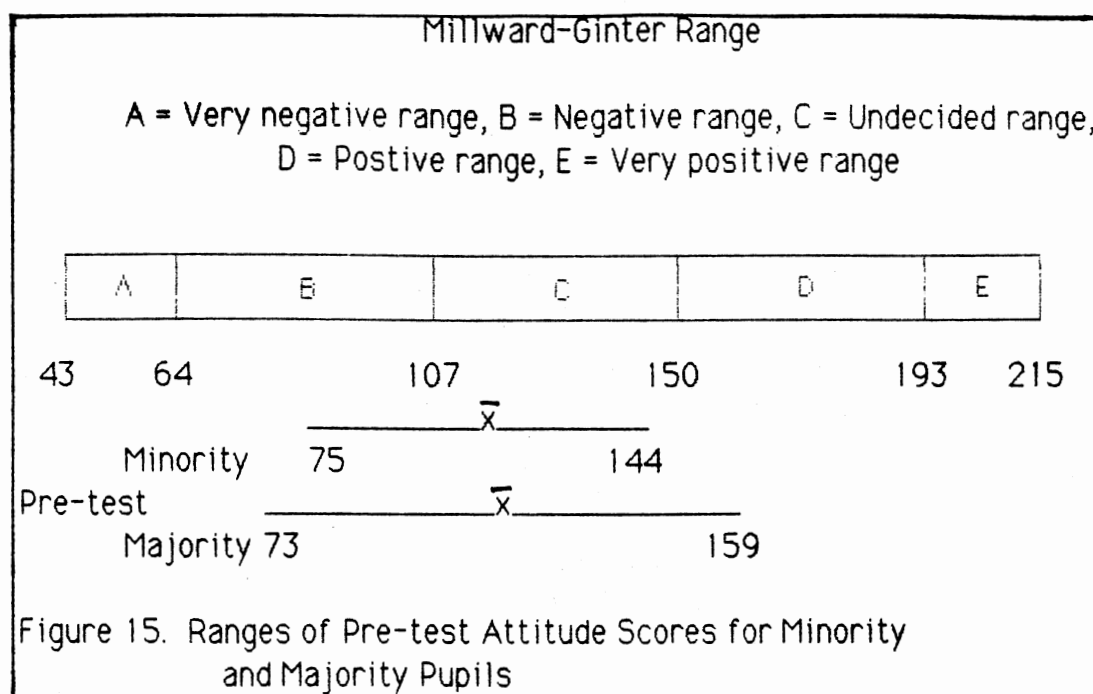


TABLE 34.

COMPARISON OF MINORITY AND MAJORITY PUPILS  
PRE-TEST ATTITUDE SCORES

Source	$\bar{x}$	df	SS	MS	F	p
Minority	114.52	1	971.55	971.55	5.00	0.0261
Majority	119.33					

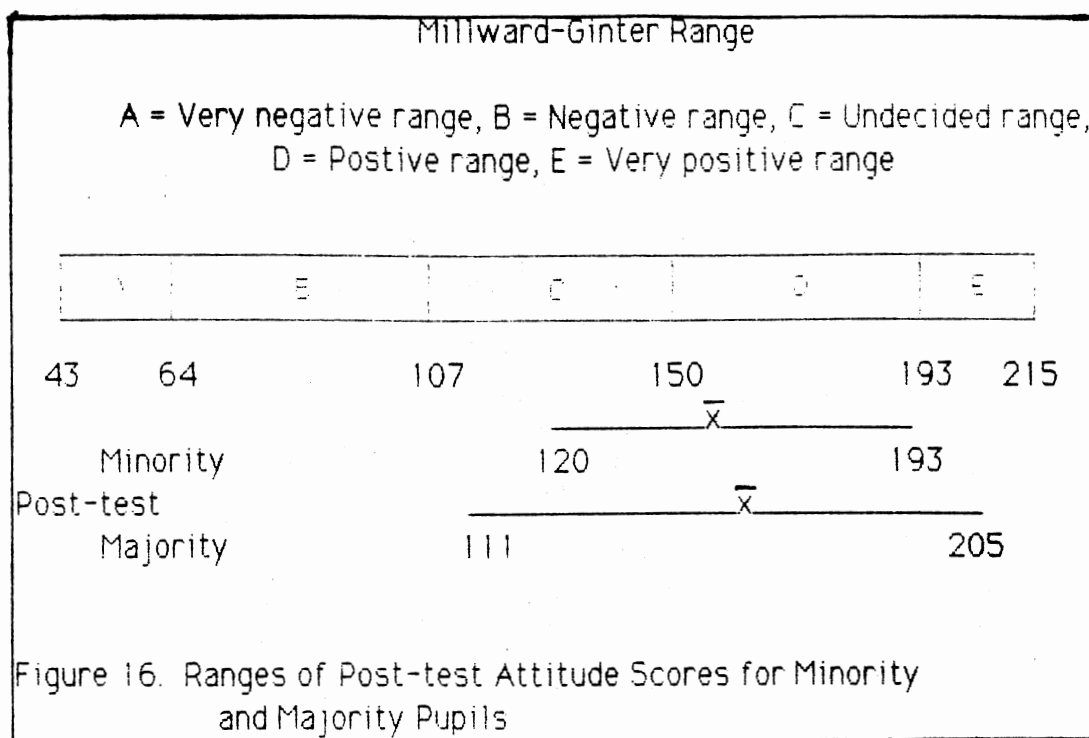
N = 269    p < .05

A comparison of minority and majority pre-test mean scores shows a **4.81 difference** in the mean pre-test score in favor of the majority pupils (Table 34). The difference was statistically significant at the .0261 level of confidence and the null hypothesis C1 was rejected.

Ho-C2. No significant difference exists between minority or majority pupils post-test attitude scores for the Millward-Ginter Outdoor Attitude inventory.

Attitudes may not be formed through a rational process by which facts are gathered and a reasonable conclusion drawn, but rather through the repeated exposure to ideas. Some of these ideas are embodied in the philosophy of Camp Tyler, such as the promotion of good citizenship, the development of a well-rounded student, the students' growth in independence and confidence, and the extension of the students' appreciation of the value of nature, farming, and conservation through learning about the importance, impact, necessity, and effects of natural resources.

By viewing Camp Tyler as a small community, most governmental functions are carried on in the "direct democracy" of group planning. Such services as communication, trade, and banking are carried on by the campers through the camp Post Office, the General Store, and the Camp Tyler Bank. **All of this is social studies in action;** children are learning how a **community operates** by helping to operate one that is scaled down to their size. Regardless, if the student is a member of a minority or majority group, the scores move toward the positive range (Figure 16).



A comparison of minority and majority post-test mean scores shows a 5.55 difference in the mean post-test scores in favor of majority pupils (Table 35). The increase was statistically significant at the .05 level of confidence and the null hypothesis C2 was rejected.

TABLE 35.  
COMPARISON OF MINORITY AND MAJORITY PUPILS  
POST-TEST ATTITUDE SCORES

Source	$\bar{x}$	df	SS	MS	F	p
Minority	155.29	1	1,294.36	1,294.36	4.09	0.0440
Majority	160.84					

N = 269    p < .05

Ho-C3. No significant difference exists between minority pre-test mean scores and post-test mean scores.

The mean score on the pre-test was in the undecided range and on the post-test growth was made in the positive direction. The minority group had a positive response toward the question that the whole community must work together to improve the environment. This indicated that more positive attitudes toward making friends, being with classmates and teachers is fun in the outdoors were developed during the Camp Tyler experience (Figure 17).



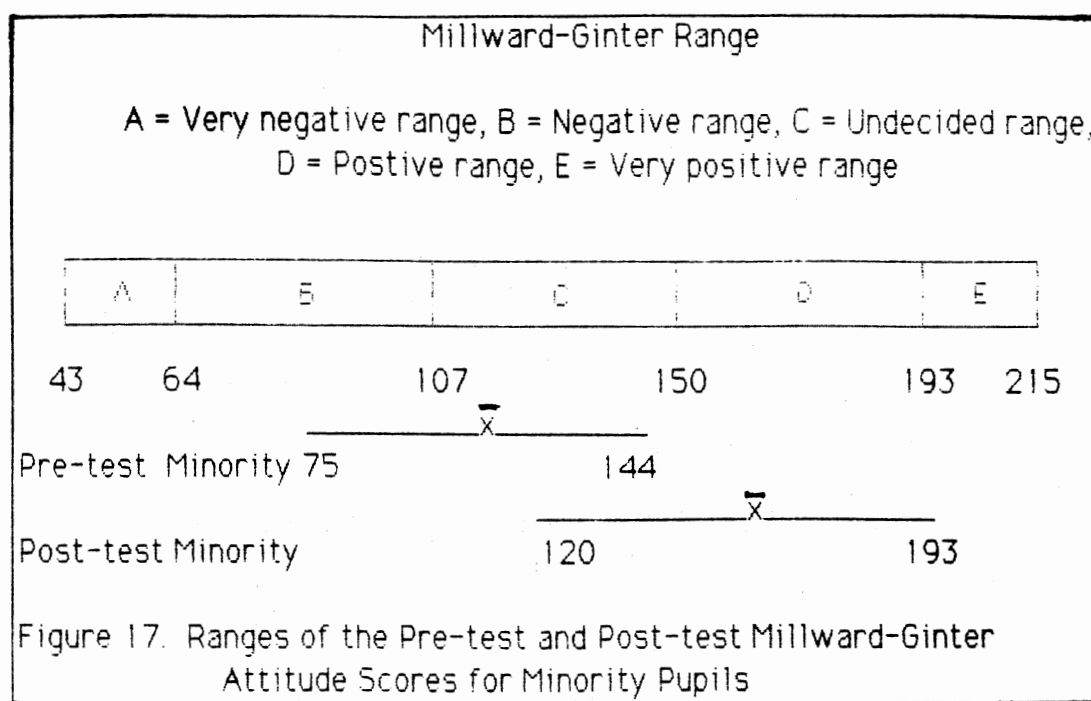
TABLE 36.

COMPARISON OF MINORITY PUPILS PRE-TEST AND  
POST-TEST ATTITUDE SCORES

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	114.52					
		1	43,215.38	43,215.38	169.38	0.0001
Post-test	155.29					

N = 52    p &lt; .05

A comparison of minority pre-test and post-test mean scores shows a 40.77 increase in the mean post-test score for minority pupils (Table 36). The increase was statistically significant at the .0001 level of confidence and the null hypothesis C3 was rejected.



Ho-C4. No significant difference exists between majority pre-test mean scores and post-test mean scores.

The ranges of scores were compared with the Millward-Ginter range in Figure 18. Majority pre-test mean score was 119.33 and the majority post-test mean score was 160.84. The increase made by the majority pupils was in a positive direction and indicates that the Camp Tyler curriculum is **developing the majority pupils' awareness** about the environment and social skills.

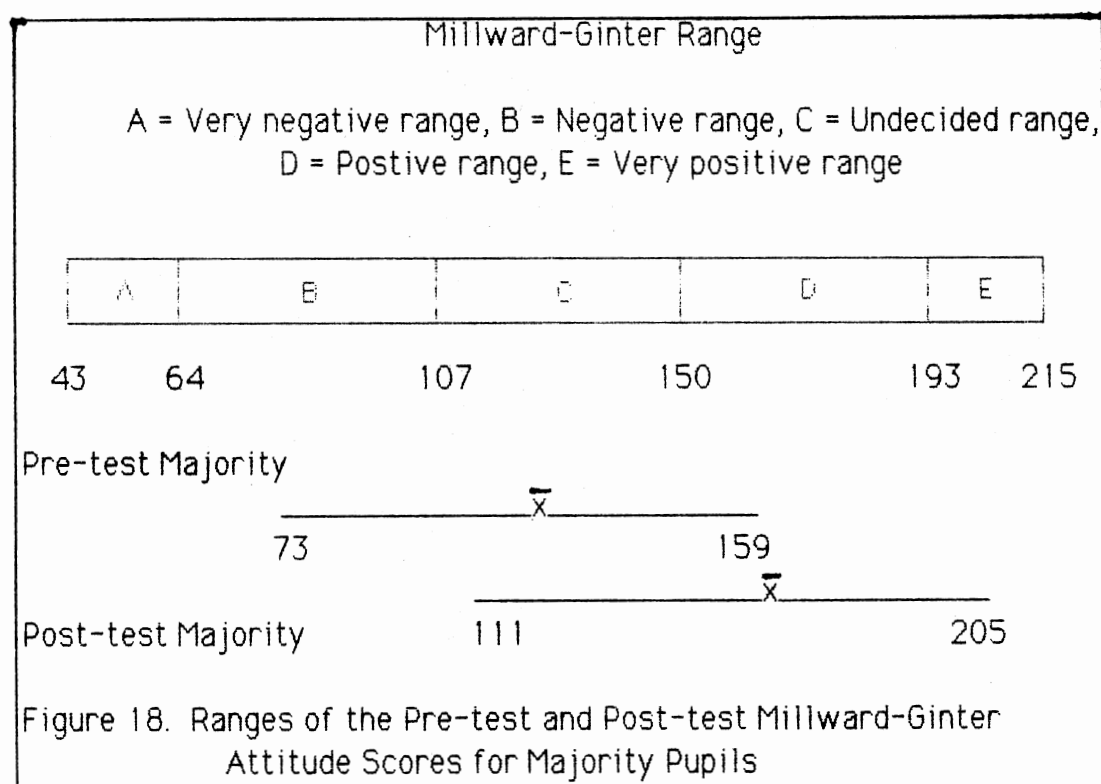
A comparison of majority pre-test and majority post-test mean scores shows a 41.51 increase in the mean post-test score for majority pupils (Table 37). The increase was statistically significant at the .0001 level of confidence and the null hypothesis C4 was rejected.

TABLE 37.

COMPARISON OF MAJORITY PUPILS PRE-TEST AND  
POST-TEST ATTITUDE SCORES

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	119.33					
		1	186,967.89	186,967.89	732.51	0.0001
Post-test	160.84					

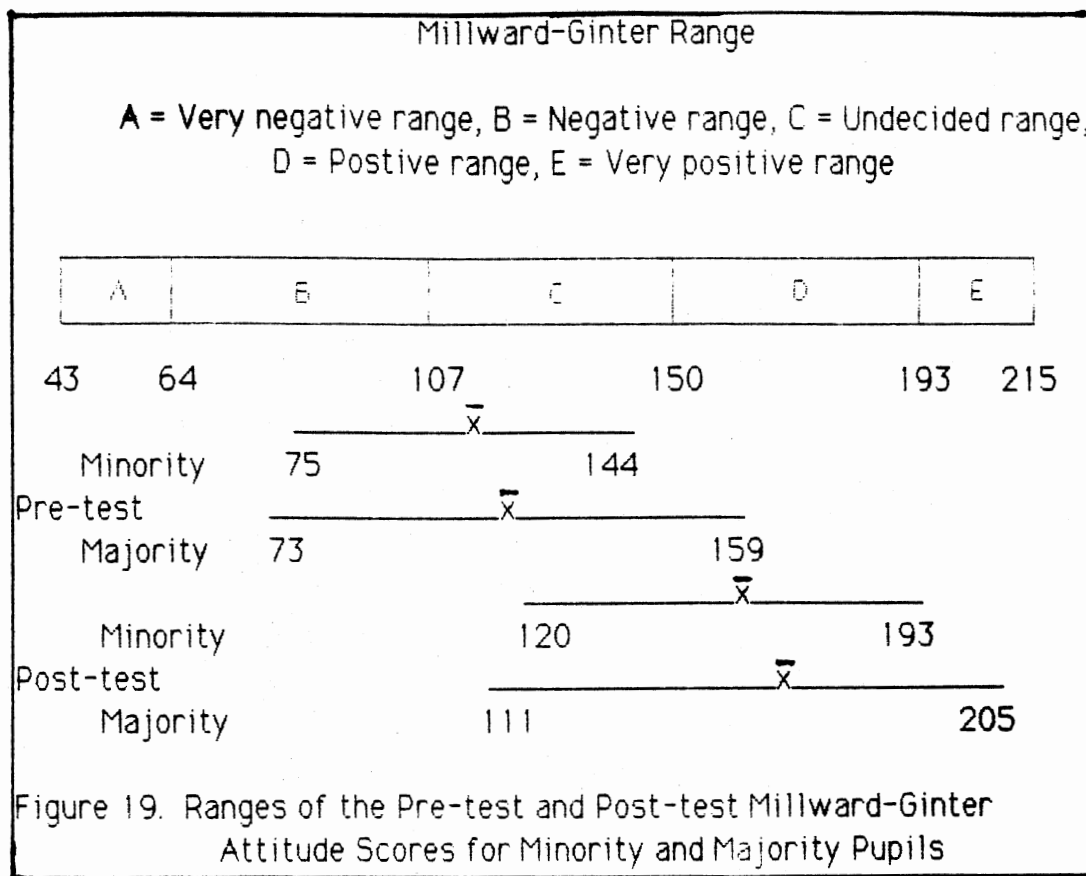
N = 217    p &lt; .05



Ho-C5. No significant difference exists between the adjusted mean post-test scores of minority and majority on the Millward-Ginter Outdoor Attitude Inventory.

