DOCUMENT RESUME

ED 030 991 40 EC 002 462

By-Brown, Louis F.; Andrews, James B.

A Summer School Outdoor Educational Program for Culturally Disadvantaged Educable Mentally Retarded Children. Status Report.

Iowa Univ., Iowa City.
Spons Agency-Office of Education (DHEW), Washington, D.C.
Bureau No-BR-6-8646
Pub Date [68]
Grant-OEG-3-6-068646-1750
Note-48p.
EDRS Price MF-$0.25 HC-$2.50
Descriptors-Camping, *Disadvantaged Youth, Educable Mentally Handicapped, *Exceptional Child Research, Homemaking Skills, *Mentally Handicapped, Outdoor Education, Personal Adjustment, Physical Education, *Recreational Programs, Science Instruction, Self Concept, Sociometric Techniques, *Student Evaluation, Summer Programs, Tests

Fourteen culturally deprived educable mentally handicapped children (ages 126 to 168 months, IQ's 52 to 86) participated in a 7-week project to determine the effectiveness of correlating classroom instruction with camping and outdoor educational activities. The subjects were first tested for current knowledge and attitudes about science, recreational camping, and themselves; they also received instruction in in homemaking, science, and camping. Then the subjects practiced on campsite what they had learned in the classroom. Finally they were evaluated by the same instruments as earlier and were given opportunity to react to the camping experience. It was concluded that the activities offered will not replace those of physical education programs and that the experiences gained and the subjects' ease in verbalizing seemed to enhance their self concept and family status. A significant change in the positive direction was noted in the subjects' concept of the magnitude of their problems in reading, health, and personal adjustment; their knowledge of natural science also showed a significant gain. No significant changes occurred in group status, although there was some shifting of children in the middle of the sociogrametric region. Recreational activity preferences were altered, although not significantly in favor of those offered. (JD)

DEMONSTRATION PROJECT
(Small Grant)

Status Report
Grant Number: OEG-3-6-068646-1750
Project Number: G-8648

Submitted to the U. S. Commissioner of Education
Under the Provision of Title III, Section 302
of Public Law 88-164

A Summer School Outdoor Educational Program for Culturally Disadvantaged Educable Mentally Retarded Children

Submitted by University Hospital School
Pine School Section
The University of Iowa

Transmitted by
Raymond R. Rembolt, M.D.
Director, University Hospital School
The University of Iowa
Area Code 319-353-5847

Principal Investigators:
Louis F. Brown, Ph.D.
James B. Andrews, M.S.

II

Time Schedule

The project was divided into three phases. Table I depicts the time schedule for the project and indicates the phase, the major place where the activities occurred and the inclusive dates.

Phase I

Phase I was conducted in a classroom of the Pine School Section, University Hospital School, University of Iowa. The dimensions of this classroom were 35' x 23', yielding 800 square feet of usable floor space. It is equipped with hot and cold running water, sink, and drinking fountain. The desk furniture is movable. A wide variety of teaching materials and audiovisual aids are available. All pretesting and posttesting was conducted in this setting.

The main objective of Phase I was to evaluate, to orient, and to familiarize the children with the anticipated activities of the project. Instruction was given in science, recreation, camping, and home-making as it related to camping.

Science. Prior to initial science exposure, the science teachers devised a test to determine the extent of the students' knowledge concerning thirty-six natural science concepts. It was felt that such a test would give an accurate indication of the child's overall progress in science during the summer program (See Appendix A).

The test was in the form of thirteen pictures pertaining to natural science and included several botanical specimens for identification. It was administered to each child individually and responses were tape recorded for assessment at a later date. The test was scored as follows:

1. A voluntary, correct complete concept was assigned a score of two points.

2. A prompted, incomplete response was assigned a score of one point.

3. An incorrect response was assigned a score of zero.

List of Tables

I

PURPOSE OF THE PROJECT

Problem

Commonly, educable mentally retarded children come from the lower socioeconomic segment of our society. There is evidence that the homes at this level offer little cultural stimulation. For one reason or another, the environmental setting of these children causes them to be deprived of a wide variety of real life experiences which are essential for normal educational, social, and emotional growth of children. It appears that the educator has some responsibility for providing such children some aspects of cultural stimulation as well as the interpretation of these experiences since this limited experiential background interferes with their learning in school.

Teachers have designed experience units to help children develop an understanding of themselves, of others and of the physical world about them to offset the aforementioned deficits. However, this stimulation appears confined to the school hours during the regular school year since school activities are not usually complemented by activities outside the school environment. Educators are becoming increasingly convinced that if these children are to be afforded optimum opportunities to develop whatever abilities they possess, educational planning must go beyond the confines of the classroom.

The main purpose of the project being considered herein is to demonstrate that more effective and efficient learning of classroom lessons occurs when such instruction is correlated with appropriate, practical field activities.

Objectives

The two main objectives of this project were as follows:

(1) To provide culturally disadvantaged educable mentally retarded children outdoor educational and recreational camping activities which would compensate for the lack of opportunity and experience in this segment of their lives; and

(2) to determine the effectiveness of correlating classroom instruction with practical use of the skills and knowledge gained in the classroom as it pertained to the types of outdoor educational and recreational camping activities in which the class participated.

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TABLE I

Time Schedule

Phase	Place	Dates	No. of Days
I	Classroom	6/13/66-7/1/66	15
II	Campsite*	7/5/66-7/16/66	10
III	Classroom	7/18/66-7/29/66	10
		Total number of days	35

* The children were transported from the Pine School to the campsite daily. The total time at the campsite was approximately six hours per day extending from 9:00 a.m. to 3:00 p.m. throughout the ten-day period. In addition, two overnight camping experiences occurred. The first took place July 11, 1966 and the second on July 15, 1966.

Class instruction was offered in the following areas after the completion of testing:

1. Familiarization with tree identification through leaf and floral structure.

2. Animal classification.

   a. morphology

   b. ecology

Classroom instruction was supplemented by field trips on and near the University Hospital School grounds for the purpose of observation and identification of the various local trees and flora.

Simple animal taxonomy was also studied. The main emphasis was on birds, mammals, reptiles, amphibians, and insects. This classroom instruction was supplemented by two trips to the University of Iowa museum of natural science at Macbride Hall. In that situation, the children observed and discussed indigenous animals.

Recreational Camping. The two main objectives of the camping instruction were as follows:

1. To broaden the class' knowledge of and experience in camping.

2. To introduce camping concepts and outdoor living in such a manner as to provide the participants with the motivation to repeat these activities voluntarily in the future.

During this three-week period these children were introduced to and instructed in the various skills they would need in order to experience some modicum of success in Phase II at camp. Most of the instruction was conducted on the playground of the University Hospital School although much of it occurred within the classroom.

The class received instruction in the following activities:

1. How to pitch and take down a tent properly.

2. Knot tying.

3. Fire construction.

4. Axemanship.

5. Waterproofing matches.

6. Proper use, care, and safety involved in using camp stoves and lanterns.

Homemaking. One hour each day was devoted during Phase I to homemaking as it related to camping. The instruction, demonstration, and class participation in homemaking proved to be invaluable preparation for camping.

The following aspects of homemaking for camping were covered:

1. Appropriate dress.

2. How to make rain ponchos by use of cellophane material.

3. Planning menus for camp cooking.

4. The basic four foods to be used at camp and methods of food preservation.

5. How to "live off the land."

6. Food preparation, the importance of cleanup activities and disposal of waste.

7. Introduction to and preparation of freeze dry and dehydrated foods.

8. Use of camp equipment.

Other Evaluation. A sociogram was administered to the class to help identify leadership patterns (See Appendix B). This sociogram technique was repeated at the end of the project to determine what shifts, if any, in social relationships resulted from the project experiences. The results are discussed in the evaluation section of this report (Pages 11 - 23).

Thirty-five millimeter colored transparencies were prepared of all activities, equipment, and facilities utilized in this phase. The Motion Picture Unit, Audiovisual Center, University of Iowa* was engaged to prepare a 16 mm motion picture record of selected activities.

Phase II

This phase was conducted at a campsite located on the grounds of The Lake Macbride Field Campus, University of Iowa. Located fourteen miles north of Iowa City, this Field Campus has spacious areas for tent camping and picnicking in cool or shaded groves. Although the camping area (Campsite No. 1) did not have water and sanitary facilities, these were within walking distance from the campsite. The campers had access to a supervised public beach for swimming. This beach was located across Lake Macbride which adjoins the Lake Macbride Field Campus. It is a part of the Macbride State Park. At this campsite, the class was provided with the opportunity to put to use their knowledge of camping, homemaking, and science to which they had been exposed in the classroom.

Science. There were several short nature hikes around the campsite and longer hikes to the surrounding area. During these excursions, the class was given opportunity to apply the knowledge acquired in the classroom. They identified common trees, flora, and animals by use of nature guide "key" books** concerning which they had received instruction in the classroom.

A scavenger hunt was the culminating science activity at camp. The group functioned in pairs to collect specimens listed on their

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* A completed print is anticipated for delivery about November 15.

** Zim, H.S., and Martin, A.C., Golden Nature Guide, Golden Press, New York.

instruction sheets (See Appendix C). This exercise was used as a way to test how much learning had taken place at camp.

Recreational Camping. In the camping situation the class was given opportunity to manage the camp with as little direct supervision as possible from the adults in attendance.

At the beginning of each day the class pitched camp, collected and cut firewood, and constructed a dinner fire. Each group of four youngsters took their turn at preparing and serving lunch as well as functioning in the capacity of "cleanup detail."

The remainder of the time after chores were completed was spent participating in the recreational activities. Major activities of this nature included playing horseshoes, archery, marksmanship, angling, boating, and swimming, These activities were so programmed so as to offer the child complete freedom of choice, with the exception of swimming in which total class participation occurred. Instruction was not only given in how to do each activity, but also regarding safety procedures to be employed when engaging in that particular activity.

There were two opportunities provided for an overnight camping experience. The class built a good fire and enjoyed stories, singing, and a late night snack.

Phase III

This phase was conducted in the classroom setting of the University Hospital School after the completion of the camping experience.

The instruments used as pretests in Phase I to ascertain knowledge, were again employed during this postevaluation period. Also, the class had the opportunity to react to the camping experience through art work, development of an experience chart story and through general group discussion (See Appendix D).

On the last day of summer school the class returned to the campsite and went for a swim at the beach. It was felt that this culminating activity made a lasting, positive impression on these children and the experience was looked upon as an exciting and rewarding summer.