After adjusting the post-test scores for both groups, the scores were found to be similar and in the positive range. The outdoor activities that were experienced by both minority and majority groups helped to establish more of a common ground among these groups. This investigator concludes from the mean scores that the resident outdoor education program changes environmental attitudes equally for minority and majority groups. The program apparently meets the curriculum development of both groups. This development in the categories of environmental attitude and social skills allows for both groups to work toward understanding the environment as they work to get along with each other (Figure 19).

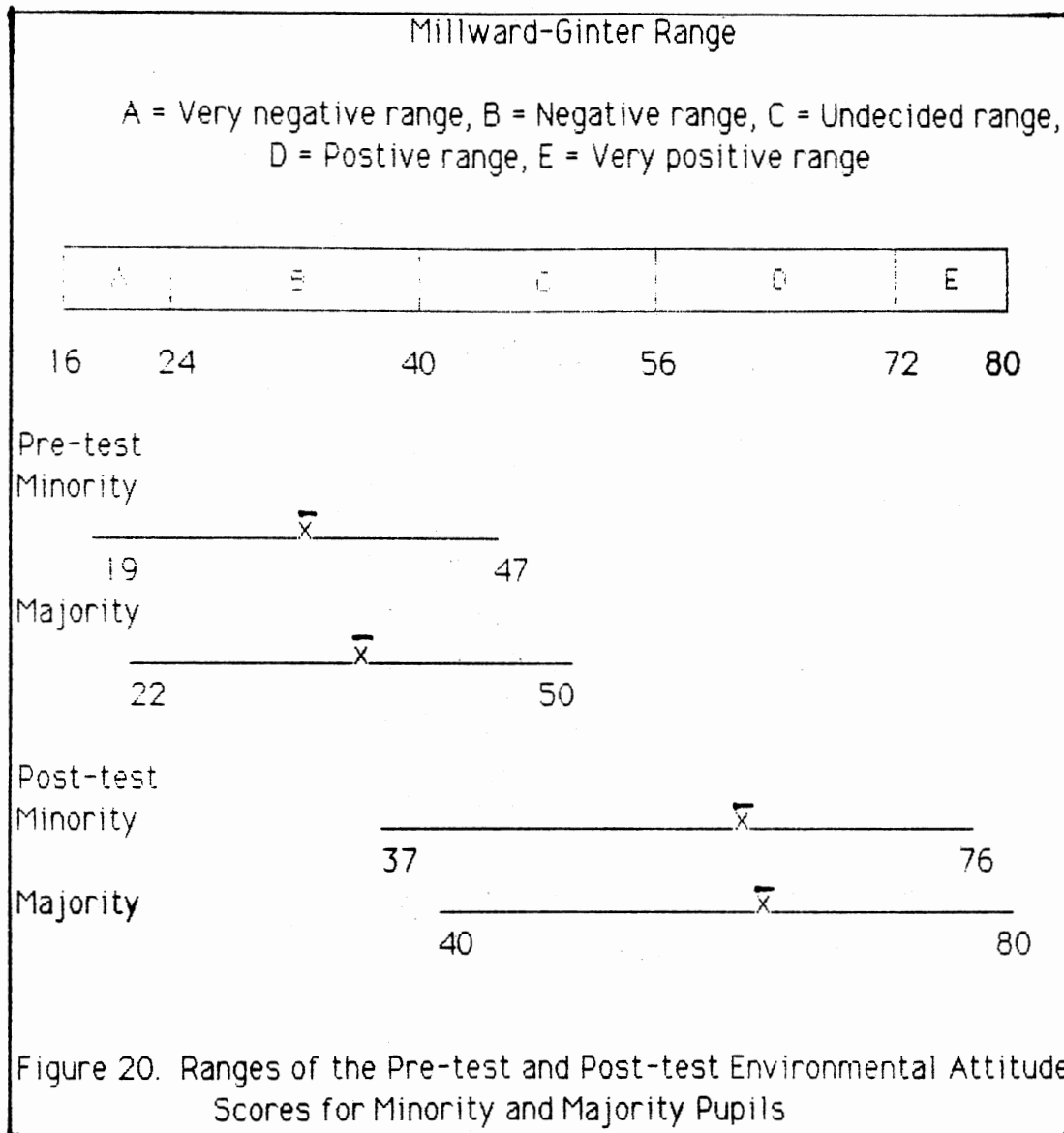
A comparison of pre- and post-test adjusted mean scores of minority and majority mean scores shows a probability value of 0.4395 (Table 13). After applying pre-test scores as the covariate, the difference between the adjusted post-test means was 1.71. This difference was not significant at the .05 level of confidence. As a result the null hypothesis C-5 was not rejected.



Ho-C6-a. No significant difference exists between the adjusted mean post-test scores of minority and majority on the post-test for the **Environmental Attitude** category.

Considerable growth on the post-test was made by both groups. The post-test scores are consistent for minority and majority pupils and this indicates that both groups are changing their attitudes about the environment in a more favorable manner. The two groups are both gaining more of an understanding of the the world around them. The Camp Tyler curriculum

apparently does not create disparity between the two groups' environmental attitudes (Figure 20).

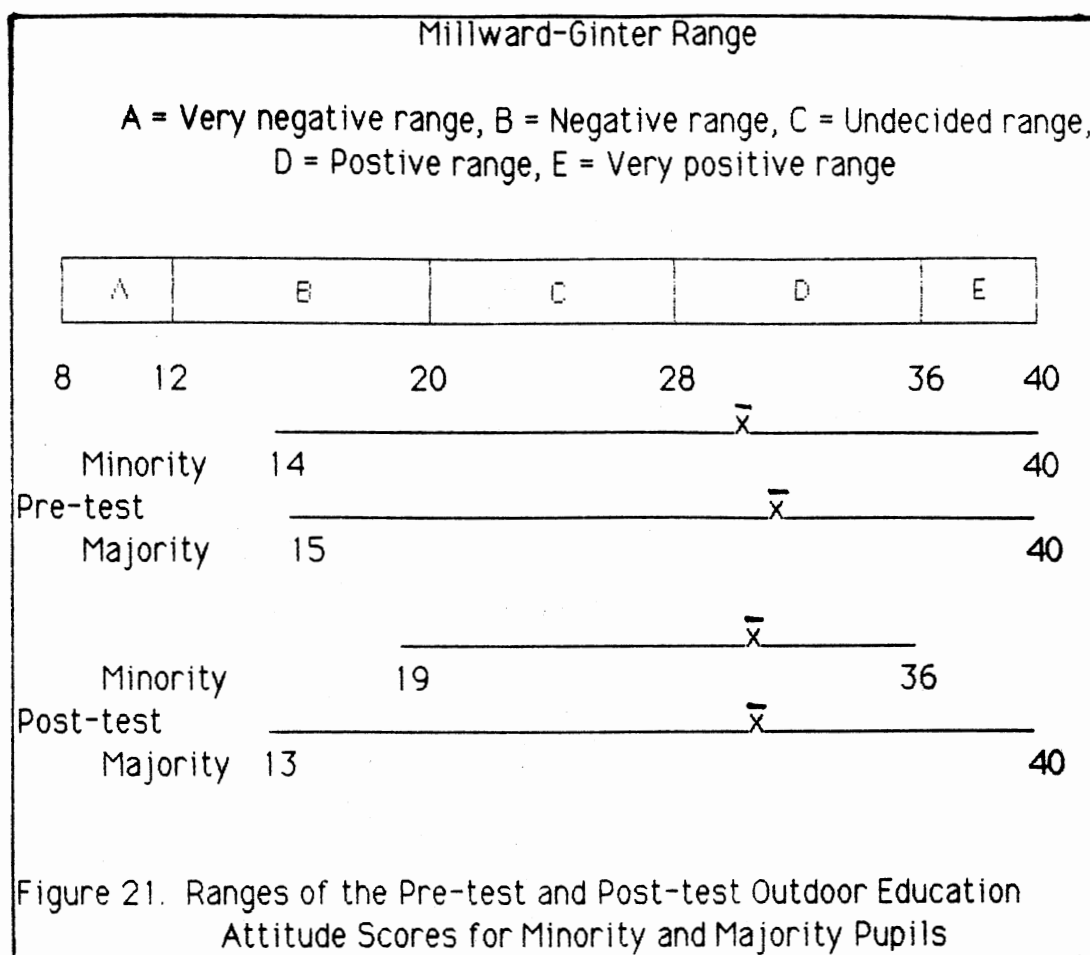


A comparison of pre- and post-test Environmental Attitude adjusted mean scores shows a probability value of 0.21 between means for minority and majority pupils (Table 14). After applying pre-test scores as the covariate, the difference between the adjusted post-test means was 1.34. This value was not significantly different at the .05 level of confidence. As a result the null hypothesis C6-a was not rejected.

Ho-C6-b. No significant difference exists between the adjusted mean post-test scores of minority and majority on the post-test for the Outdoor Education Attitude category.

The maximum range achieved by both groups limited the difference in mean scores once the post-test scores were adjusted. The mean scores were very consistent for the pre-test as well as the post-test with positive attitudes being the norm. This could be a result of the two 30 minute planning visits made to the classrooms by the Camp Tyler staff prior to the resident experience. Not only could attitudes be established by the camp staff, but also by the classroom teachers who would answer questions about the experience prior to the students' visit. The post-test range for minority pupils was reduced to 19-36 from the range of 14-40 on the pre-test. Some students in the Outdoor Education category gained whereas others lost due to the length of the outdoor experience (Figure 21).

A comparison of pre- and post-test Outdoor Education Attitude adjusted mean scores shows a value of 0.62 between means for minority and majority pupils (Table 15). After applying pre-test scores as the covariate, the difference between the adjusted post-test means was .34. This value was not significantly different at the .05 level of confidence. As a result the null hypothesis C6-b was not rejected.

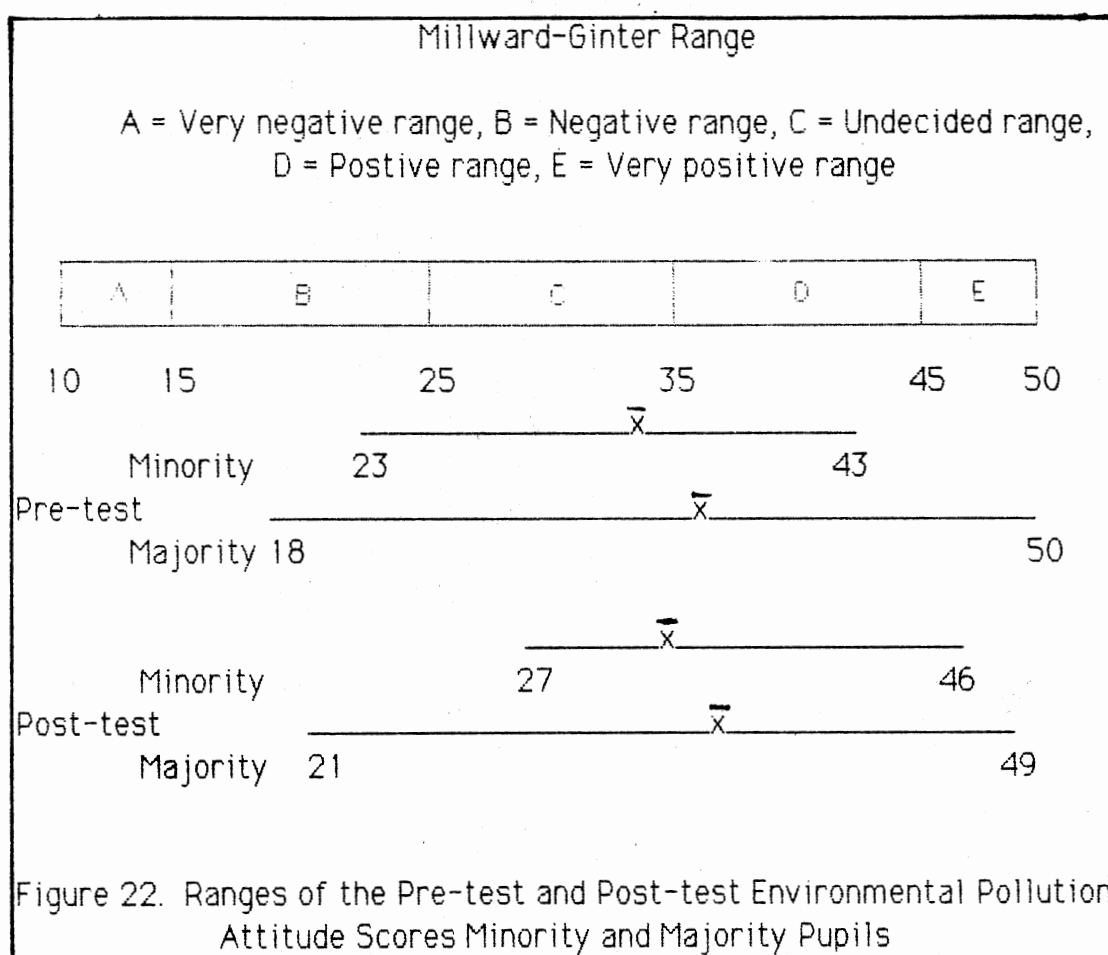


Ho-C6-c. No significant difference exists between the adjusted mean post-test scores of minority and majority on the post-test for the Environmental Pollution Attitude category.

It can be observed that the means remained almost unchanged after the resident outdoor experience. For minority vs. majority, the lower mean scores for Environmental Pollution vs. other category scores could be related to the fact that Environmental Pollution is a secondary curriculum area as compared to Social Skills at Camp Tyler (Figure 22).



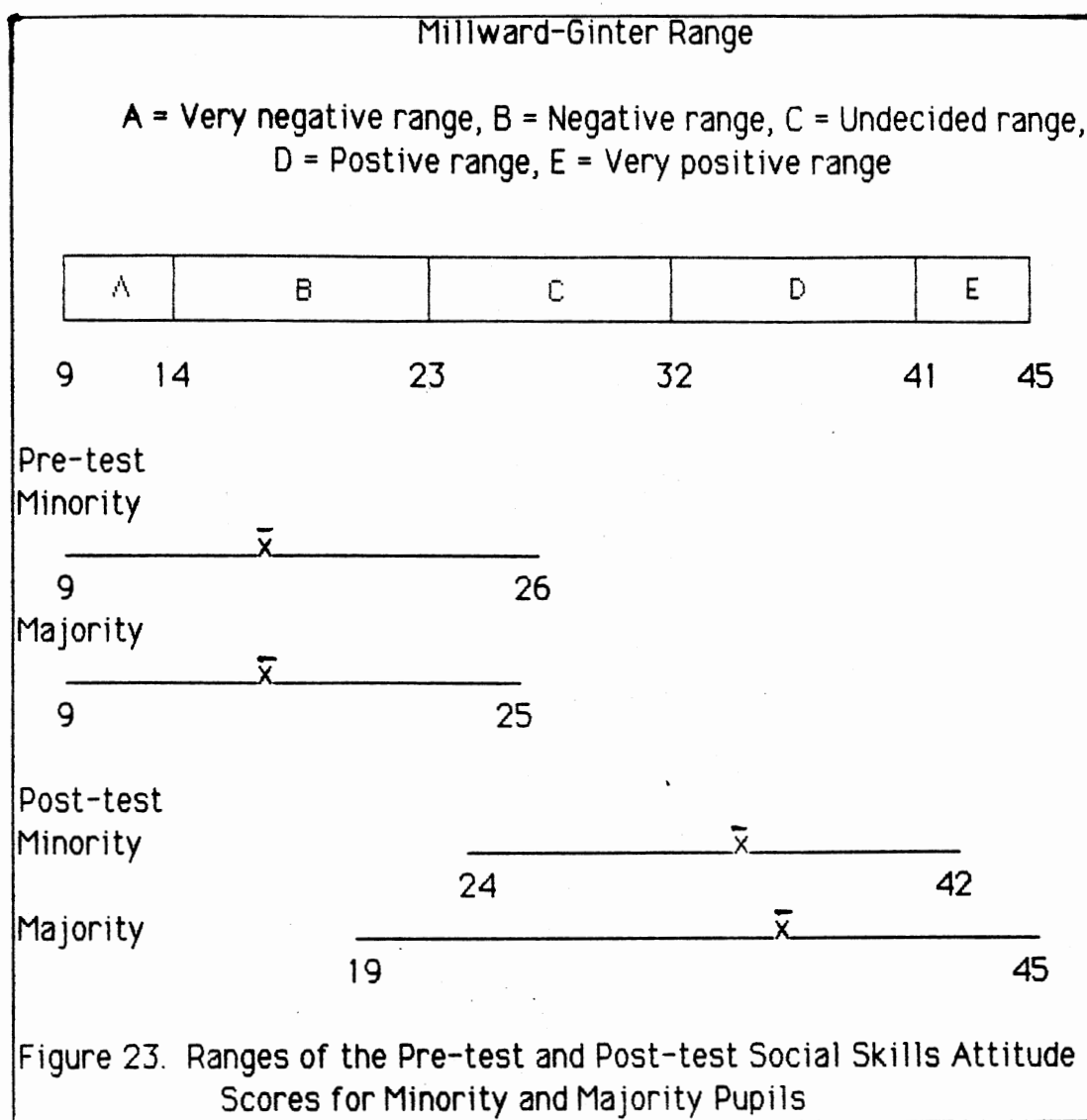
A comparison of pre- and post-test Environmental Pollution Attitude adjusted mean scores shows a value of 0.51 between means for minority and majority pupils (Table 16). After applying pre-test scores as the covariate, the difference between the adjusted post-test means was .44. This value was not significantly different at the .05 level of confidence. As a result the null hypothesis C6-c was not rejected.



**Ho-C6-d.** No significant difference exists between the adjusted mean **post-test scores** of minority and majority on the post-test for the Social Skills Attitude category.

Scores in this category were increased in a positive direction (Figure 23). The positive attitudes toward the social skills were achieved during meals, cooperative group learning, and also during nightly quiet time in the cabins. In all activities, students interacted with their peers and teachers in an informal manner. These kinds of interaction are reflected in how students responded to the questions for this category. The most positive response to a question in this category is listed first with the next positive question to follow until the least positive question is listed last.

A comparison of pre- and post-test Social Skills Attitude **mean scores** shows a probability value of 0.15 between means for minority and majority pupils (Table 17). After applying pre-test scores as the covariate, the difference between the adjusted post-test means was .97. This value was not significantly different at the .05 level of confidence. As a result the null hypothesis C6-d was not rejected.



**Ho-C7-a.** No significant difference exists between minority pre- and minority post-test for the Environmental Attitude category.

Exposure to the outdoor resident program changed attitudes of the minority students after their outdoor experience. This experience contributed to a change in attitudes in a positive direction. The listing of

questions from the most positive response to the least positive response of minority pupils according to rank for the Environmental Attitude category is cited in Table 38.

TABLE 38.

ENVIRONMENTAL ATTITUDE CATEGORY QUESTIONS STATED ACCORDING  
TO POST-TEST RANKING FOR MINORITY PUPILS

- 
- 21. Small streams in the woods are nice.
  - 10. If you leave most wild animals alone they will not harm you.
  - 17. Nature hikes are not exciting.
  - 25. We have many things to use in place of wood; therefore, forests are not important.
  - 27. I am interested in nature.
  - 43. It is wise for man to kill hawks, because hawks kill rabbits.
  - 29. In winter we should feed the birds.
  - 16. Animals that live on land are more important than animals that live in the water.
  - 11. We need all kinds of plant life.
  - 35. Forests are harmed when you take living plants home with you.
  - 31. Plants that live on land are more important than plants that live in the water.
  - 42. Bees are not helpful to man.
  - 14. I would enjoy living in the mountains.
  - 6. Hunting should be allowed all of the year.
  - 36. Spiders are not helpful to man.
  - 3. Our environment is helped by snakes.
-

A comparison of pre- and post-test scores for minority pupils in the Environmental Attitude category shows a value of 23.04 between means for minority pupils (Table 39). This difference was significantly different at the .0001 level of confidence. As a result the null hypothesis C7-a was rejected.

TABLE 39.

COMPARISON OF THE PRE- AND POST- MEAN SCORES IN THE ENVIRONMENTAL ATTITUDE CATEGORY FOR MINORITY PUPILS

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	35.19					
		1	13,800.04	13,800.04	213.17	.0001
Post-test	58.23					

N = 52    p < .05

**Ho-C7-b.** No significant difference exists between minority pre- and minority post-test for the Outdoor Education category.

The mean scores for the minority pupils were very similar on the pre-test and the post-test. The students had a positive attitude toward Outdoor Education prior to the experience and that is probably the reason for the very slight change in attitude. The listing of questions from the most

positive response to the least positive response of minority pupils according to rank for the Outdoor Education category is shown in Table 40.

A comparison of pre- and post-test scores for minority pupils in the Outdoor Education category shows a value of .35 between means for minority pupils (Table 41). This difference was not significant at the .05 level of confidence. As a result the null hypothesis C7-b was not rejected.

TABLE 40.

OUTDOOR EDUCATION CATEGORY QUESTIONS STATED ACCORDING  
TO POST-TEST RANKING FOR MINORITY PUPILS

- 
- 18. It is fun to learn in the outdoors.
  - 24. Outdoor subjects are interesting.
  - 37. Learning about plants and animals in the outdoors is not very interesting.
  - 26. It is a waste of time to study in the outdoors.
  - 22. The books I like are about nature.
  - 40. I should not have to learn about the outdoors if I am not interested in it.
  - 30. We do not learn enough about conservation in school.
  - 12. Outdoors is a place for playing--not for school.
-

TABLE 41.  
COMPARISON OF THE PRE- AND POST- MEAN SCORES IN THE  
OUTDOOR EDUCATION CATEGORY FOR MINORITY PUPILS

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	28.94	1	3.12	3.12	.17	.6804
Post-test	29.29					

N = 52    p > .05

Ho-C7-c. No significant difference exists between minority pre- and minority post-test for the Environmental Pollution category.

A positive mean occurred in the Environmental Pollution category with the students. This limited the amount of growth that could take place after the Camp Tyler experience. The listing of the most positive responses of minority pupils according to rank for the Environmental Pollution category is shown in Table 43.

A comparison of pre- and post-test scores for minority pupils in the Environmental Pollution category shows a value of .58 between means for minority pupils (Table 42). This difference was not significantly different at the .05 level of confidence. As a result the null hypothesis was not rejected.

TABLE 42.

ENVIRONMENTAL POLLUTION CATEGORY QUESTIONS STATED  
ACCORDING TO POST-TEST RANKING FOR MINORITY PUPILS

- 
39. The whole community must work together before the environment can be improved.  
 32. Pollution is caused by litter.  
 38. Pollution is not really as bad as people say it is.  
 15. When outdoors you should not drop even one piece of paper.  
 13. Writing to a senator about improving the environment will help.  
 7. We do not have to worry about litter where I live.  
 20. You do not have to worry about soil conservation if you live in a city.  
 5. Other planets can provide the earth with natural resources when ours run out.  
 23. Factories cause more pollution than do people.  
 2. I can do little to stop pollution.
- 

TABLE 43.

COMPARISON OF THE PRE- AND POST- MEAN SCORES IN THE ENVIRONMENTAL  
POLLUTION CATEGORY FOR MINORITY PUPILS

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	33.48					
		1	8.65	8.65	.40	.5303
Post-test	34.06					

N = 52    p > .05



Ho-C7-d. No significant difference exists between minority pre- and minority post-test for the Social Skills category.

The growth in a positive direction for minority pupils could be related to the interaction of students with their classmates, socializing during mealtime and evenings, and the development of a relationship with their teacher. This impression can also be realized by the positive response to working in a group and the excitement of just being out in the woods. These are steps taken at Camp Tyler to develop social skills. The listing of the most positive responses of minority pupils according to rank for the Social Skills category is cited in Table 44.

TABLE 44.

SOCIAL SKILLS CATEGORY QUESTIONS STATED ACCORDING  
TO POST-TEST RANKING FOR MINORITY PUPILS

- 
- 4. Being with other classmates in the outdoors is fun.
  - 19. It is easy to make friends with others at camp during dinner.
  - 8. It is nice to be with teachers in the outdoors.
  - 33. I enjoy working with a group of students outdoors.
  - 41. I don't get along well with teachers in the out-of-doors.
  - 28. It is exciting to be alone in the woods if you are not lost.
  - 34. It is hard to make new friends at camp.
  - 9. Planning activities with a group of classmates is difficult since it is hard to agree with each other.
  - 1. Undressing before going to bed with other classmates in the cabin bothers me.
-

A comparison of pre- and post-test scores for minority pupils in the Social Skills category shows a value of 16.81 between means for minority pupils (Table 45). This difference was significantly different at the .0001 level of confidence. As a result the null hypothesis C7-d was rejected.

TABLE 45.  
COMPARISON OF THE PRE- AND POST- MEAN SCORES IN THE  
SOCIAL SKILLS CATEGORY FOR MINORITY PUPILS

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	16.90					
		1	7,344.96	7,344.96	518.40	.0001
Post-test	33.71					

N = 52    p < .05

Ho-C8-a. No significant difference exists between majority pre- and majority post-test for the Environmental Attitude category.

According to the ranked questions in Table 46, it can be inferred that outdoor experiences such as nature hikes and understanding our relationship to wild animals changed the attitudes of majority pupils from a negative on the pre-test to a positive on the post-test. The listing of the most positive

responses of majority pupils according to rank for Environmental Attitude category is listed in Table 46.

TABLE 46.

ENVIRONMENTAL ATTITUDE CATEGORY QUESTIONS STATED ACCORDING  
TO POST-TEST RANKING FOR MAJORITY PUPILS

- 
- 21. Small streams in the woods are nice.
  - 10. If you leave most wild animals alone they will not harm you.
  - 25. We have many things to use in place of wood; therefore, forests are not important.
  - 17. Nature hikes are not exciting.
  - 29. In winter we should feed the birds.
  - 27. I am interested in nature.
  - 16. Animals that live on land are more important than animals that live in the water.
  - 11. We need all kinds of plant life.
  - 43. It is wise for man to kill hawks, because hawks kill rabbits.
  - 31. Plants that live on land are more important than plants that live in the water.
  - 6. Hunting should be allowed all of the year.
  - 42. Bees are not helpful to man.
  - 36. Spiders are not helpful to man.
  - 14. I would enjoy living in the mountains.
  - 3. Our environment is helped by snakes.
  - 35. Forests are harmed when you take living plants home with you.
-

TABLE 47.

COMPARISON OF THE PRE- AND POST- MEAN SCORES IN THE ENVIRONMENTAL ATTITUDE CATEGORY FOR MAJORITY PUPILS

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	37.54					
		1	62,616.06	62,616.06	1,265.48	.0001
Post-test	61.56					

N = 217    p < .05

The majority group also indicated that we need to feed the birds in the winter and that nature is interesting. This group feels that all animals, whether they live on the land or in the water are important.

A comparison of pre- and post-test scores for majority pupils in the Environmental Attitude shows a value of 24.02 between means for majority pupils (Table 47). This difference was significantly different at the .0001 level of confidence. As a result the null hypothesis C8-a was rejected.

**Ho-C8-b. No significant difference exists between majority pre- and majority post-test for the Outdoor Education category.**

Majority pupils established high scores at the pre-test level and thereby little attitude change could occur. The listing of the most positive responses of majority pupils according to rank for the Outdoor Education category is shown in Table 48. The ranges for majority pupils on the pre-test were 15-40 and the post-test were 13-40.

TABLE 48.

OUTDOOR EDUCATION CATEGORY QUESTIONS STATED ACCORDING  
TO POST-TEST RANKING FOR MAJORITY PUPILS

- 
- 18. It is fun to learn in the outdoors.
  - 24. Outdoor subjects are interesting.
  - 26. It is a waste of time to study in the outdoors.
  - 37. Learning about plants and animals in the outdoors is not very interesting.
  - 40. I should not have to learn about the outdoors if I am not interested in it.
  - 12. Outdoors is a place for playing--not for school.
  - 30. We do not learn enough about conservation in school.
  - 22. The books I like are about nature.
- 

TABLE 49.

COMPARISON OF THE PRE- AND POST MEAN SCORES IN THE  
OUTDOOR EDUCATION CATEGORY FOR MAJORITY PUPILS

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	28.74					
		1	22.13	22.13	.82	.3658
Post-test	29.29					

N = 217    p > .05

A comparison of pre- and post-test scores for majority pupils in the Outdoor Education category shows a value of .55 between means for majority pupils (Table 49). This difference was not significantly different at the .05 level of confidence. As a result the null hypothesis was not rejected.

Ho-C8-c. No significant difference exists between majority pre- and majority post-test for the Environmental Pollution category.

The pre-test range of 18-50 and high positive pre-test scores made it difficult for significantly higher scores to be achieved on the post-test with a range of 21-49. In addition, a higher positive attitude score may be unwarranted because of the small amount of instruction time spent on this topic. This group indicated that pollution is a problem and that we as a community must work together to correct this problem. The listing of the most positive responses of majority pupils according to rank for the Environmental Pollution category is shown in Table 50.

A comparison of pre- and post-test scores for majority pupils in the Environmental Pollution category shows a value of .13 between means for majority pupils (Table 51). This difference was not significantly different at the .05 level of confidence. As a result the null hypothesis C8-c was not rejected.

TABLE 50.

ENVIRONMENTAL POLLUTION CATEGORY QUESTIONS STATED  
ACCORDING TO POST-TEST RANKING FOR MAJORITY PUPILS

- 
38. Pollution is not really as bad as people say it is.  
 39. The whole community must work together before the environment can be improved.  
 15. When outdoors you should not drop even one piece of paper.  
 32. Pollution is caused by litter.  
 7. We do not have to worry about litter where I live.  
 23. Factories cause more pollution than do people.  
 13. Writing to a senator about improving the environment will help.  
 20. You do not have to worry about soil conservation if you live in a city.  
 2. I can do little to stop pollution.  
 5. Other planets can provide the earth with natural resources when ours run out.
- 

TABLE 51.