Population and Sample

The subjects selected for this demonstration project had been in special education at least two years and were enrolled in the Pine School Section during the year immediately preceding. In addition, participation of these children in the Pine School summer program had been given prior approval by the respective parents. Test information shown in Table II reveals the group characteristics of the children involved.

Personnel

In addition to the principal investigators, various other personnel aided actively in the conduct of the demonstration project. Two qualified science teachers from University Schools, University of Iowa, each devoting an hour and a half daily for the first six weeks, combined their efforts to offer an effective natural science program. Two students (one man and one woman) who were enrolled in the University Recreation Leadership Program served as half-time teaching assistants for the duration of the project. However, they devoted time and energy equivalent to that of full-time personnel. Their broad background in recreation with emphasis on camping was a vital and major factor contributing to the success of this project. Invaluable assistance was provided by a staff homemaking teacher of the University Hospital School. Her one hour per day class instruction period given during the first three weeks of the project on homemaking as it related to camping helped immeasurably to prepare these children for their camping experience. Further assistance was provided by three laboratory practice teachers who were assigned to this demonstration project for their practice teaching experience.

TABLE II

GROUP CHARACTERISTICS

	N	Chronological Age in months		Intelligence Quotient* Range	Mean
Boys	8	126-168	149.9	59-86	74.5
Girls	6	137-161	151.2	52-86	76.3
Total	14	126-168	150.4	52-86	75.3

*Intelligence Quotient obtained from routine reevaluation of all Pine School youngsters employing the Wechsler Intelligence Scale for Children (WISC), administered during the immediately preceding six-month period.

III

EVALUATION

Evaluation Schedule

The instruments employed in the formal evaluation, the techniques used in the informal evaluation, and the approximate schedule of their administration are shown in Table III.

Youth Physical Fitness Test of the American Association for Health, Physical Education and Recreation (See Appendix E)

This test was administered to determine if the strenuous and varied physical activities associated with the project would make any appreciable changes in the subjects' scores on the test items.

All the test items except the 600 yard run and walk were given. A simple t-test for related samples was utilized to analyze the group mean difference between the pre- and posttest administration. Table IV indicates the results obtained.

Discussion. None of the test items' mea differences was found to be significant during this brief period between testing. However, it would seem that one could assume that if no organized physical education is available to mentally retarded youngsters, outdoor educational and recreational camping could offer activities that would promote physical fitness.

Types of activity as tested should not replace organized physical education, but one could envision the desirability of having a complementary physical education program and a camping program operating together.

Science Research Associates Junior Inventory (Appendix F)

This inventory is a 168 item check list of needs and problems relative to children whose ages are ten to fourteen. It samples needs and problems in the following five areas:

1. About me and my school

TABLE III

EVALUATION SCHEDULE

Instrument or Technique	Administration Schedule						
	1st Week	2nd Week	3rd Week	4th Week	5th Week	6th Week	7th Week
Formal Evaluation							
Youth Physical Fitness Test of AAHPER*	X					X	
SRA Junior Inventory**	X						X
Sociogram			X				X
Informal Evaluation							
16 mm films		X		X	X		
35 mm films	X	X	X	X	X	X	
Recreational Activities Preference Test	X						X
Inventory of Natural Science Concepts	X						X

*Youth Physical Fitness Test of the American Association for Health, Physical Education and Recreation

**Science Research Associates Junior Inventory

TABLE IV

Youth Physical Fitness Test

	N	$Mean_1$	$Mean_2$	$Mean_2$-$Mean_1$	Standard error	t
Pull-ups (boys)	8	2.125	2.250	0.125	0.125	1.000
Flexed arm hang (girls)	6	4.666 sec.	7.000 sec.	2.334	2.221	1.050
Sit-ups	14	11.86	12.04	-0.19	0.261	0.713
Shuttle run	14	5.786 sec.	6.871 sec.	-1.086	0.706	-1.538
Standing broad jump	14	57.29 in.	58.43 in.	1.14	1.603	0.713
50 yard dash	14	8.46 sec.	8.87	0.41	0.210	-1.993
Softball throw for distance	14	72,93 feet	69.43 feet	3.50	2.360	-1.483

t(0.05) - not significant

2. About me and my home

3. About myself

4. Getting along with other people

5. Things in general

Testing with this instrument was given to the class during Phase I and again in Phase III. The items were read to them so as not to penalize the nonreader. Each child responded to each item by placing a checkmark in a box of appropriate size according to his interpretation of the magnitude of the problem or need. He checked the largest box provided if he saw the problem as a very big problem. If the problem was middle-sized in nature, he checked the next largest box. The smallest box was so checked if the problem was small. Finally, if there was no problem, a circle was checked.

The responses were assigned a weighted score. These were then totaled for each of the areas listed above and the class mean was computed for both precamping and postcamping testing. The t-test for related samples was then employed to test for significance. Table V indicates the relationships between the different test results.

Discussion. While all the mean differences showed a positive gain, the areas "About me and my home" and "About myself" were the only ones that were significant.

One could surmise that this project did much to enhance the children's concept of themselves and also served as a vehicle to improve their family relationships by giving them some additional status in the home. Furthermore, it is somewhat surprising due to the short duration of this project, that gains of such magnitude occurred, as are reflected by the category "Me and myself" in Table V.