COMPARISON OF THE PRE- AND POST- MEAN SCORES IN THE ENVIRONMENTAL  
POLLUTION CATEGORY FOR MAJORITY PUPILS

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	35.19	1	1.94	1.94	.08	.7832
Post-test	35.32					

N = 217    p > .05

Ho-C8-d. No significant difference exists between majority pre- and majority post-test for the Social Skills category.

In the Social Skills category students' attitudes grew in a positive direction after the Camp Tyler experience. These attitude changes may be related to the positive experiences with classmates and teachers in this outdoor resident environment. The listing of the most positive responses of majority pupils according to rank for the Social Skills category is cited in Table 52.

TABLE 52.

SOCIAL SKILLS CATEGORY QUESTIONS STATED ACCORDING  
TO POST-TEST RANKING FOR MAJORITY PUPILS

- 
- 4. Being with other classmates in the outdoors is fun.
  - 41. I don't get along well with teachers in the out-of-doors.
  - 33. I enjoy working with a group of students outdoors.
  - 8. It is nice to be with teachers in the outdoors.
  - 19. It is easy to make friends with others at camp during dinner.
  - 34. It is hard to make new friends at camp.
  - 28. It is exciting to be alone in the woods if you are not lost.
  - 1. Undressing before going to bed with other classmates in the cabin bothers me.
  - 9. Planning activities with a group of classmates is difficult since it is hard to agree with each other.
-



A comparison of pre- and post-test scores for majority pupils in the **Social Skills** category shows a value of 17.81 difference in means for majority pupils (Table 53). This difference was significantly different at the .0001 level of confidence. As a result the null hypothesis C8-d was rejected.

TABLE 53.

COMPARISON OF THE PRE- AND POST- MEAN SCORES IN THE  
SOCIAL SKILLS CATEGORY FOR MAJORITY PUPILS

Source	$\bar{x}$	df	SS	MS	F	p
Pre-test	16.86	1	34,402.06	34,402.06	2,020.36	.0001
Post-test	34.67					
N = 217    p < .05						

Table 54 identifies each sub-category in this study along with the **statement number** on the pre-test and the corresponding post-test number for the conversion of questions.

Tables 55-58 the questions in each sub-category are ranked according to the highest positive response to the lowest positive response. Pre- and post-test question numbers are listed for each group. The question numbers on the post-test were substituted with pre-test question numbers so that a

pre/post-test comparison could be made. The tables represent the Environmental Attitude, Outdoor Education, Environmental Pollution, and Social Skills categories respectively. For example, in Table 55, Question 31 on the male pre-test is now the same question as number 31 on the post-test. It is interesting to note the following ranking in questions 2, 6, 31, and 40. Question 2, "Most wild animal are not dangerous if left alone." Question 6, "We can get along without bees." Question 31, "Nature interests me." Question 40, "Hunting should be a year-round sport." In Table 56 the ranking of question 7 and 41 should be noted. Question 7, "There are more interesting things to do than to learn about plants and animals in the outdoors. For Table 57, the rankings of Question 9 and 29 are noted. Question 9, "My class alone cannot do much to improve the environment." Question 29, "When natural resources are used up on the earth we can get them from another planet." A considerable shift in the rankings of Question 17 and 23. The questions are: Question 17, "I enjoy working with a group of students outdoors." Question 23, "It is easy to make friends at camp during supper." Question 17 was ranked less positively on the post-test for the minority group, but Question 23 was ranked more positively on the post-test for this group.

TABLE 54.

## ASSIGNMENT OF STATEMENTS FOR EACH SUB-CATEGORY

Sub-category	EA		OE		EP		SS	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
	2	10	7	37	1	20	5	1
	6	42	12	18	3	15	10	3
	8	14	13	26	4	38	11	41
	14	25	20	30	9	39	16	9
	15	3	24	40	21	7	17	33
	26	6	27	12	22	23	18	8
	28	43	32	24	29	5	19	28
	31	27	41	22	30	13	23	19
	33	21			39	32	25	34
	34	29			43	2		
	35	35						
	36	11						
	37	36						
	38	31						
	40	6						
	42	17						

TABLE 55.

## QUESTIONS RANKED FOR THE ENVIRONMENTAL ATTITUDE CATEGORY

QUESTION RANKING	MALE		FEMALE		MINORITY		MAJORITY	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST
1	31	33	33	33	33	33	33	33
2	33	2	31	2	31	2	31	2
3	34	14	34	14	34	42	34	14
4	42	42	14	42	14	14	42	42
5	2	34	42	40	26	31	14	34
6	26	31	26	34	42	28	26	31
7	14	36	36	31	36	34	2	26
8	36	28	2	26	2	26	28	36
9	28	26	38	38	38	36	36	28
10	8	8	28	36	28	35	38	38
11	38	6	40	28	8	38	8	40
12	37	38	35	6	40	6	37	6
13	15	37	8	37	35	8	35	37
14	35	40	37	35	37	40	40	8
15	40	15	6	8	15	37	15	15
16	6	35	15	15	6	15	6	35

TABLE 56.

## QUESTIONS RANKED FOR THE OUTDOOR EDUCATION CATEGORY

QUESTION RANKING	MALE		FEMALE		MINORITY		MAJORITY	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST
1	12	32	32	12	12	12	32	12
2	32	12	12	13	32	32	12	32
3	13	13	13	32	13	7	13	13
4	24	7	24	7	41	13	24	7
5	41	24	41	24	24	41	41	24
6	20	41	27	27	20	24	20	27
7	27	20	20	20	27	20	27	20
8	7	27	7	41	7	27	7	41

TABLE 57.

## QUESTIONS RANKED FOR THE ENVIRONMENTAL POLLUTION CATEGORY

QUESTION RANKING	MALE		FEMALE		MINORITY		MAJORITY	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST
1	39	4	39	3	39	9	39	4
2	3	9	4	4	3	39	4	9
3	4	39	3	39	4	4	3	3
4	29	3	29	9	29	3	29	39
5	9	21	21	21	1	30	9	21
6	43	30	9	30	21	21	21	22
7	30	1	43	1	30	1	43	30
8	21	29	1	43	9	29	30	1
9	22	43	30	29	22	22	1	43
10	1	22	22	22	43	43	22	29

TABLE 58.

## QUESTIONS RANKED FOR THE SOCIAL SKILLS CATEGORY

QUESTION RANKING	MALE		FEMALE		MINORITY		MAJORITY	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST
1	10	10	10	10	17	10	10	10
2	17	17	17	18	10	23	17	11
3	19	11	18	11	11	18	11	17
4	11	19	11	17	18	17	18	18
5	23	23	23	23	23	11	19	23
6	25	25	25	25	19	19	23	25
7	18	18	19	19	16	25	25	19
8	5	5	16	5	5	16	5	5
9	16	16	5	16	25	5	16	16

Table 59 shows the difference in the post-test mean scores compared with the pre-test mean scores for each group in each sub-category including the total MGOAI. The mean scores with an asterisk indicate which scores were statistically significant.

TABLE 59.

A COMPARISON OF POST MINUS PRE- MEAN SCORES FOR MALE/FEMALE  
AND MINORITY/MAJORITY ON THE PRE- AND POST-TEST

SOURCE	EA	OE	EP	SS	TOTAL
MALE	24.80*	-0.34	.24	17.36*	42.06*
FEMALE	22.76*	-0.25	.19	17.90*	40.60*
MINORITY	23.04*	.35	.58	16.81*	40.77*
MAJORITY	24.02*	-0.45	.13	17.81*	41.51*

p < .05



## Summary

The results from the two tests administered to the students who participated in the outdoor environmental education experience have been reported in this chapter. The data were obtained from a comparison of responses to the forty-three item questionnaire -- Form A and Form B -- developed by Robert Millward and identified as the Millward-Ginter Outdoor Attitude Inventory. Form A was administered one week prior to the Camp Tyler experience and Form B, one week after the experience.

The attitudinal measuring instrument used in this study measured affective behavior only. All students were given the same treatment; no control group was used. Although no certainty exists that a change in attitude will result in a change in behavior patterns, in this study it was assumed that a significant change in attitude in the positive direction would result in more positive behavior for students in the four categories under consideration: the natural environment, outdoor education, environmental pollution, and social skills. Analysis included comparisons of attitudes of male vs. female and minority vs. majority toward statements about the four categories listed above.

The comparisons began with the pre-test means of males, females, minority, and majority groups (unadjusted), followed by the post-test means of males, females, minority, and majority groups (adjusted). All comparisons are listed in tables which illustrate the findings of the compilations of the data. Figures are used to show comparisons of ranges of scores indicated by the students who were tested as these scores relate to the various hypotheses. The figures show the ranges of the Millward-Ginter

**Outdoor Attitude Inventory** and the corresponding ranges of students' responses to all aspects of the four categories of the instrument.

This investigator found from the students' responses to individual questions that the male, female, minority, and majority groups responded similarly in each category. This similarity is supported by the fact that the top three and bottom three question rankings were similar for each sub-category.

The categories of environmental attitude and social skills were areas where a positive impact was made. Group members were able to benefit from the residential outdoor experience especially in the areas of environmental attitude and social skills. These categories indicate that students as a whole whether male or female, or a member of a minority group had a positive change in their attitude about the environment and a more positive feeling about friends, classmates, and teachers after this experience.

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Summary

##### Overview of Study

The overall purpose of this study was to determine the influence of the Camp Tyler educational experience on the attitudes of fifth-grade pupils. For greater insight into this program, the study also compared the response of male vs female, and minority vs majority fifth-grade students toward outdoor education, social skills, pollution, and the natural environment. The following procedures were employed:

1. Identifying the demographic data of the students.
2. Analyzing the total male/female, minority/majority pre- and post-test attitude scores of the students.
3. Analyzing the sub-categories of the attitude inventory to determine the types of attitudes most affected by a resident outdoor environmental experience.

This study was completed in the Tyler Independent School District Outdoor School Laboratory on Lake Tyler, near Tyler, Texas. The field testing for this study occurred during the 1986-87 school year. Two hundred sixty-nine (269) fifth-grade students participated in the testing; they represented all fifth-graders from 14 classrooms in six elementary

schools in the Tyler school district. These were not all of the students in the fifth-grade. Because of the time element involved in locating a suitable instrument to collect the data and in getting approval from the school administration to give the tests, time was lost and so was the opportunity to test all of the fifth-graders in the system. There were administrative constraints that set parameters within which the study had to be conducted.

The students were pre-tested a week prior to their outdoor education experience and were post-tested one week following this experience. Fifth-grade students have attended this residential camp every year since 1949. The philosophy that was established then can be found in **Appendix C**. Since its inception, this program has never been critically examined using an empirical evaluation model.

Although instruments and articles on outdoor environmental education have differed from one study to another, similar findings have been reported. The influence of one's attitudes toward outdoor concepts is not determined by gender; resident outdoor environmental education has a positive effect on one's social attitude, as well as a similar effect on one's attitude toward the outdoors; and outdoor education encompasses all subjects within the elementary curriculum. Subject matter can be utilized to effect attitude change toward outdoor concepts.

### Conclusions

As a nation, we cannot afford environmentally insensitive and illiterate citizens. Over the past 10 years, one of the major issues involves the relative importance of concepts vs attitudes as the major objective of environmental education.

Based on the conclusions reached by professionals in environmental education from their case studies, sensory and perceptual awareness of the natural world and environmental problems is a prerequisite for the development of positive environmental attitudes. Not only do most students perceive the outdoors as a place to see certain natural objects, but also a place to hear, smell, and feel natural objects.

Few educators or researchers would disagree that students in the fifth-grade should be assisted in the development of their attitudes and values about environmental problems. Disagreement often arises, however, when specific methods are suggested for changing attitudes and values and when certain attitudes and values are advocated over others. All fifth-grade students in the Tyler (TX) Independent School District spend four days and three nights in a learning environment geared toward helping the students see and/or learn the interrelationship of man and the environment.

Little research has been done to determine what educational content is appropriate for outdoor education experiences (Donaldson, 1972) and whether changes resulting from a resident stay at an outdoor facility has longevity for a student when he/she returns to the classroom and everyday living (Disinger 1984). This investigator found through reviewing the literature and personal experience that the camp living does provide a more stimulating learning environment for some fields of study than does the classroom.

This investigator also found through analysis of the pre-test data and post-test that outdoor environmental education is an appropriate way of instruction to move students' perceptions of their school, their teacher, as well as themselves, in a positive direction as suggested by Alikhani (1986).

The perceptions of the students toward the environment changed. In the **environmental education** sub-category which includes attitudes about animals, plants, nature, forests, and aesthetics the perceptions shifted in a positive direction. This change could result from students having acquired more of an understanding of the environment after the outdoor experience. This experience allows students to understand and visualize their role on the earth.

In this current Camp Tyler study on the influence of a public school resident outdoor environmental education program, the attitudes of fifth-grade students were examined before and after a resident **camp** experience. This study, like that of Carlson and Baumgarten (1974), was designed to assess the relationship between pre/post activities.

The major research questions and findings are briefly summarized in this chapter.

1. Do pupils have different attitudes toward outdoor environmental activities before attending and after attending a residence camp as measured by the responses to pre-test score (Form A) and post-test score (Form B) for all participants on the Millward-Ginter Outdoor Attitude Inventory?

The participants have a definite positive attitude shift following the **resident camp experience**. This positive attitude is expressed by all groups that participated in this study during the post-test. The camp experience changed attitudes in males, females, minority, and majority groups. There is a noticeable change in the students from the pre-test where the majority of the students were unsure of their attitude as compared to the post-test where the majority of students had a positive attitude on the MGOAI.

2. Do males and females have different attitudes toward outdoor environmental activities before attending a resident camp?

On the average, males and females have very similar attitudes before attending camp. The attitudes that males and females have about outdoor environmental activities is undetermined. Before attending camp these students are not really sure what to expect. Their attitudes are mixed because of what has been presented by classroom teachers, relatives, and friends. Many preconceived ideas are established because of past experiences related to the term "camp."

3. Do males or females have different attitudes toward outdoor environmental activities following attendance at a resident camp?

After attending a resident camp, males and females have similar attitudes. These attitudes are positive because of the exposure to outdoor environmental activities. Males and females have an equal opportunity to experience various types of hands-on activities, such as nature hikes, arts and crafts, and doing farm chores. This participation by all students develops attitudes that would otherwise be left to speculation and misinformation.

4. Do males have different attitudes toward outdoor environmental activities after attending a resident camp?

A definite change in attitude occurred in males after a resident camp experience. This positive change was the result of experiences in the outdoors such as logging, cooking out, and aquatic study, where the students were able to gain a better understanding of the world around them.

5. Do females have different attitudes toward outdoor environmental activities after attending a resident camp?

The attitudes of females changed positively after a resident camp experience. Students were allowed to mix and mingle to get to know their classmates and teachers better. This experience changed the students attitudes after camp.

6. Do males or females have different attitudes toward outdoor environmental activities after attending a resident camp?

After this outdoor experience, males and females had positive attitudes. The attitudes of males and females were similar and **both groups** were able to benefit from the activities presented. This is a **positive fact** because the experience is directed toward all students.

7. Do males or females have different attitudes toward outdoor environmental activities after attending a resident camp in the categories of (a) environmental attitude, (b) outdoor education, (c) environmental pollution, and (d) social skills?

After participating in outdoor environmental activities that related to activities about the environment, using the outdoors as a learning environment, the status of pollution, and the relationship with classmates, teachers, and new friends, males and females have similar attitudes toward **each of these categories**. The environmental attitude and social skills **categories were** the categories where significant positive attitude gains were made by males and females. Neither the male nor female students have negative attitudes toward any of the categories.



8. Do males have different attitudes toward outdoor environmental activities pre- and post-test mean scores in the categories of (a) environmental attitude, (b) outdoor education, (c) environmental pollution, and (d) social skills?