The results seem to indicate that these children did experience some success in the project activities and were then able to verbalize these experiences to others.

The authors of this instrument selected items from the inventory and developed eight special purpose categories. They felt that these

TABLE V

SRA Inventory Areas

	N	$Mean_1$	$Mean_2$	$Mean_2 - Mean_1$	Standard error	t
Me and School	14	39.00	33.29	5.71	4.614	1.238
Me and Home	14	21.79	13.00	8.79	3.327	2.641*
Me and Myself	14	46.57	31.36	15.21	5.996	2.538*
Getting along with others	14	28.64	28.14	0.50	4.754	0.105
Things in General	14	34.93	27.14	7.79	5.129	1.518

*t(.05) = 2.16

special categories could be useful as aids in analyzing or identifying certain types of school problems. Five of the eight categories pertinent to some school and social adjustment problems were chosen for use in this project. Those selected are as follows:

1. Reading problems
2. Health problems
3. Relationships with other youngsters
4. Relationships with adults
5. Personal adjustment

It seemed to be of interest to determine if success in activities related to the project would alter the children's concept of the magnitude of reading, health, and personal problems. Also of interest was an attempt to determine if exposure to adults and peers in an informal situation such as this camping experience would improve the children's relationships with these two groups. The same method used in compiling class means for the SRA areas was employed in calculation in this regard. Table VI indicates results of this analysis.

Discussion. These results seem to indicate that the self-concept of the magnitude of their problems in reading, health and personal adjustment was significantly changed in a positive direction in these children. However, the results seem to indicate that the relationships with their peers and adults did not change significantly.

An assumption was made that during the course of the project, success experienced in various activities contributed to a realistic re-appraisal of the importance to read. That is to say, now the youngster could experience success in this area through recognizing a need for functional reading rather than reading for the sake of learning in isolation.

The very nature of the project activities in providing immediate reward may have contributed to gains in personal adjustment.

TABLE VI

SRA Inventory - Categories

	N	$Mean_1$	$Mean_2$	$Mean_2$ - $Mean_1$	Standard error	t
Reading	14	16.64	11.71	4.93	2.193	2.248*
Health	14	17.29	12.36	4.93	2.063	2.389*
Relationship with Youngsters	14	9.14	9.00	0.14	1.947	0.073
Relationship with Adults	14	11.93	14.57	-2.64	2.406	-1.099
Personal Adjustment	14	30.29	22.36	7.93	3.121	2.540*

*t (.05) = 2.16

Sociogram Analysis

Two sociograms were used to determine changes in group structure that might have occurred directly or indirectly as a result of the increased skill attained by individuals through successful participation in the project activities. For example, a child designated as an isolate prior to the project who during the project demonstrates proficiency in one or more activities would probably have his group status changed in a positive direction. It was assumed that successful participation in an activity would tend to change their sociometric status since the children had previously had little opportunity to develop skill in the project activity areas.

The sociogram was administered orally to the group both prior to and after the project. It consisted of the following three parts:

1. a. Who in the class is your best friend? Name your next two friends.

   b. Who wouldn't you choose as a best friend?

2. a. Who would you choose to help you build a fire?

   b. Who wouldn't you choose to help you build a fire?

3. a. Who would you choose to go boating with?

   b. Who wouldn't you choose to go boating with?

For each positively phrased question three choices were listed by each child. Scoring was made by granting three points for first choice, two points for second choice, and one point for third choice. For each negative question only one rejection was given. The results were analyzed by comparing pretest and posttest results in regard to the following changes:

1. Change in total score.

2. Change in total choices.

3. Change in relative position within the group.

Discussion. Several trends were apparent over the time period. First, all children in the class chose members of the same sex rather than members of the opposite sex both before and after the project. The

only instance in which the opposite sex was chosen was for those questions negatively phrased, namely rejections. This was interpreted as a completely normal occurrence for children in this mental age group.

Second, those children who were rated higher initially not only remained the most popular, but seemed to gain in status, as evidenced by their increased total weighted choices. It is interesting to note that these children were among the top achievers in academics during the regular school year and also had the highest I.Q.

A similar trend was noted for the two children who were the most rejected and infrequently chosen initially. They tended to remain unimproved in status. One of them was the lowest achiever in the classroom and had the lowest I.Q.

When shifts in sociometric status occurred, they were among those children who were neither most frequently chosen nor most frequently rejected. Among these children, there were more gains in group status than losses. A few children seemed to remain fairly consistent.

Pictures

Both 35 mm color transparencies and 16 mm movie films of selected activities were taken at the beginning and at various intervals throughout the duration of the demonstration project. Slides (35 mm) were used to illustrate campsite terrain and other facilities in that locale. Also, slides were made of the children using various pieces of camping and recreational equipment. In addition, other subjects for photography consisted of other things of interest encountered during exploration hikes.

Moving pictures (16 mm) of the children engaged in the project were taken by the Motion Picture Unit, Audiovisual Center, University of Iowa. Completion of the processing of this film and subsequent readiness for release is expected in November, 1966.

It is considered that the film record of such activities, including the color transparencies, can be used in the following ways:

1. As a concrete means of showing the participating children how much they learned in the two-week camping period.

2. As a source of material to be used in teacher training courses pertaining to methods for teaching mentally retarded children.