The attitudes of males made a positive change from the pre- to the post-test in the environmental attitude and social skills categories. The aesthetics, the actions of wild animals, and the importance of forest were the highest positive responses to areas in the environmental attitude category. In the social skills category, the male students responded most positively to sharing the outdoor experience with classmates, and their teachers. In the categories of outdoor education and environmental pollution the male students made attitude changes that were not significant.

9. Do females have different attitudes toward outdoor environmental activities pre- and post-test mean scores in the categories of (a) environmental attitude, (b) outdoor education, (c) environmental pollution, and (d) social skills?

Females had significant positive attitude differences in the environmental attitude and social skills categories. The females had the high positive responses on questions about the aesthetics, the actions of wild animals, and the importance of forest. These responses were the same areas for males. As with the male students, female responses were not significantly different toward outdoor environmental activities in the outdoor education and environmental pollution categories.

10. Do minority and majority pupils have different attitudes toward outdoor environmental activities before attending a resident camp?

Prior to attending a resident camp minority and majority pupils had significantly different attitudes about outdoor environmental activities. The pre-test mean responses for minority and majority pupils indicated that they were undecided about their attitudes. The difference is related to personal experiences, socio-economic status, or educational activities.

11. Do minority and majority pupils have different attitudes toward outdoor environmental activities following attendance at a resident camp?

The minority and majority pupils had significantly different attitudes following the camp experience. This experience allowed the minority and majority pupils to develop positive attitudes. The differences are consistent for minority and majority pupils.

12. Do minority pupils have different attitudes toward environmental activities after attending a resident camp?

After the resident camp experience, minority pupils made a definite positive attitude change. This is a result of exposure to outdoor activities. The new experience allows for discoveries to be made regardless of economic status or previous experiences. This is an indication of a group that benefited from the resident camp experience.

13. Do majority pupils have different attitudes toward outdoor environmental activities after attending a resident camp?

Majority pupils have positive attitudes following attendance at a resident camp. The outdoor activities meet the needs of the majority students because they are able to progress to a positive attitude after the resident camp experience. The majority were unsure of their attitudes about the outdoor experience but changed positively after the experience.

**14. Do minority and majority pupils have different attitudes toward environmental activities after attending a resident camp?**

The attitudes that the minority and majority pupils had prior to attending the resident camp were similar. The attitudes after the experience were also similar because the activities experienced by the minority and majority groups were similar. This activities allowed for a common experience to be shared among all groups.

**15. Do minority and majority pupils have different attitudes toward outdoor environmental activities after attending a resident camp in the categories of (a) environmental attitude, (b) outdoor education, (c) environmental pollution, and (d) social skills?**

When comparing minority and majority pupils, they have similar attitudes about each category after attending the resident camp. Minority and majority pupils have positive attitudes of the environmental attitude, outdoor education, and social skills. The minority students have a negative attitude in the environmental pollution category, but the majority students have a positive attitude in this category. The increases in attitudes for the outdoor education and environmental pollution were minimal. This relates to the realization that the categories of outdoor education and environmental pollution are curriculum weaknesses.

**16. Do minority pupils have different attitudes toward outdoor environmental activities pre- and post-test mean scores in the categories of (a) environmental attitude, (b) outdoor education, (c) environmental pollution, and (d) social skills?**

Again, the categories of environmental attitude and social skills are identified as areas with strong positive attitude differences when the

pre- and post-test mean scores are compared for minority pupils. The minority pupils attitudes are not change significantly in any direction in the categories of outdoor education or environmental pollution.

17. Do majority pupils have different attitudes toward outdoor environmental activities pre- and post-test mean scores in the categories of (a) environmental attitude, (b) outdoor education, (c) environmental pollution, and (d) social skills?

Majority pupils have definite positive attitude differences in the environmental attitude and social skills categories. Outdoor experiences such as nature hikes and understanding our relationship to wild animals change the majority pupils' attitudes. The majority responded similar to the majority group in the outdoor education and environmental pollution categories.

One of the findings was concerned with attitudes possessed by the students toward classmates, school, teachers, school camping, self, and friends. This researcher also found that living in a camp environment where getting along with others was very important, the students soon learned to mix and mingle with students from their school but not necessarily from their self-contained homeroom group.

The social attitudes of the students changed from the pre-test to the post-test. There was a considerable gain in the social skills category of the inventory. This was shown by the responses to questions on topics of working with classmates, making friends at meal time, and getting along with the teacher. These areas helped to strengthen self-development and social growth.

This researcher agrees with Stapp (1971) that schools have an

**important responsibility** in providing opportunities for youth to explore **their environment**, both physically and intellectually. The factual knowledge (cognitive domain of an attitude) and the motivating concern (affective domain of an attitude) regarding man's relationship and responsibility within the human ecosystem are necessary to operate in harmony with the system. An experience such as this provides for an inclusion of both the cognitive and affective domains. The outdoor environmental program allows for knowledge to be obtained and "hands on" type of activities to be experienced. This helps to develop a more **physical** and intellectual student.

Schools facilitate the development of appropriate **environmental** attitudes through a combination of different methods. Teachers **provide** students with factual information about the environment from the **textbook**. The Camp Tyler experience is an extension of the classroom, not an event lacking advance organization. Howie (1974) reached a similar conclusion. The length of time spent at the site provides time for students to explore and participate in activities, especially pioneer life. In addition, students work in small groups and thereby get the opportunity to interact with their discoveries.

When a teacher is trying to influence change in a positive direction, **he/she must** involve the students in the planning of activities, get them **committed to a project**, get them to search for information about the project, and get them to freely interact with the teacher and classmates. The environmental or classroom atmosphere must be conducive to freedom of speech and freedom of action. These freedoms must be kept within the confines of respect for others. The student who becomes so involved and

committed to an activity may in the proper atmosphere freely volunteer to discuss or pursue a particular topic.

A number of similarities exist between the field instruction situations conducted in elementary and secondary schools. According to Disinger (1984), the most prominent similarity being that affective, not cognitive, learning has traditionally been the primary objective of field instruction at all levels-K-12. Knapp (1972) has proposed that instruction in environmental education take place in the elementary and/or middle school because many attitudes are established and fixed by the time a student reaches high school.

The fifth-graders have demonstrated more positive attitudes toward classmates, school, teachers, school camping, self, and friends after the Camp Tyler experience. Following the resident experience, the mean students' attitudes changed from the undecided range to the positive range. This change resulted from a more positive response on Environmental Attitude sub-category questions dealing with animals, insects, and aesthetics.

In the sub-category of Social Skills, students also demonstrated a positive attitudinal shift. This area involved the students' views of themselves working in the outdoor environment with peers and teachers. The fifth-graders' attitudes were the same before the outdoor experience in the Outdoor Education and Pollution sub-categories. The Outdoor Education area addressed attitudes such as using the outdoors to learn about conservation, plants, and animals. The Pollution category focused on students' interpretations of what was considered pollution and litter: pollution is not really as bad as people say it is; before the pollution

situation can be improved the whole community must work together; and pollution is caused by litter are the top three perceptions which students indicated on the MGOAI.

The data comparing male/female mean score gains in each sub-category showed that the difference between male and female students was not significant enough to make one superior to the other. We can, therefore, conclude that both males and females grew equally from the activities of the Camp Tyler experience.

Minority and majority students had different pre-test scores as well as different post-test scores. The significant increase favored the majority students before and after the Camp Tyler experience. The minority students' gain on the Millward-Ginter Outdoor Attitude Inventory after the residential experience was a significant positive increase. The gain of majority pupils on the Millward-Ginter Outdoor Attitude Inventory after the experience was significant and also a positive increase. However, the mean gain score difference between minority and majority pupils before and after the outdoor environmental experience was not statistically significant. This was indicated by adjusting post-test scores using pre-test scores as the covariate in an analysis of covariance. Each of the sub-categories comparisons was not significant. It can be concluded that the Camp Tyler experience provides benefits for both minority and majority groups. Personal experience and literature show evidence to support the idea that residential outdoor programs are better suited to changing negative attitudes than are the classroom programs.

In some cases, the findings of this research are supported and consistent with the study done by Millward (1973), whose instrument was

used in this study. In his study, the gain of the total population was in a positive direction following a resident camp experience. The sub-categories of Environmental Attitude and Social Skills which involved students' attitudes about the natural environment and relationship to their peers and teachers in the outdoors were also found to be statistically significant. These categories were also identified as statistically significant in a positive direction for Camp Tyler fifth-graders. The sub-categories of Environmental Pollution and Outdoor Education which focused on students' interpretations of pollution, litter, and use of the outdoors as a learning environment remained the same. Millward found this to be the case in his study.

Many of the students in Tyler, Texas started with a positive attitude toward the environment. The camp experience increased their positive attitude. The mean scores of the total population before and after the resident experience shifted from undecided to positive after the experience. Areas that made sizable gains were the environment and social skills. Before the resident experience, 50% of the population responded negatively to the environment, but after the experience this same group indicated a positive attitude toward the environment. In the area of social skills, students also responded negatively prior to the experience. After the resident experience, 50% of the total student population responded positive or very positive to their camp experience.

When considering males and females differences, males and females both made considerable gains from the pre-test to the post-test period. Each group entered with an undecided attitude being average and exited with more of a positive attitude to the total program. In the sub-



categories, only the Social Skills attitude category noted a favorable gain by females.

In conclusion, the total population experiencing this resident outdoor environmental program changed its attitude in a positive direction. Males and females changed their attitudes in a positive direction as did both minority and majority students. This resident outdoor experience is the type of experience necessary for improving the quality of environmental education.

The Camp Tyler study was chosen because no definitive report of students' attitudes toward the Camp Tyler program exists. I attended Camp Tyler as a sixth-grade student in 1968. In 1978, I returned to Camp Tyler to work as a teacher/counselor after having received my bachelor of science degree. I believe that the Camp Tyler program has influenced me in a positive direction. This research is a more objective method to analyze the value of the program and its influence on children.

This study should be read by the administrators, faculty members, and patrons of the Tyler (TX) Independent School District. It will assist them in making wise decisions about the future of Camp Tyler. As the elementary school consultant plans his/her work, this study should be one source from which he/she can draw information to correlate the regular classroom textbook information with that derived from the Camp Tyler experience.

The description and analysis of the Camp Tyler experience and changes in student development may provide a model for other school systems. This researcher concludes that the outdoor education experience is effective in promoting understanding of environmental problems and growth of positive self-concepts, changes in attitudes of "outdoors," the value of "hands-on"

learning, and an increased awareness of the need for environmental responsibility.

### Recommendations

On the basis of the findings of this study and the related literature the following recommendations are presented:

The curriculum of the resident camp should continue the same emphasis and content in the areas of social skills development and the natural environment as measured by these sub-scales. The curriculum related to instruction of concepts and attitudes toward pollution and outdoor education should be analyzed for its content and relative emphasis. This analysis is in response to the relatively small gains on these sub-categories. Because Camp Tyler is the outdoor education laboratory of the Tyler Independent School District, it seems that much more emphasis should be placed on activities, discussions, and/or questions and answer periods about outdoor education and its basic components.

Longitudinal studies of students who have participated in the Camp Tyler experience, perhaps in the seventh grade, should be established to determine the long-term influence of the resident camp program, especially the areas of Environmental Attitudes and Social Skills. Future research should be conducted on the specific positive and negative attitudes as reflected by high and low scores on individual Millward- Ginter Outdoor Attitude Inventory items.

The positive student responses in the Social Skills and Environmental Attitudes sub-categories indicate that the content and methods associated with these areas are successful. An analysis of the camp activities that

might contribute to the high scores for these two areas should be made. Knowing the staff philosophy, content, methods, and procedures related to the Social Skills and Environmental Attitudes sub-categories could be beneficial in revising and enhancing the kind of activities related to the Environmental Pollution and Outdoor Education sub-categories. The Camp Tyler program should be continued because of its ability to nurture students with low pre-test scores in Environmental Attitudes and Social Skills and its ability to increase them in a positive manner. Students who attend this program will be the decision makers of the future. They need a knowledge base to make intelligent choices which will affect the quality of their lives and those of others.

In-service teacher training programs directed toward the areas of pollution and outdoor education attitudes should be made available for the Camp Tyler staff and fifth-grade teachers. Pre-service teachers should be instructed in environmental education so they will develop an awareness of its implications and possible changes in students' attitudes.

Public schools could benefit from a resident outdoor environment program especially if the schools serve a multi-cultural population. Not only would the public school profit, but also the city/town, community, and nation. Consider the impact of a community school-resident outdoor facility--where minority/majority status is not a significant factor in forming a student's positive attitudes toward his/her school mates, teachers, and school in general. Administrators might consider developing a resident camp curriculum which could increase the positive attitude of students toward school. This idea has the potential of curbing the truancy and the dropout problems which face today's schools.

The Camp Tyler staff should continue to use the "hands on" approach of teaching in the outdoors to establish that much needed contact with the earth so students are able to make realistic decisions about the world in which they live. The staff and administration are to be commended for an excellent program.

In this researcher's opinion, a curriculum should be developed with a working knowledge of what a resident outdoor environmental education program is. Because many definitions and many synonyms exist for outdoor environmental education, perhaps the definition should be broad. Yet within a broad-based definition, the curriculum may try to cover too much territory. In an attempt to narrow the scope, let us use the narrow definitions of what I refer to as a "working knowledge" of each:

(1) Resident outdoor education - The educational experiences that take place when a school uses a resident camp for several days and nights; (2) Outdoor education - A wide variety of learning experiences that take place in an outdoor setting and are directed at improving the skills, appreciations and attitudes needed for maximum satisfaction in outdoor recreation and activities; (3) Environmental education - The development of concepts and attitudes in humans as reflected in their behavior toward their physical environment; (4) Field instruction - The instruction that takes place within the school day, but outside the regular classroom and away from the school campus.

I would encourage each teacher to review current literature on outdoor education through books, magazines, pamphlets, newsletters, and journals; to join professional associations for environmental education; and to become knowledgeable of environmental education curriculum. Such

activity would improve the teachers knowledge of environmental education and to be able to communicate and impart this information to his/her students.

The director of the facility or some one designated by him/her would give a brief history of outdoor education and a history of the district's facility. What is done at the facility? Equipment? Maintenance? Purpose of the facility?

Students need to know that going to Camp Tyler or Camp XYZ is not all fun and games. Before going to camp, students will have planned with their teachers the unit in their course of study about which they would like to follow through on the camp experience. A trip around the nature trail is a must and the guiding terms and uses of the natural resources should be given high priority.

I suggest that the in-service teacher (5th grade) should visit the camp when the program is in session, before he/she accompanies his/her classroom students. It would seem that not only would he/she get the "feel" of "What's going on here?" but would be better prepared to learn when he/she goes with his/her class.

Pre-service teachers usually means those college students who are majoring in some area of elementary education which includes observation at Camp Tyler. These students are taught at the college about certain aspects of outdoor education; then, they are sent to Camp Tyler for their internship.

It would be relatively impossible for me to give an outline of the needs for a typical day, but I will say that the Camp Tyler program should give more attention to the pollution category to some degree as cited by the

### Millward-Ginter Outdoor Attitude Inventory.

With the student population at the elementary level in the district growing yearly because of subdivisions annexed and families becoming more mobile, I would not suggest that the time spent at Camp Tyler be increased from four days and three nights. The camp staff needs the first day of each week to have meetings and to set the stage for the rest of the week.

Mondays are also used for school visitations with principals, classroom teachers, and students preparatory to the Camp Tyler experience. Mondays are also used to give pre-test and post-test to the students who will be coming to Camp the following week and the follow-up a week later. The schedule for students from certain schools is worked out by the camp director and the camp staff with the approval of the consultant of the elementary school division of the district.