3. As a means for recording certain aspects of the project which may assist in evaluating the success of this venture.

4. As a means of providing a graphic presentation of outdoor education and camping to any researcher or others who have a special interest in such a pursuit.

Recreational Activities Preference Test (See Appendix G)

This test was one devised and employed to determine if recreational activities preferences would be altered through exposure to project related activities.

The test contained a list of fifteen recreational activities that were divided into three main categories. Those three categories were as follows:

1. A list of five activities in which the children had previously participated.

2. A list of five activities in which the children had not previously participated but were given an opportunity to do so through planned project activities.

3. A list of five activities in which the children had not previously participated and were not given an opportunity to do so during the course of the project.

Each child was asked to rank his choices from the one they most liked to do to that which they wanted the least to do. The ranks for each of the above three groups were then totaled for both the pre- and post-test administration. The mean scores for the class were then tested statistically employing the t-test for related samples. The results are shown in Table VII.

Discussion. The lowest total indicates the highest rating, since the mean was figured by adding the rank scores. These results seem

TABLE VII

Recreational Activities Preference Test

Category	N	$Mean_1$	$Mean_2$	$Mean_2 - Mean_1$	Standard error	t
1	14	43.43	45.29	-1.86	2.011	-0.924
2	14	34.00	31.64	2.36	3.072	0.767
3	14	42.57	43.07	-0.50	2.931	-0.171

$t(.05) = 2.16$

to indicate that the project activity did alter, although only slightly, the choice patterns in favor of category two. None of the changes were significant.

It seems feasible that, had different activities been emphasized in the demonstration project, they would have been ranked high. This would appear to indicate that the kinds and number of activities in which these children engage is of limited scope and diversity.

Inventory of Natural Science Concepts (See Appendix A)

Prior to the beginning of instruction in natural science, the science teachers devised a test to determine the extent of the students' knowledge about selected natural science concepts.

The test contained a list of thirteen natural science concepts which were presented visually through picture cards and some botanical specimens. The children were asked questions relative to concepts. Their responses were tape recorded for scoring at a later time.

The responses were scored in the following manner:

1. A complete, correct, unprompted response was assigned a score of two points.

2. An incomplete, partially correct response that had been prompted was assigned a score of one point.

3. An incorrect response was assigned a score of zero.

Class means were computed for both pre- and posttest administration. The t-test for related samples was used to determine significance of the difference of the mean. Table VIII shows the relationship between the two determinations.

Discussion. These results indicate that the class gained in natural science knowledge. This result would be expected since the science taught was relevant to the test. However, the class appeared extremely motivated and eager to learn those concepts presented.

TABLE VIII

Inventory of Natural Science Concepts

N	$Mean_1$	$Mean_2$	$Mean_2 - Mean_1$	Standard error	t
14	35.71	46.21	10.50	1.787	5.874*

*t(.01) = 3.01

IV

DISSEMINATION

The project results will be disseminated in the following manner:

1. A written account of the project has been given to local news media - radio, TV, and newspapers (See Appendix H).

2. A written account and films of the project will be utilized in teacher training courses for both regular and special class teachers.

3. Duplicated materials about the project will be made available to directors of special education throughout the State of Iowa.

4. A complete project report will be sent to the Division of Special Education, State Department of Public Instruction, State of Iowa, for use in regional meetings and in-service training.

5. A complete project report is to be presented to the Full Professional Staff of the University Hospital School, University of Iowa.

6. The project will be submitted to appropriate journals such as Exceptional Children, Mental Retardation, and/or The Journal of the American Association for Health, Physical Education and Recreation.

V

SUMMARY AND CONCLUSIONS

Summary

The objectives of this demonstration project were twofold:

1. To provide culturally deprived educable mentally retarded children outdoor educational and camping activities to compensate for the lack of such opportunity in their lives, and

2. to determine the effectiveness of correlating classroom instruction with practical use of skills and knowledge gained in the classroom in an outdoor educational and camping atmosphere.

Fourteen children, eight boys and six girls, from the Pine School Section, University Hospital School, University of Iowa, participated in the project. They ranged in chronological age from 126 months to 168 months and in intelligence quotient from 52 to 86. All had been in special education at least two years and were enrolled in the Pine School Section during the year immediately preceding.

The project was divided into three phases which encompassed a period of seven weeks. The current knowledge and attitudes of the class about science, recreational camping and themselves were evaluated through tests administered for those purposes during the first phase. The SRA Junior Inventory, The Youth Physical Fitness Test of the AAHPER, a locally devised Inventory of Natural Science Concepts, the Recreational Activities Preference Test and a sociogram were administered to the children. The class received instruction in homemaking, science and recreational camping during this period in order to be prepared for the camping experience to come in Phase II.

Phase II was conducted at a campsite on the MacBride Field Campus, University of Iowa. In that setting the children practiced what they had learned back in the classroom. They maintained camp, went on science hikes and participated in the recreational activities planned.

Subsequently, Phase III was conducted in the classroom at the Pine School. During this period, postevaluation by use of the same

evaluative instruments as in Phase I was conducted during this period. The group had opportunity to react to the camping experience through art work, development of an experience chart story, and general group discussion.

Conclusions

The following conclusions concerning these children seem warranted based upon analysis of the data collected.

1. Although the types of activities offered during the course of the demonstration project were physically vigorous, they will not replace those offered in a well-organized physical education program.