It is my opinion that the program should be continued at the fifth-grade level -- the highest grade level in the K-5 division of the school system. Although one author in the literature reviewed suggested that by the time a student has reached the fifth-grade he/she has already made up his/her mind about a number of things both positive and negative. At age 10 he/she has yet a lot to learn and to grasp the significance of problem solving in outdoor education. I do not agree that the attitudes toward environmental factors are so firmly ingrained in a student's mind that the information cannot under the proper conditions be changed from negative to positive or vice versa.

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APPENDIX A  
THE HISTORY OF CAMP TYLER

## THE HISTORY OF CAMP TYLER

Early in 1945, the Tyler Kiwanis Club began plans to build a summer camp for the Tyler Camp Fire Girls. Other service clubs and organizations became interested and the project was soon broadened to include several other youth agencies. A community summer camp was envisioned. The Smith County Youth Foundation was organized and chartered for the purpose of planning and building the camp.

While the search for a suitable camp site progressed, a fund-raising campaign netted thousands of dollars and community interest in the project grew. The Tyler Board of Education had become interested in the infant school-camping movement. Sparked by this interest, the Youth Foundation began planning a year-round camp facility.

Located on 150 acres on the shores of Lake Tyler, Camp Tyler--the residential outdoor education laboratory of the Tyler (TX) Independent School District--celebrated its 36th year of operation in 1985. The camp area includes a main lodge, cabins, craft shed, storage buildings, a blacksmith shop, and a log cabin. On another 150 acres is the school farm, a place where pigs, cattle, horses, goats, fowl, and rabbits, as well as two Spanish burros that were lifted by helicopter from the Grand Canyon in 1981, are maintained. The burros are now living happily with their offspring that was born in 1983.

Dr. George Donaldson, a pioneer in outdoor education methods, set up the program in 1949 and was its director until 1964. For many years, the program was the first and only one of its kind in Texas.

The first group to visit Camp Tyler was from Gary Elementary School. They came on October 21, 1949, and now, thousands of children later, the

same philosophy of camp as an extension of the classroom to supplement and enrich what is being taught still rings true.

Children and their teachers come here to find certain learning experiences which cannot be found in the classroom just as in town, they visit the post office or the fire station to learn first hand how cities work. Of course, the experiences which a camp can offer are rural in nature. Here are woods, fields, streams, and a lake to explore; firewood to cut; meals to cook in a cook-out; beds to make, and floors to sweep. Here is a "big family environment" in which to live. Here, in short, are the experiences which just a few generations ago were the heritage of every American youngster. Today's world and today's home, because they are modern, provide few of these primary experiences. Many children now grow up in small families, live in cities, and find too little of the adventurous, independent experiences which have made the sturdy American character of the past. Camp Tyler exists as a place to provide such first hand knowledge for the children of Tyler.

During a school year, all fifth-graders of the TISD spend four days and three nights at Camp Tyler. The educational program could be described as a very unique learning facility by simple standards. It should be looked at as a dynamic program utilizing the "hands on" approach. The concept of this program is not extra-curricular, but co-curricular in all areas of learning. This covers the spectrum from learning from teachers, from other students, and especially from one's own experiences.

The Camp Tyler outdoor education staff works closely with the classroom teacher not only to make the teacher aware of what Camp Tyler is all about, but also to make the outdoor staff aware of what is happening

in the classroom.

At some time during the school year, students with special needs, regardless of age or academic level, spend a day in the "hands on" environment.

The teaching staff at Camp Tyler, who are given the title teacher-counselor, are all certified teachers by the Tyler ISD. They all have working knowledge of the out-of-doors and have diversified educational backgrounds and experiences.

During the summer months, the facilities at Camp Tyler are used by organized youth groups of Smith County of which Tyler is the county seat.

## APPENDIX B

### GENERAL OBJECTIVES OF CAMP TYLER

### GENERAL OBJECTIVES of the CAMP TYLER EXPERIENCE

As far as the children's objectives are concerned, the camping experience is full of all kinds of fun which children need to lead balanced, happy lives. On the other hand, the adult objectives are met through countless experiences that provide for the development of valuable skills, habits, and attitudes.

From their schoolbooks, children read of the great need for conservation of soil, wildlife, timber, and water. They listen to authorities on the subject discuss the significance of immediate action to conserve these resources. A child may forget many of the articles read and many of the words from the mouths of the teachers and authorities, but he will most likely not forget the great lessons that he learns by actually planting a tree, by deciding which tree should be felled, by working out a method of stopping the erosion of a hillside, or by providing a place for birds and other wildlife to feed and to find shelter.

The importance of living happily and functioning successfully in society can be strongly impressed upon a child's mind by placing the child in a situation where he must live twenty-four hours a day with his classmates. The children who come to Camp Tyler are subjected to more than just a camp experience--they are privileged to enjoy four days of life in a children's community.

## APPENDIX C

### PHILOSOPHY OF CAMP TYLER

## PHILOSOPHY

We believe that:

1. The Camp Tyler program complements and enriches the subject areas found in the fifth-grade curriculum: social studies, science, health and safety, language arts, reading, arts and crafts, physical education, personal hygiene, nutrition, camping skills, mathematics, and conservation education.
2. The Camp Tyler program will promote good citizenship and will aid in the development of a well-rounded student.
3. Each student attending Camp Tyler will learn to do for him/her self and will grow in independence and confidence.
4. Socially, each student will work willingly; learn proper table manners; be responsible for his/her behavior, belongings, and equipment; participate in activities; and enjoy living in a school-camp setting.
5. Students will have a wholesome good time by undertaking first hand experiences through encounters with nature.
6. Students will enlarge their appreciation for the value of nature, farming, and conservation through learning about the importance, impact, necessity, and effects of natural resources.
7. Students will increase their positive attitudes toward themselves by being strong and healthy.

Camp Tyler was built and organized as a children's community. As such, most of the functions of adult communities need to be performed--and the



children perform them. Because it is a small community, most governmental functions are carried on in the "direct democracy" of group planning. Such services as communication, trade, and banking are carried on by the campers through the camp Post Office, the General Store, and the Camp Tyler Bank. All of this is social studies in action; children are learning how a community operates by helping to operate one that is scaled down to their size.

In addition, the camp area is one rich in Indian and pioneer lore. Historical explorations, even looking for Indian relics, give campers a thrilling view of history.

APPENDIX D  
A TYPICAL CAMP TYLER AGENDA

### TYPICAL DAY AT CAMP TYLER

In the beginning, it is usually hard for children to comprehend the length of a day at Camp Tyler. The first time this concept is presented to the potential campers is during a classroom visit with children in the planning stages and in written form by way of the parent bulletin which is given to each child before arrival time at camp, usually four or five weeks prior to the camping experience.

The day begins about 6 A.M. for morning wake-up. Each child has the responsibility of making his/her bed, dressing and grooming him/herself for the day. It is the duty of the children in one of the four student cabins to set tables for the breakfast meal. Arrival at the lodge facility for this duty is around 7 A.M. The breakfast meal begins at 8 A.M. After this meal a cabin group is in charge of drying dishes and lodge clean-up. During this time the other groups return to their cabins to begin cabin clean-up. Each child is responsible for taking a sharing role in cabin clean-up.

After cabin clean-up, the morning activity begins between 9:30-10 A.M. The morning activity is a planned item which is approached by various ways to accomplish the aims and goals of the children, classroom teacher, and camp staff. This activity is usually a 1 1/2 to 2 hour teaching session.

Near the eleven o'clock hour, the cabin group in charge of lunch stops its morning activity and begins to summarize the activity because the time is near to set the table and prepare for lunch. The other cabin groups arrive at the lodge a few minutes before the meal is to be served. Lunch begins at 12 noon and is over when the children have finished eating. When the meal is over, it is time for a cabin group to begin the jobs of dish drying and lodge clean-up. Other groups leave for their cabins to rest for a few

minutes and write checks for their visit to the camp snack store after the rest period.

The afternoon activity begins after the finishing of snack store purchases. The scheduled activity chosen by the teacher and the students takes place. Its emphasis is to carry out the goals and aims of the children, classroom teacher, and camp staff. Closure for the afternoon activity begins around 4 P.M., so that time before the evening meal can be given to the cabin groups not responsible for setting the tables. One cabin group is responsible for setting tables at this time.

The evening meal starts and when it is over one cabin group is **ready to** begin the clean-up of the lodge and dish drying. The other groups **leave to** prepare for the evening activity at 6:30 P.M.

The evening activity expectations are the same as the morning and afternoon which are to reach toward the goals and aims of the children, classroom teacher, and the camp staff. When the evening activity is completed and a night hike to the cabins is finished, it is time to begin night time duties.

The night time is a time in the cabin where showers are taken, memory books are written in, checks of the day are recorded by bankers, lockers are straightened, letters written, wood working and sanding completed, and **games played**, just to mention a few. This is the time for dental hygiene to **take place**. After many of the items above are done, it's time for bed. When everyone gets adjusted in bed, then a bedtime story is read by the counselor.

Finally, eyes get heavy, bodies relax and begin to rest from the events of the day. This leads the way to the recharging of energy and the beginning of dreams. The end of a great day.

## APPENDIX E

"CAMP TYLER IS..."

## CAMP TYLER IS . . .

- a classroom without walls
- a residence learning experience for every 5th grader in TISD
- a school staffed by certified elementary teachers
- an opportunity to reinforce classroom learning about our rich heritage in the days of the pioneers and early settlers
- a natural setting for the study of wildlife and their natural habitats
- a hands-on social studies experience of things previously only read about:
  - blacksmithing
  - reconstructing life in an Indian village
  - building a log cabin
  - homesteading -- living a day in the life of a pioneer family
  - making lye soap
- a natural science lab to teach conservation:
  - preventing soil erosion
  - trapping gophers
  - planting trees
  - gardening
  - identifying trees and plants
  - seining/fishing/studying food chains in aquatic life
- the mathematics of true to life situations:
  - depositing money in the school bank
  - purchasing craft items with checks
  - playing compass games
  - grouping eggs by dozens

**CAMP TYLER IS . . .**

- a practicum of language arts:
  - telling tall tales
  - writing letters home
  - building new vocabulary
  - keeping a journal
- a health lesson in daily living:
  - working with classmates toward a common goal
  - practicing manners and social graces at family style meals
  - developing self reliance and citizenship while away from home
- a one family farm
- a myriad of farm chores attended to by 5th graders as they further their understanding of pioneer America
- a field trip site for grades K-2 who tour the farm year round in conjunction with their studies of farm animals:
  - milking the cows
  - gathering the eggs
  - slopping the hogs
  - currying the horses
  - plowing the mules
  - hoeing the garden
  - haying the goats
  - petting the bunnies
  - painting the fence posts
- a first time excursion to "Grandpa's Farm" for thousands of two, three, and four year olds who visit yearly with their pre-school or day care classes
- a culminating activity for Project Headstart in its effort to bring quality experiences to Tyler's disadvantaged youth
- a very special classroom for Tyler's special education programs

### CAMP TYLER IS . . .

- the vocational agriculture classes from Tyler high schools meeting on a regular basis at the farm, focusing on the free enterprise system and the economics of agriculture process
- a place for individual ag projects by students whose families live in apartments and might not otherwise be able to fulfill that requirement
- Future Farmers Association workshops
- an ongoing school program for emotionally disturbed children to learn to control their behavior in a setting other than the classroom
- a facility where manual labor on the farm gives these children a chance to physically work out feelings of anger and frustration in a positive way
- a one-on-one relationship with an animal that the child has chosen, forming a bond with a living thing he can learn to love
- a success story for these children on the farm providing active relief from stress, which enables them to concentrate and function at an acceptable level in other environments
- a team of emotionally disturbed students learning actual classroom principles by means of their work at the farm
  - learning math by reading blueprints to build a feed trough
  - understanding economics by weighing feed and animals; noting consumption and weight gain; figuring profit and loss
  - discovering the health lesson written in the contents label of a feed sack
  - meeting the challenge to lead in order to better care for an animal
  - developing the language skills to write about experiences on the farm



## CAMP TYLER IS . . .

- creating science experiments to learn ways of achieving chemical decomposition of compost and its subsequent uses; identifying animal and plant life; and learning food chains
- a chance to meet the challenge of saving America's #1 natural resource -- its young people
- a very special project with St. Louis School (TISD school) to provide a vocational program for teenage trainable mentally retarded students
- a cabin in the calm woods being refitted as a house to **provide an opportunity for these students to develop personal living skills in a reasonable facsimile of a normal home**
  - planting flower beds
  - raking leaves
  - mowing grass
  - hoeing weeds
  - washing windows
  - sweeping and vaccuming floors
  - making beds
  - doing dishes
- a camping opportunity for retarded youth at any time of the year
- an ideal place for primary retarded students, ages 5-7, to walk in the woods and visit the farm
- **a plan to expand students' knowledge and awareness of plants, gardening, animals, and nature**
- an opportunity for spontaneous language stimulation in a natural environment
- an additional opportunity for mainstreaming handicapped students with normal students

## CAMP TYLER IS . . .

- a crisis teaching center for 24-hour care of special students in trouble
- an attempt to help special children learn to help themselves
- a liaison between special education and other youth agencies that can offer assistance in this special program
- an octagonal building of wood and steel called the TEEPEE
- a retreat center on 23 acres used by 5000+ children each year
- a delightful collection of nature trails, water front, woods, and wildlife
- a place for primitive camping and lock-ins
- the summer home of Camp Silver Paddle
- a base camp for outdoor education classes from Stephen F. Austin State University, Austin College, Northwestern Louisiana State University, East Texas State University, and North Texas State University
- a safe haven for day trips and overnights provided for by Tyler Kiwanis Club at no charge to qualifying youth groups
- a summer recreational camping facility used by non-profit **agencies** that serve the youth of the community
- **used** throughout the year by the above agencies and many more for special workshops and meetings
- a very special, easily adaptable facility that can be used year round by all Tyler youth agencies for teaching and recreational purposes

## CAMP TYLER IS . . .

- a cooperative effort with University of Texas at Tyler in its student teaching program; many other universities use Camp Tyler as a teaching aid and send their students to Camp Tyler for a period of time to get the feel of the teaching program
- Camp Tyler is also called . . .
  - Camp Tyogin when it is the home of the Tyler Area Council of Camp Fire, Inc.
  - Camp Heyday when it serves as the site of the annual summer program of the Smith County Association of Retarded Citizens
  - Camp Mind's Eye for two weeks each year when the East Texas Association of Gifted Students meet to learn and play
  - Rose City Kiwanis Boys Camp when it provides for many Tyler area youth who would otherwise not go to camp
  - 4-H Camp when it serves as a regional center for youth training, judgments, and retreats
  - Camp Silver Paddle when it helps the YMCA fill its job as day camp and Camp Pioneer when it is the Y's residence camp for Tyler's elementary aged children
- the prototype of an ideal outdoor teaching facility that is visited and imitated by many other school systems throughout the US
- the oldest continuously operating community based outdoor education facility in this country
- a community of caring people who continue to develop a dream that began in 1949

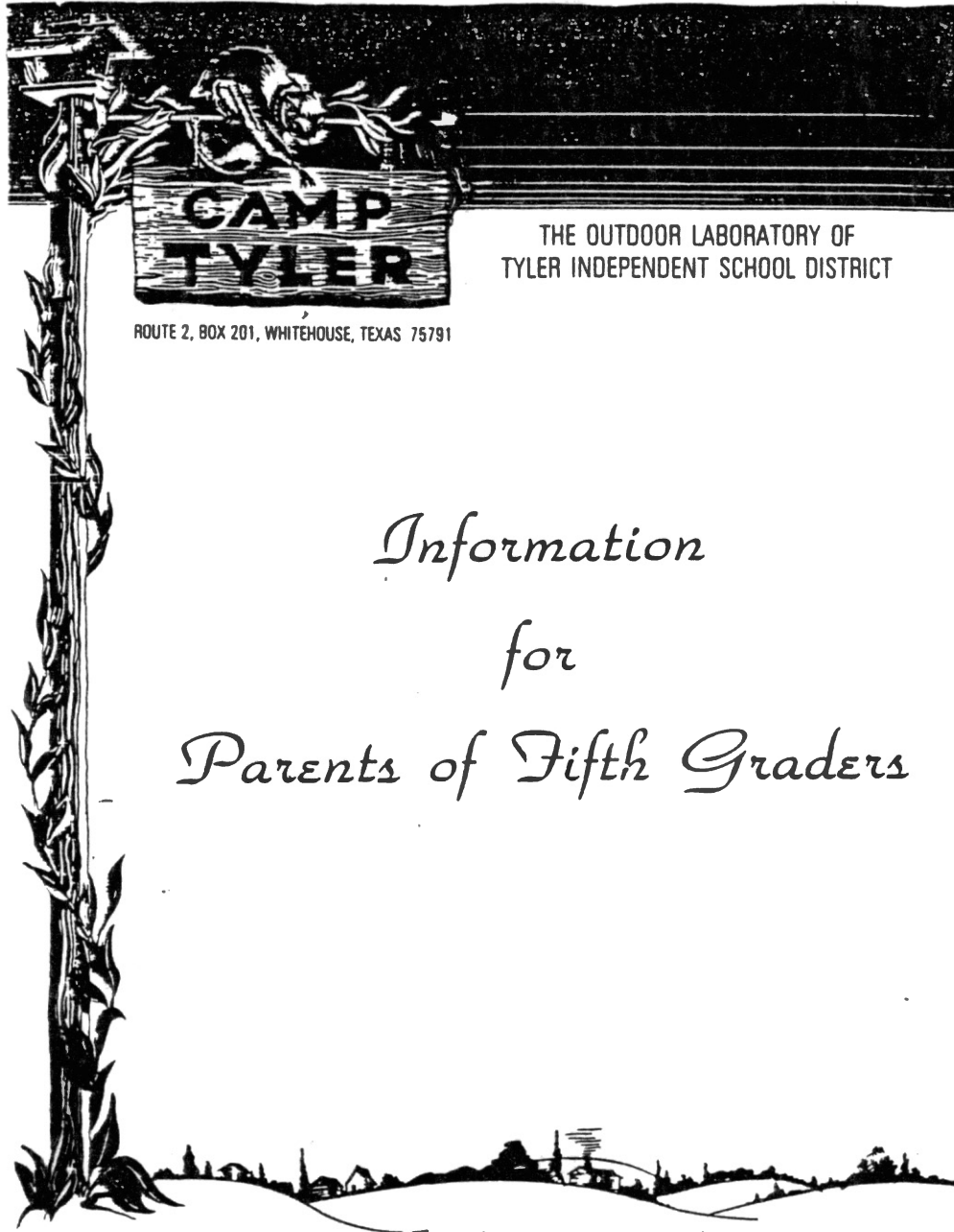
## CAMP TYLER IS . . .

- a classroom of children learning and studying; living daily lessons that are barely discernable from fun and play
- a totally unique collection of children and teachers; science and social studies; new and old; past and future; fantasy and reality; all meeting as if for the first time on 350 acres in the heart of beautiful East Texas
- a lesson of fantastic proportions:
  - the history in a settlers stew
  - the zoology in a fishing trip
  - the literature in a Paul Bunyan story
  - the math in a cord of freshly cut wood
  - the health in a good hot shower at the end of a long day
  - the music in a campfire song
  - the art in a deepening sunset
  - the botany in the multi-colored leaves of fall
  - the language arts in a letter from home
  - the memory of a time once spent and never forgotten
- a classroom without walls
- "... a thing of beauty and joy forever."

Compiled by the staff of Camp Tyler

## APPENDIX F

### COPY OF LETTER TO PARENTS



### INFORMATION FOR PARENTS OF FIFTH GRADE CHILDREN

This bulletin has been prepared to answer most of the questions which parents of fifth graders ask about Camp Tyler and the program. If you do not find your questions answered here, please do not hesitate to ask your child's teacher, principal, or the camp staff. (The camp telephone number is 566-2621.)

**What is the purpose of the school camp?** Camp Tyler provides the students of the Tyler Independent School District an opportunity for outdoor education. . . to experience actual learning situations that cannot be found within the four walls of the classroom. The student is less likely to forget the need for conservation of natural resources if he has actually planted a tree, decided which trees should be felled and which should remain standing, or helped to work out a method of stopping the erosion of a hillside. Perhaps he has provided a place for birds and other wildlife to feed and to find shelter. What students learn by doing is seldom forgotten.

**Camp Tyler is staffed by certified elementary teachers**, who work with the classroom teacher and the students to coordinate classroom learning with actual practice.



**WHO PLANS THE CAMP PROGRAM?** Each fifth grade teacher prepares her students for their trip to camp. The teacher and students are provided with the available activities that can be used at camp. The teacher discusses these activities with her students and together they vote on the selections that will best fit in with what is being learned in the classroom at that time. After activities are chosen, the students decide what learning experiences they wish to gain from the activity. The results of these democratic choices are listed on the following form, which is sent to Camp Tyler. Camp Tyler teachers then plan the students visit to camp

with the input received from classroom teachers and students. Camp provides for fifth graders the practical experiences that go along with textbook learning for a total learning experience. Some of the things students have an opportunity to practice are:

1. Self-reliance.
2. Cooperation with others.
3. Health principles in the out-of-doors.
4. Appreciation of nature, farming, and conservation of natural resources.
5. Knowledge of homemade entertainment.

Following is the form sent to camp with a representative sample of the choices teachers and students make in advance of their camp experience.

#### **Activity I: Nature Hike**

- ACTIVITY AIMS**
1. See and learn the habitats of different animals, both farm animals and wild animals.
  2. See and learn the different types of plant life.
  3. See and learn about food chains, involving both plants and animals.
  4. See and learn about edible plants and animals and learn principles of natural selection.



**II: Indian Village**

- ACTIVITY** 1. Learn more about Indian tribes who lived in East Texas.
- AIMS** 2. Help build different types of Indian's homes.
3. Make various types of Indian articles used in every day living, pottery, wooden trenchers, or toys.
4. Learn about and make dyes used by Indians to color cloth.

**Night Activity: Folk Games and Tall Tales**

- ACTIVITY** 1. Give students experience with
- AIMS** homemade entertainment from around the world and games the pioneers played.
2. Develop coordination.
3. Reinforce learning in following directions and social interaction.
4. Provide a night of wholesome fun.

**Night Activity: Blacksmith/Soap Making**

- ACTIVITY** 1. Acquaint students with some of the early tools used by man.
- AIMS** 2. Teach students the role of the blacksmith in pioneer living.
3. Learn the history of soap making.
4. Learn where ingredients were obtained in early days and actually make soap.

Your child's daily schedule looks like this.

**DAILY SCHEDULE****GET UP**

- 8:00 Breakfast
- C a b i n
- Cleanup
- Activity
- 12:00 Lunch
- Rest Period
- Store - (Check Writing & Mail Delivery)

**ACTIVITY**

- 5:00 Supper
- 6:30 Activity
- Showers
- 9:30 Bedtime





**How long will the children stay at camp?** Camp sessions for fifth graders are four days in length. Your child will leave home at the usual time on the first day of his camp session and return to school shortly before 2:30 P.M. on the fourth day. A bus will pick up the children and their luggage at school and will return them there. There is no fee for this service.

**What will it cost?** A fee of \$25.00 is charged to defray the cost of food and food preparation. It is hoped that no child will be denied the camp experience because of the lack of money, clothing, or equipment. It is also hoped that every child who comes to camp will have an opportunity to earn and save all or a part of the camp fee. Earning and saving can be an extremely valuable part of the whole experience. Principals, teachers and children will be thinking and planning how this can be done. Will you help?



There will be a snack store daily if student has money in the school bank. There are also craft items available as students have need. The object of snack and craft store is to give students true-to-life math experience.

**WILL THE CAMPERS GET GOOD PHYSICAL CARE?** The buildings at Camp Tyler have been built as year-round buildings; adequate heat is assured. Diets will be carefully planned and prepared in a modern kitchen. Teachers will assure that children get adequate rest and have a clean environment. The school nurse who serves your school will be on call at all times. If your child has some special health problem such as allergies, diet, medicine, bed-wetting or sleep-walking, please send us word by the teacher. We'll do our best to treat the problem as you would at home and, of course, we will keep the matter in strictest confidence if it is something that might embarrass the child.





**WHAT IS THE CAMP ADDRESS?** Mail time is a real thrill at camp. You may want to mail a letter to your child at least one day before the camp session begins to assure that it will be delivered while your child is at camp.

Child's Name  
Camp Tyler  
Route 2, Box 201  
Whitehouse, Texas  
75791



**DOES THE CAMP HAVE A TELEPHONE?** Yes, the camp telephone was installed for business and emergency purposes. Please do not ask to speak to your child directly. If there is an important message, the camp staff will be glad to deliver it to your child. The camp telephone number is 566-2621. The camp staff will be glad to give you a progress report on your child.

**MAY PARENTS VISIT CAMP?** Yes, we hope that the parents of every camper will visit camp, but we respectfully request that you do not visit when your child is in camp. Many times a parent's visit is quite disturbing to a youngster. For fifth graders it's almost always embarrassing. It should be remembered that children think of a period at camp as an **Independent** experience, as a sign they're growing up. A visit from parents might appear to them — and to the other children — that the parents don't quite trust them away from home.

Group visits may be arranged through your PTA. Guide service and transportation are furnished for these visits.

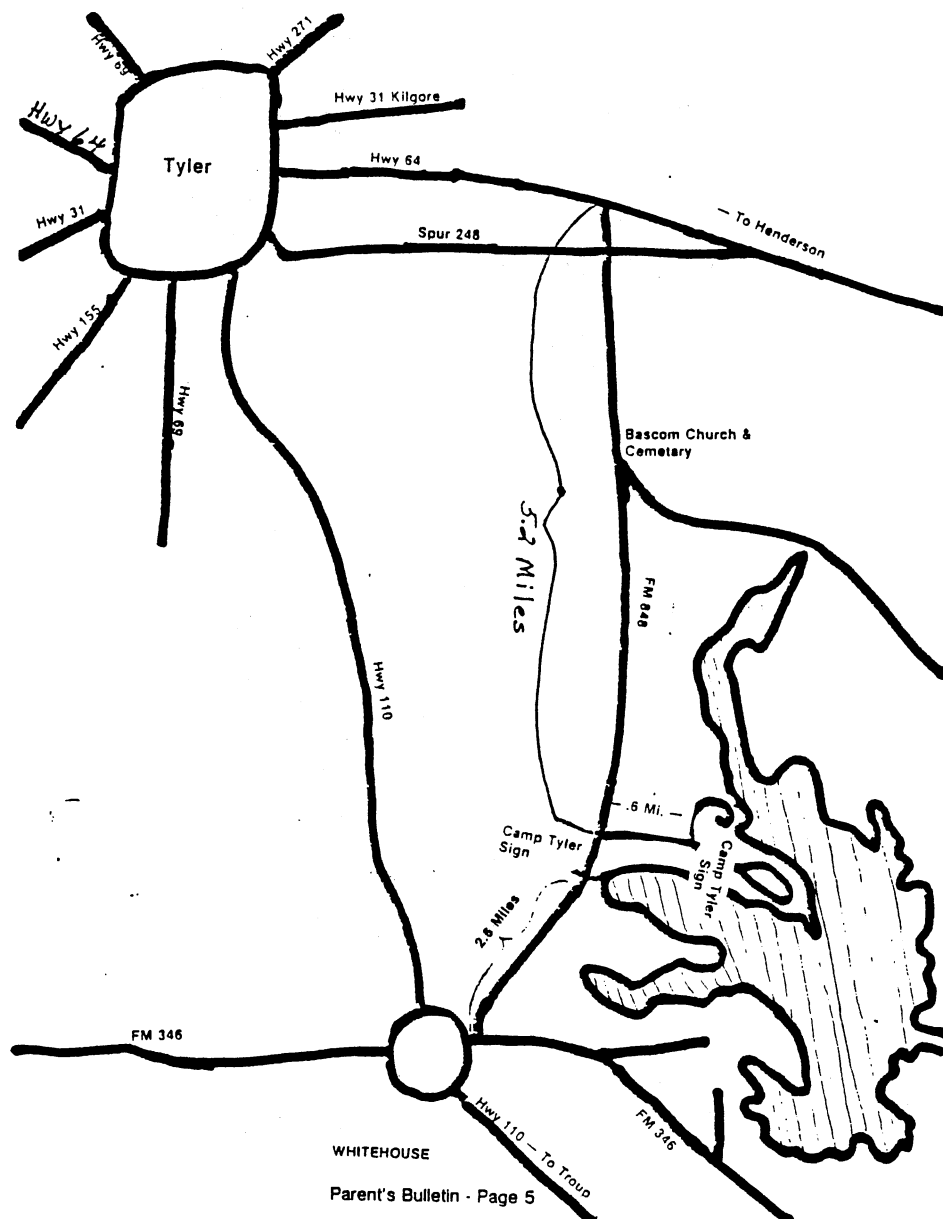
**WHAT CLOTHING AND EQUIPMENT WILL BE NEEDED?** First of all, camp clothing is rugged and informal. Simple, strong play clothes, comfortable walking shoes and protection for rainy days are in order. Socks provide protection for the feet from blisters, poison ivy and scratches produced from much walking. Campers will be outdoors much of the time, so legs should be covered.



Campers should bring warm clothing, even though the weather is warm when they leave home. Old clothing and shoes are more comfortable than new. Campers will need a hat, cap or scarf and gloves in cold weather. Please remember, there are no dress-up events in camp. We hope that no camper will spend one extra cent for special clothing and equipment.

A good night's sleep is most important to active campers. Our beds are thirty inches wide. One flat sheet will do. Please do not send fitted sheets; they just don't fit camp beds! One pillow case is needed. Camp furnishes blankets and pillows.

A large shopping bag or a laundry bag makes ideal luggage for a four-day camp trip.



### CHECKLIST FOR PACKING

We have two blanks at the left side of this checklist. You can check the first blank when packing before camp. The student then also packs his checklist and checks the second row of blanks when packing at camp to come home. This should eliminate articles being left at camp.

\* Seasonal items

#### BRING

- |       |       |  |
|-------|-------|--|
| _____ | _____ | * Coat   |
| _____ | _____ | * Gloves   |
| _____ | _____ | * Hat (Cap)  |
| _____ | _____ | * Long Underwear   |
| _____ | _____ | Medicine with Note (To Teacher)                                      |
| _____ | _____ | Chap Stick   |
| _____ | _____ | Deodorant  |
| _____ | _____ | Toothpaste and Toothbrush  |
| _____ | _____ | Soap   |
| _____ | _____ | Anything else needed for personal hygiene                            |
| _____ | _____ | Wash Cloth   |
| _____ | _____ | Towel  |
| _____ | _____ | 1 Flat Sheet   |
| _____ | _____ | 1 Pillowcase   |
| _____ | _____ | At least 4 pairs of socks  |
| _____ | _____ | Shower Cap   |
| _____ | _____ | Underwear (3 changes)  |
| _____ | _____ | Pajamas  |
| _____ | _____ | 3 Pairs Jeans  |
| _____ | _____ | 3 Shirts   |
| _____ | _____ | Comfortable Shoes (Extra pair if available)                          |
| _____ | _____ | Writing Materials (Paper, Pencil, Stamps) - Optional                 |
| _____ | _____ | Pocket Knife (Has To Fit In Pocket) Optional                         |
| _____ | _____ | \$2.50 or \$3.00 Pocket Money - Optional - deposited in school bank. |

#### DO NOT BRING

- Anything electrical (hair dryers, curlers, etc.)
- Electronic Games
- Toys (Rubics cubes, etc.)
- Portable Radios, TV, etc.
- Candy
- Gum
- Food



WILL I BE NOTIFIED IN CASE OF ILLNESS OR EMERGENCY? Yes, the camp policy is to notify the parent first. The children will be at camp for four days and three nights. If you will be at a different telephone number on any of these days or evenings, please list all numbers where you may be reached on the form below. Please return this page. You may keep the rest of the bulletin.