2. The experiences gained and the subsequent ease with which the children verbalized seemed to enhance their self-concept and family status.

3. The children's concept of the magnitude of their problems in the areas of reading, health, and personal adjustment as measured by the SRA Junior Inventory was changed significantly in a positive direction.

4. There were no significant changes in group status as measured by the sociograms. Those who were at the extremes (most popular and most rejected) remained there. There was some shifting of position among those children who occupied the middle of the sociogrametric region.

5. Recreational activities preferences were altered, although not significantly in favor of those offered in the project.

6. There was a significant gain in natural science knowledge.

Suggestions for Further Study

Several ideas for expansion and topics for further study became evident as this project proceeded. The following suggestions seem most pertinent:

1. An experimental study with a design similar to this project but using experimental versus control groups for comparison is desirable.

2. An expansion of this project to include mentally retarded children of the junior high school age would seem advisable.

3. In addition to the curriculum of study as conducted in this project, consideration might be given to teaching other basic academic skills under a similar program.

Inventory of Natural Science Concepts

Description.

This is an unpublished test which was developed especially to determine the extent of the student's knowledge about thirteen selected natural science concepts.

Name _____

Inventory of Natural Science Concepts

This test was constructed in such a manner as to not penalize the student with poor reading skills. The one objective of this test is to give a relative inventory of the student's science concepts and the conceptual level at which they are used.

A pretest session is planned at the start of the seven-week summer program, followed with a posttest session at the end of the seven-week program using the same test. It is felt that such a testing program would give an accurate picture of the students overall progress in science for the summer program.

The test was scored on the basis of two points per complete concept for each of 36 concepts, with one point for an incomplete or prompted concept. A prompt was considered a predetermined sentence which aids the student in expressing a concept.

1. the concept of deciduous leaves
   the concept of oak leaf
   the concept of seasonal abscission

2. the concept of needle-like coniferous leaves
   the concept of pine leaf
   the concept of nonseasonal abscission

3. the concept of deciduous leaves
   the concept of an elm leaf

4. the concept of owl-like coniferous leaves
   the concept of a cedar leaf

5. the concept of deciduous leaves
   the concept of a maple leaf

6. the concept of amphibians
   the concept of metamorphosis
   the concept of prey and predator

7. the concept of pollenation
   the concept of bee attraction
   the concept of food seeking

8. the concept of larvae and adult
   the concept of a food chain
   the concept of a bird (and identification)

9. the concept of a spider
   the concept of a spider web
   the concept of food gathering

10. the concept of a snail
    the concept of gastropodal locomotion
    the concept of a protective covering

11. the concept of nesting
    the concept of incubation
    the concept of protective coloration

12. the concept of a cone
    the concept of association with conifors
    the concept of seed function

13. the concept of a seed
    the concept of association with angiosporms
    the concept of seed function

Questions asked when prompting was necessary to elicit a response.

1. Oak - What is it?
   Where does it come from?
   Would you find it growing in summer or winter?

2. Pine - What is it?
   Where does it come from?
   Would you find it growing in summer or winter?

3. Elm - What is it?
   Where does it come from?
   What is it for?

4. Cedar - What is it?
   Where does it come from?

5. Maple - What is it?
   Where does it come from?

6. Frogs - two types
   Tadpole
   Relation to insect
   What will happen to the tadpole?

7. Honey Bees - What do you see? bees flowers
   What are bees doing?
   What attracts the bees?
   What are yellow things on legs?

8. Robin - What do you see? bird, earthworm, caterpillar, lady bug, flower
   What is bird doing?
   What will happen to caterpillars?
   What will happen to dandelions?

9. Spider - What do you see? spider, web, trapped fly
   How did fly get there?
   Where did the web come from?

10. Snail - What do you see?
    What is on snails back?
    How does it move?

11. Quail - What do you see?
    What has happened?
    What are babies doing?

12. Cone - What is it?
Where is it found?
What is its purpose?

13. Seeds - What are they?
Where do they come from?
What happens to them?

Sociogram

Description.

Two sociograms were administered to ascertain changes in leadership patterns and social relationships that may have occurred as a result of the demonstration project activities. The sociogram was constructed in the following manner:

Name_____

Most of the activities we will do when we are camping will be in groups of three. We would like to find out who you would choose to be in your group. We would like you to list the person you would most like to have in your group, and then the person you would next like to have and then another person. Also we want you to name the person you would not want in your group.

1. Who in the class is your best friend? Name your next two friends.

_____

_____

_____

Who wouldn't you choose as a best friend?

_____

2. Who would you choose to help you build a fire?

_____

_____

_____

Who wouldn't you choose to help you build a fire?

_____

3. Who would you choose to go boating with?

_____

_____

_____

Who wouldn't you choose to go boating with?

_____

Science Scavenger Hunt

Description

A scavenger hunt, which was used to test the children's ability to collect and identify nine botanical specimens, was the culminating science activity at camp. The class funcioned in pairs to collect the items listed on their instruction sheet and identified them through the use of the "Golden Nature Guide" book. The botanical specimens included in the hunt were as follows:

1. A basswood leaf
2. A hickory leaf
3. A day lily pistil
4. A maple leaf
5. An oak leaf
6. Any flower
7. A sumac leaf
8. An anther of a flower
9. An elm leaf

"Having Fun at School and Camp"

(Experience Chart Story)

Getting Ready for Camp

In the first three weeks before going out to Lake Macbride we learned many things that would help us to have fun out at camp. We put up tents, we learned how to use an ax, hatchet, saws, and make fires, tie knots and use knives. We put up tents, we learned how to use a gas lantern and a gas stove. Bill taught us how to waterproof matches. We learned how to make knots of all kinds, the ones we remembered the best were the taut line hitch and the stopper knot. Sally was pretty good at making these kinds of knots.

In school Miss Gaffney showed us how to cook a meal and do the dishes. We learned about freeze dry foods and about what clothes to wear at camp. We also learned about the four basic foods. She helped us make salads and ponchos.

Mr. Nice and Mr. Smith taught us about science. We studied different leaves and flowers and insects. We also went over to the Macbride Museum to see the animals that could be found around here and while we were doing this Mr. Houston took our picture. Tom liked setting up camp the best. We didn't like the test with 186 items but when we were through with these three weeks we felt well prepared for camp.

Our First Day Out at the Macbride Field Campus

Before leaving the school we had to pack our tents, coolers, baskets, pans, shovels, knives, axes, hatchets, water jugs, plates, and silverware and the food into two station wagons and then we were ready to go. After arriving at camp we first put on insect repellent in order to keep from getting insect bites. We then filled up the water jugs with water at the fountain up by the work shed. This water we needed at the campsite for drinking, washing, and drowning the fires.

We went to the campsite and as we entered the area Mr. John Houston began shooting a movie of our experiences at camp. Next we unloaded

our station wagon and set up the tent, and Richard and Mr. Andrews went to the boat house to pick up the boat motor so that everyone could go to the other side of the lake to the swimming area. They had trouble with the motor and had to row the boat to meet the rest of the group. After they met the group everyone hiked up the trail to prepare for lunch. We had peanut butter and jelly sandwiches, and celery and carrot sticks.

Following lunch we cleaned up the dishes and went swimming. The first trip by boat taking the group to the beach Mr. Andrews was able to use the motor, but on the second and third trips Bill and Mr. Andrews had to row the boat, boy were they tired. When we got to the beach we all were stamped with a rubber stamp to show that we had paid to go swimming. Then we went to the bath house and picked up a numbered basket to put our clothes in and we were given a pin which had the same number as the number on the basket. After we got our swimming suits on we went to the beach to swim. We really had fun swimming, especially when Bill and Mr. Andrews threw us up in the air and we fell into the water and kept coming back for more. There was a slide also at the beach which we were able to slide into the water. About 5:00 p.m. we went back to camp, took down the tents, and packed all of our camping gear and took it up to the storehouse. Then we all loaded into the station wagon and Bill's car.

Mr. Andrews and Beverly took us home in the station wagons and Beverly got home last, but Mr. Andrews ran into a ditch by Connie's house and had to be pulled out by a tractor driven by her brother. Some of us didn't get home until 8:00 p.m. that night. And finally, poor Richard had to deliver his papers in the pouring rain, but we really will remember our first day out there, it was lots of fun.

Recreational Activities at Camp

Some of the recreational activities we had at camp were archery, horseshoes, boating, fishing, swimming, and B.B. guns. For archery we had bows, arrows, and targets. We already had some instruction in archery in Physical Education but at camp we did them on our own. We practiced safety rules by not shooting when someone was in front of us and by not going after arrows until everyone was finished and then walking down together to get the arrows. The best archers were Merle, Richard, Jim, Tom, and Sally. Merle got the most bulls eyes but the others were close behind.

Science Activities

On the first day out at camp we hike to look at some trees. We found out what poison ivy looked like and Sally picked some, luckily she didn't get any on her skin. We looked at the milkweed and talked about . We also talked about the birch trees which the Indians used to make canoes. On our second day out there we went on another short hike and Mr. Houston took some movies while we were studying a day lilly. We found the name of the day lilly in our flower book and studied the day lilly flower. We learned to name the different parts, such as the stamen, pistil, petals, and the sepal. This was a review of what we studied in class about a week before we went to camp. Mr. John also took pictures of our discussion in class. On the third day it was so hot that we went swimming. We didn't have any science. On the next day it was still too hot so we didn't go on a hike but we worked right around the camp, this time we looked at the trees and found what kinds of trees they were by studying the leaves. Some of the trees were just like the ones we had right outside the building back at school. We enjoyed going on our hikes with Mr. Smith.

When Mr. Nice was with us we looked for some of the birds, insects, fish, reptiles, mammals, and amphibians that we had studied back in class. We started back in the classroom by studying several animals and we discovered that there were certain things about these classes which allowed us to classify them into different groups. We saw many examples at camp of the animals we had studied in the classroom. The difference was that the ones that we studied out at camp were alive. While we were at camp we also set some traps for small rodents but we didn't catch any.

While we were at camp although we didn't see many animals we did see the homes of many. We found out that most animals can be identified by their homes even though the animals itself isn't seen. We found out that some animals like to live in the woods while others prefer the field and still others live in both places. One of the most interesting things we learned is that animals are more fun to study outdoors then in the classroom.