Student Name: \_\_\_\_\_  
 Last Name First Name Sex  
 Parent's Name: \_\_\_\_\_ Telephone: \_\_\_\_\_  
 Home Address: \_\_\_\_\_  
 Family Doctor: \_\_\_\_\_ Telephone: \_\_\_\_\_

List any physical or medical problems, including allergies:

Mother's Name: \_\_\_\_\_ Mother's Employer: \_\_\_\_\_  
 Mother's Working Hours: \_\_\_\_\_ Work Telephone: \_\_\_\_\_  
 Father's Name: \_\_\_\_\_ Father's Employer: \_\_\_\_\_  
 Father's Working Hours: \_\_\_\_\_ Work Telephone: \_\_\_\_\_

If for some reason I am not available at the above telephone numbers, I have asked

\_\_\_\_\_, at \_\_\_\_\_  
 Friend or Relative Telephone Number

to be responsible for my child.

In case of accident or sudden illness (in the event that I cannot be reached by telephone), I hereby authorize Jim Connolly, Director of Camp Tyler, to refer this child to the above named physician and/or to the emergency room at Mother Frances Hospital.

I hereby give permission to Camp Tyler for my child's picture to be used by newspaper, television stations, and Tyler Independent School District publications. I understand that no information other than his/her picture, name, and school will be released to any source without my written permission.

Date: \_\_\_\_\_ Parent's Signature \_\_\_\_\_  
School: \_\_\_\_\_ Homeroom Teacher \_\_\_\_\_

**(See Back)**

TYLER INDEPENDENT SCHOOL DISTRICT  
Tyler, Texas

*PARENTS' PERMISSION TO ADMINISTER MEDICATION*

Child's Name \_\_\_\_\_

Physician's Name \_\_\_\_\_ Phone \_\_\_\_\_

We hereby request, and grant permission to, the Tyler Independent School District to administer medication in the specified dosage as prescribed by the student's physician.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Parent's Signature

Directions for administering medication:

\_\_\_\_\_  
Date

\_\_\_\_\_  
Physician's Signature

## APPENDIX G

### PERMISSION TO DO RESEARCH

TYLER INDEPENDENT SCHOOL DISTRICT  
Administrative Office

February 3, 1986

TO: The Elementary Principal Addressed  
FROM: Joyce Pettit  
SUBJECT: Outdoor Education Research Project

Mr. Robert Raze, a Camp Tyler teacher, is working on an outdoor education research project. He would like to visit with your 5th grade students for about thirty minutes on Monday afternoon prior to their Camp Tyler experience. I asked him to provide you with copies of the instrument he plans to use to collect data. He is to go into the classroom to work with students, if you approve. He expects to do this about 2:00 p.m. and the time used can be credited to health. Thanks in advance for your cooperation.

ba



## APPENDIX H

### MILLWARD'S PERMISSION



INDIANA UNIVERSITY OF PENNSYLVANIA • INDIANA, PENNSYLVANIA 15705  
Center for Educational Studies • 236 Slouffer Hall • (412) 357-2481

July 24, 1986

Robert E. Raze, Jr.  
433 Iba Hall  
Oklahoma State University  
Stillwater, OK 74077

Dear Bob:

I have enclosed a copy of the attitude survey I developed in 1970, feel free to use any section or the entire questionnaire in your dissertation. I have enclosed my dissertation bibliography, obviously the attitude survey and dissertation bibliography are rather outdated. My advisor for most of my work was Betty van der Smisson; she introduced us early on to Donaldson's work in many of her outdoor education classes. You can obtain a copy of my research monograph through Penn State (if it is still in print) and my dissertation can be obtained through dissertation abstracts 1973.

I have moved from the area of outdoor education into pre teacher assessment and principal assessment simulations and am therefore no longer up-to-date in your field of outdoor education. (There are times, however, when I miss the campfires, hikes, dining halls, and environmental games.)

Lots of luck,

A handwritten signature in cursive script that reads 'Bob Millward'.

Robert E. Millward  
Director, Assessment Center

REM:bpg

Enclosures

APPENDIX I

MILLWARD-GINTER INSTRUMENT FORM A

Cover Page

Page 1

SEX \_\_\_\_\_ SCHOOL \_\_\_\_\_

AGE \_\_\_\_\_ SECOND LANGUAGE \_\_\_\_\_

## DIRECTIONS:

The following statements are about different things in the outdoors. The way you answer the statements will help outdoor leaders know what you like and dislike about the outdoors. Here is an example of what you are to do.

1. I enjoy going fishing. SA A ☒ U D SD

You simply darken in one of the five signs on your test as shown above.

The five signs mean this:

SA = You STRONGLY AGREE or STRONGLY LIKE it.

A = You AGREE or LIKE it a little bit.

U = You are UNDECIDED or DON'T KNOW if you like or dislike it.

D = You DISAGREE or DON'T LIKE it.

SD = You STRONGLY DISAGREE OR STRONGLY DISLIKE it.

In the example above the person was undecided about fishing so he circled "U." If the person enjoyed going fishing he probably would have circled "SA." In other words, THERE ARE NO RIGHT OR WRONG ANSWERS. All you do is read each statement carefully and darken one of the five signs according to how you feel about the statement. Please answer all statements. THIS DOES NOT HAVE ANYTHING TO DO WITH YOUR SCHOOL GRADES. NO ONE FROM YOUR SCHOOL WILL READ YOUR ANSWERS. It is very important to give a truthful answer for this is how we can tell which activities children like and dislike.

FORM A

Page 2

	Strongly Agree	Agree	Undecided or Don't Know	Disagree	Strongly Disagree
1. If you live in the city, you do not have to be concerned with soil conservation.	SA	A	U	D	SD
2. Most wild animals are not dangerous if left alone.	SA	A	U	D	SD
3. No one should drop even one piece of paper outdoors.	SA	A	U	D	SD
4. Pollution is not really as bad as people say it is.	SA	A	U	D	SD
5. It would bother me to undress in front of other classmates in my cabin before going to bed.	SA	A	U	D	SD
6. We can get along without bees.	SA	A	U	D	SD
7. There are more interesting things to do than to learn about plants and animals in the outdoors.	SA	A	U	D	SD
8. I would enjoy living in the mountains.	SA	A	U	D	SD
9. My class alone cannot do much to improve the environment.	SA	A	U	D	SD
10. Working with other students in the outdoors is fun.	SA	A	U	D	SD
11. I get along well with teachers in the out-of-doors.	SA	A	U	D	SD
12. Learning in the outdoors is fun.	SA	A	U	D	SD
13. Time spent studying in the outdoors is a waste of time.	SA	A	U	D	SD
14. Protecting our forests is not important as we have other things to use in place of wood.	SA	A	U	D	SD
15. Snakes are helpful to the environment.	SA	A	U	D	SD

FORM A

Page 3

	Strongly Agree	Agree	Undecided or Don't Know	Disagree	Strongly Disagree
16. It is hard for a group of classmates to agree with one another when planning activities.	SA	A	U	D	SD
17. I enjoy working with a group of students outdoors.	SA	A	U	D	SD
18. I enjoy being with teachers in the outdoors.	SA	A	U	D	SD
19. I think it is exciting to be alone in the woods if you are not lost.	SA	A	U	D	SD
20. Schools should spend more time teaching conservation.	SA	A	U	D	SD
21. Litter is not a problem where I live.	SA	A	U	D	SD
22. People cause more pollution than factories.	SA	A	U	D	SD
23. It is easy to make friends at camp during supper.	SA	A	U	D	SD
24. If I am not interesting in the outdoors, I should not have to learn about it.	SA	A	U	D	SD
25. It is not easy to make new friends at camp.	SA	A	U	D	SD
26. Animals that live in the water are not as important as animals that live on the land.	SA	A	U	D	SD
27. Outdoors is not a place for school--but for playing.	SA	A	U	D	SD
28. Since hawks kill rabbits, it is wise for man to kill hawks.	SA	A	U	D	SD
29. When natural resources are used up on the earth we can get them from another planet.	SA	A	U	D	SD
30. I can improve my environment by writing to a senator.	SA	A	U	D	SD

FORM A

Page 4

	Strongly Agree	Agree	Undecided or Don't Know	Disagree	Strongly Disagree
31. Nature interests me.	SA	A	U	D	SD
32. I like to study outdoor subjects.	SA	A	U	D	SD
33. I like small streams in the woods.	SA	A	U	D	SD
34. We should give the birds food in winter.	SA	A	U	D	SD
35. There is no harm in taking living plants home from the forest.	SA	A	U	D	SD
36. All kinds of plants are needed on earth.	SA	A	U	D	SD
37. Spiders are helpful to man.	SA	A	U	D	SD
38. Plants that live in the water are not as important as plants that live on land.	SA	A	U	D	SD
39. Litter makes pollution.	SA	A	U	D	SD
40. Hunting should be a year-round sport.	SA	A	U	D	SD
41. I like books about nature.	SA	A	U	D	SD
42. Nature hikes are not much fun.	SA	A	U	D	SD
43. There is little that I can do to stop pollution.	SA	A	U	D	SD

## APPENDIX J

### MILLWARD-GINTER INSTRUMENT FORM B



Cover Page

Page 1

SEX \_\_\_\_\_ SCHOOL \_\_\_\_\_

AGE \_\_\_\_\_ SECOND LANGUAGE \_\_\_\_\_

## DIRECTIONS:

The following statements are about different things in the outdoors. The way you answer the statements will help outdoor leaders know what you like and dislike about the outdoors. Here is an example of what you are to do.

1. I enjoy going fishing. SA A **U** D SD

You simply darken in one of the five signs on your test as shown above.

The five signs mean this:

SA = You STRONGLY AGREE or STRONGLY LIKE it.

A = You AGREE or LIKE it a little bit.

U = You are UNDECIDED or DON'T KNOW if you like or dislike it.

D = You DISAGREE or DON'T LIKE it.

SD = You STRONGLY DISAGREE OR STRONGLY DISLIKE it.

In the example above the person was undecided about fishing so he circled "U." If the person enjoyed going fishing he probably would have circled "SA." In other words, THERE ARE NO RIGHT OR WRONG ANSWERS. All you do is read each statement carefully and darken one of the five signs according to how you feel about the statement. Please answer all statements. THIS DOES NOT HAVE ANYTHING TO DO WITH YOUR SCHOOL GRADES. NO ONE FROM YOUR SCHOOL WILL READ YOUR ANSWERS. It is very important to give a truthful answer for this is how we can tell which activities children like and dislike.

FORM B

Page 2

	Strongly Agree	Agree	Undecided or Don't Know	Disagree	Strongly Disagree
1. Undressing before going to bed with other classmates in the cabin bothers me.	SA	A	U	D	SD
2. I can do little to stop pollution.	SA	A	U	D	SD
3. Our environment is helped by snakes.	SA	A	U	D	SD
4. Being with other classmates in the outdoors is fun.	SA	A	U	D	SD
5. Other planets can provide the earth with natural resources when ours run out.	SA	A	U	D	SD
6. Hunting should be allowed all of the year.	SA	A	U	D	SD
7. We do not have to worry about litter where I live.	SA	A	U	D	SD
8. It is nice to be with teachers in the outdoors.	SA	A	U	D	SD
9. Planning activities with a group of classmates is difficult since it is hard to agree with each other.	SA	A	U	D	SD
10. If you leave most wild animals alone they will not harm you.	SA	A	U	D	SD
11. We need all kinds of plant life.	SA	A	U	D	SD
12. Outdoors is a place for playing--not for school.	SA	A	U	D	SD
13. Writing to a senator about improving the environment will help.	SA	A	U	D	SD
14. I would enjoy living in the mountains.	SA	A	U	D	SD
15. When outdoors you should not drop even one piece of paper.	SA	A	U	D	SD

FORM B

Page 4

	Strongly Agree	Agree	Undecided or Don't Know	Disagree	Strongly Disagree
32. Pollution is caused by litter.	SA	A	U	D	SD
33. I enjoy working with a group of students outdoors.	SA	A	U	D	SD
34. It is hard to make new friends at camp.	SA	A	U	D	SD
35. Forests are harmed when you take living plants home with you.	SA	A	U	D	SD
36. Spiders are not helpful to man.	SA	A	U	D	SD
37. Learning about plants and animals in the outdoors is not very interesting.	SA	A	U	D	SD
38. Pollution is not really as bad as people say it is.	SA	A	U	D	SD
39. The whole community must work together before the environment can be improved.	SA	A	U	D	SD
40. I should not have to learn about the outdoors if I am not interested in it.	SA	A	U	D	SD
41. I don't get along well with teachers in the out-of-doors.	SA	A	U	D	SD
42. Bees are not helpful to man.	SA	A	U	D	SD
43. It is wise for man to kill hawks, because hawks kill rabbits.	SA	A	U	D	SD

FORM B

Page 3

	Strongly Agree	Agree	Undecided or Don't Know	Disagree	Strongly Disagree
16. Animals that live on land are more important than animals that live in the water.	SA	A	U	D	SD
17. Nature hikes are not exciting.	SA	A	U	D	SD
18. It is fun to learn in the outdoors.	SA	A	U	D	SD
19. It is easy to make friends with others at camp during dinner.	SA	A	U	D	SD
20. You do not have to worry about soil conservation if you live in a city.	SA	A	U	D	SD
21. Small streams in the woods are nice.	SA	A	U	D	SD
22. The books I like are about nature.	SA	A	U	D	SD
23. Factories cause more pollution than do people.	SA	A	U	D	SD
24. Outdoor subjects are interesting.	SA	A	U	D	SD
25. We have many things to use in place of wood; therefore, forests are not important.	SA	A	U	D	SD
26. It is a waste of time to study in the outdoors.	SA	A	U	D	SD
27. I am interested in nature.	SA	A	U	D	SD
28. It is exciting to be alone in the woods if you are not lost.	SA	A	U	D	SD
29. In winter we should feed the birds.	SA	A	U	D	SD
30. We do not learn enough about conservation in school.	SA	A	U	D	SD
31. Plants that live on land are more important than plants that live in the water.	SA	A	U	D	SD

VITA<sup>2</sup>

Robert Edward Raze, Jr.

Candidate for the Degree of

Doctor of Philosophy

Thesis: THE INFLUENCE OF A PUBLIC SCHOOL RESIDENT OUTDOOR  
ENVIRONMENTAL EDUCATION PROGRAM ON THE  
ATTITUDES OF FIFTH-GRADE STUDENTS

Major Field: Environmental Sciences

Biographical:

Personal Data: Born in Tyler, Texas, May 16, 1956, the son of Robert  
E. and Ruth M. Raze.

Education: Graduated from John Tyler High School, Tyler, Texas, in  
May, 1974; received Associate of Arts Degree in Liberal Arts  
from Tyler Junior College in May, 1976; received Bachelor of  
Science Degree in Elementary Education from East Texas State  
University in May, 1978; received Master of Science Degree in  
Early Childhood Education from East Texas State University in  
August, 1979; completed requirements for the Doctor of  
Philosophy Degree at Oklahoma State University in July, 1989.

Professional Experiences: Teacher/Counselor, Outdoor Education  
School-Camp Tyler-Tyler (TX) Independent School District,  
August, 1978 to August, 1986; Graduate Teaching Assistant,  
Department of Curriculum and Instruction, Oklahoma State  
University, August 1986 to July 1988; Teacher, Tyler (TX)  
Independent School District, August 1988 to present.