Summary

Our class summer school was different from the rest of the schools. Why? Because we got to go camping, but before going we had to learn how to camp and how to study science out there and how to be good home-

makers at camp. We enjoyed the while summer, but it wasn't much fun to take the test or write the story. If we had the chance though, we wouldn't mind doing it again.

The Beginning

Youth Physical Fitness Test
Revised Edition, 1965

The American Association for Health,
Physical Education and Recreation

NEA Publications-Sales
1201 16th Street, N. W.
Washington, D. C. 20036

Description

This instrument measures the physical fitness of boys and girls of school age. It consists of the following seven different physical skills:

1. pull-up and flexed arm hang
2. sit-ups
3. shuttle run
4. standing broad jump
5. 50-yard dash
6. softball throw for distance
7. 600-yard run and walk

Instruction for test administration and scoring are given in the test manual. According to the authors, the results are useful in measuring progress of each child as compared to revised nation-wide and the individual administering the test. There is a place on the form for noting raw and percentile scores. A table of norms is provided from which the scores can be calculated.

Science Research Associates Junior Inventory, Form S
1965

H. H. Remmers and R. A. Bauernfeind

Science Research Associates, Inc.
Chicago, Illinois

Description

The SRA Junior Inventory is a 168 item check list of needs and problems suitable for children whose ages are ten to fourteen. The instrument samples needs and problems of the children in relation to school, home, self, others and things in general. The child is able to suggest the magnitude of these problems by marking one of four boxes of different sizes in response to specific questions on the various problem areas.

Recreational Activities Preference Test

Description

This is an instrument which was devised and used to determine if recreational activities preferences would be altered through exposure to project related activities.

The test contains a list of fifteen recreational activities divided into three categories placed in random order on the sheet. The three categories were as follows:

1. A list of five activities in which the children had previously participated.

    a. relay races

    b. tug-of-war

    c. marbles

    d. softball

    e. tetherball

2. A list of five activities in which the children had not previously participated but were given an opportunity to through planned project activities.

    a. rowing

    b. hiking

    c. water games

    d. horseshoes

    e. fishing

3. A list of five activities in which the children had not previously participated and were not given an opportunity to during the course of the project.

a. croquet

b. soccer

c. tennis

d. badminton

e. volleyball

The children were asked to rank their choices from the one they most like to the one they least wanted to do.

A copy of the test is as follows:

Name_____

Recreational Activities Preference Test

_____A. Relay Races

_____B. Tug-of-war

_____C. Rowing

_____D. Hiking

_____E. Tennis

_____F. Volleyball

_____G. Tetherball

_____H. Fishing

_____I. Croquet

_____J. Marbles

_____K. Water games

_____L. Softball

_____M. Horseshoes

_____N. Soccer

_____O. Badmint

Newspaper Story

The following story appeared in the Cedar Rapids Gazette, Cedar Rapids, Iowa, August 4, 1966, the Iowa City Press-Citizen, Iowa City, Iowa, August 5, 1966, and in modified form in The Daily Iowan, University of Iowa, Iowa City, Iowa, August 4, 1966.

New Experiences for Pine School Children

Iowa City - Fourteen students of the Pine School Section of the University of Iowa Hospital School have enjoyed camping at Lake Macbride state park this summer.

Supported by a grant from the U. S. Office of Education, the camp was set up as a demonstration project to make summer school something more than remedial work for the retarded youngsters.

The backgrounds of Pine School children, for one reason or another, have not allowed them to be exposed to a wide variety of life experiences which contribute to their education, social and emotional growth.

Beyond Classrooms

If such students are to be given optimum opportunity to develop whatever abilities they possess, their educational planning must go beyond the confines of the classroom, said James Andrews, critic-teacher of the advanced class at Pine School.

They need a structural program over the summer or they tend to regress. As a result, the introduction to and acquisition of new learning materials is delayed in the fall, Andrews said.

While the camp project afforded the children new experiences, it also demonstrated that the students learned their classroom lessons more effectively and efficiently when instruction was correlated with appropriate and practical field activities, Andrews said.

Louis F. Brown, principal of the Hospital School, explained that the first three weeks of the summer session were spent in the classroom, familiarizing the students with the project activities so that they would profit as much as possible from the camp experience.

During this initial three weeks, the students were given instruction in various recreational activities and camping skills. Safety in handling and caring for all equipment was part of the instruction.

Enhanced with field trips to the university museum, the science preparation program included studies of plant structures and simple identification of local rocks, minerals, plants and animals.

Basic Skills

Instruction in using the basic skills to read signs, prepare simple meals from recipes, estimate distance and determine time from the sun were also part of the preliminary three-week training program.

Two weeks of day camping followed the first three weeks of classroom instruction. The lakeside camp provided many opportunities to practice the skills and much of the knowledge learned in the classroom. The students were responsible for setting up and operating their own camp and had two opportunities to camp overnight.

The final two weeks of the seven-week session were devoted to a review of the science and basic tool subject knowledge gained from the camp experience and to evaluation of the effects of the project on the youngsters.

Recordings of the first three weeks of classroom teaching, test evaluations, and films and photographs which were taken will be utilized in future teacher training programs at the U. of I.

Five teaching assistants, William Alley, Iowa City; Beverly Deuel, Lake City; Karl Nice, Terre Haute, Ind.; Daryl Smith, Donnellson; and Joan Gaffney, Chicago, were aided by three student teachers in teaching the camp program.