DOCUMENT RESUME

ED 085 836 88 EA 005 717

AUTHOR Hammerstein, Jean T.
TITLE Project CREATES -- Exploratory Learning Center: Report of Final Project Year. End of Project Report.
INSTITUTION Tucson Elementary School District 1, Ariz.
SPONS AGENCY Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
PUB DATE Jul 73
NOTE 95p.; A related document is ED 032 778

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Alternative Schools; *Discovery Learning; Educational Innovation; Educational Philosophy; Elementary Schools; *Evaluation Techniques; Learning Laboratories; *Open Education; Open Plan Schools; *Program Evaluation; Teacher Aides; Teacher Role
IDENTIFIERS Elementary Secondary Education Act Title III; ESEA Title III; Inquiry Approach; *Project CREATES

ABSTRACT

Project CREATES, an open school within the framework of a public school system, has been an attempt to develop a unique educational program with emphasis on role development of personnel and curriculum development. It is seen by parents and children as an important alternative to the self-contained classroom concept of education. Its goals have centered on the continuing development of new roles for teachers; defining and disseminating the processes of developing an open school; and promoting students' awarness of the total environment, sense of exploration, and skill development. The ultimate goal has been to demonstrate that working with children in more open ways is an effective way of achieving skills and attitudes valued in our society. In attempting to summarize the outcomes of the Project, this report deals both with the final project year under ESEA Title III, and with the total 3-year project period. References to the total project period are identified as such. The program has continued to change over the 3-year project period, responsive to needs of students and staff. These changes have been documented as they occurred. The program will continue to evolve as in the past, adjusting to continuation without the advantage of Title III funds. (Poor copy, especially pages 83-85.) (Author/WM)

Department of Research
School District No. 1, Tucson Arizona

August 1972 - June 1973

Title III, E.S.E.A.

Project CREATES - Exploratory Learning Center

Report of Final Project Year
End of Project Report

July, 1973

Prepared by:

Joan T. Hammerstein
Research Assistant

Approved by:

Ronald L. DeWitt
Project Director

Approved by:

Barbara S. Prentice, Ph.D
Director of Research

TABLE OF CONTENTS

ABSTRACT

In attempting to summarize the outcomes of Project CREATES, this report deals both with the final project year under ESEA Title III, and with the total three-year project period. References to the total project period are identified as such. Separate reports have been submitted for the first two project years.

Emphases of the project have been generally stated as:

1) continuing development of new roles for teachers;

2) attempts to define the processes of developing an open school, so that they can be communicated to others who wish to try;

3) students' awareness of the total environment; a sense of exploration;

4) skill development of students.

As the project progressed, it became evident that another principal function had emerged. The school is seen by parents and children as an important alternative to the self-contained classroom concept of education.

The first goal stated on page 7 (1.), has involved processes in the development of a demonstration school and the sharing of these processes with others. Evaluation is primarily in terms of surveys and documentation of events.

The second, third and fourth goals (pages 41, 52 and 56) have been concerned with student outcomes. Only two areas, reading and math skills, were measured by standardized norm-referenced tests. All others were assessed by systems and instruments developed in the project, specific to the research problems.

Two additional studies were done during the final year. One concerned the respective adjustments of ELC graduates and other elementary school graduates to 7th grade. The other study investigated cognitive performances of 5th and 6th graders enrolled in ELC and another school with self-contained classrooms. Standardized sub-tests were used in this study to measure verbal and non-verbal performance.

The school will continue to function for the coming year essentially as it had during the project period. Financial support from District #1 will be the same as for any other district elementary school, with the addition of a half-time research assistant.

EDUCATIONAL NEED FOR THE PROGRAM

Surveys of the literature were made and extensive interviews were conducted with people representing many disciplines, segments of the community, and areas of expertise. These things were done to determine what specific educational needs existed and could be dealt with in a demonstration situation. The information gathered was then condensed so that the following were identified:

There was a need in the community to develop a total school program which truly provided for:

(1) individual differences,
(2) self-direction for children in learning tasks,
(3) fostering creative growth,
(4) spontaneous, insightful learning experiences,
(5) nongradedness, and
(6) opportunities for children to learn by doing.

During the four week pre-service in August, 1970, the total group of teachers and administrators structured the program, designing it within the CREATES philosophy to meet the identified needs. These needs were met in the following ways:

(1) In order to provide for individual differences of children, there were numbers of choices of activities available to children and the flexibility to work at their own rates.

(2) To provide for self-direction of children in learning tasks, teachers built a system of individual scheduling for children among centers in the school. Children also made and followed their own contracts, or learning plans.

(3) To provide for the fostering of creative growth, the school was made rich in motivational areas and materials, and children were given opportunities to use them.

(4) To provide for spontaneous, insightful learning experiences, CREATES centers were set up illustrating a wide variety of cross-related concepts.

(5) To provide for nongradedness, virtually all grouping situations were cross-age, and most were random groups formed by children's choices.

(6) Finally, in order to provide opportunities for children to learn by doing, many materials and much equipment were available, and children were given freedom and responsibility in using them.

DESCRIPTION OF SCHOOL AND POPULATION

Project CREATES at the Exploratory Learning Center has been an attempt to develop a unique educational program with emphases on role development of personnel and curriculum development. The ultimate goal has been to demonstrate that working with children in more open ways is an effective way of achieving skills and attitudes valued in our society.

The program has continued to change over the 3-year project period, responsive to needs of students and staff. These changes have been documented as they occurred. The general description that follows, therefore, applies to the status of the project as the Title III funding period was terminated. It should be understood that the program will continue to evolve as in the past, adjusting to continuation without the advantage of Title III funds.

The building was slightly altered by removal of some walls to provide larger areas. A floor plan on page 5 shows the use of space in the third year, and assignment of the staff.

Briefly, Base Centers provided for basic skills learning. The Work Centers, including the Library, included such activities as art, publishing, cooking, sewing, photography, drama and music. The CREATES Center operated as a motivational area, designed to provide stimulation, and also scheduled a wide variety of mini-courses as options to children.

Curriculum was fluid and highly diversified, with activities of virtually any nature occurring in any area of the school.

Children were assigned to home rooms, which met 3 times each day and were intended to provide for security needs of the children, planning, evaluation and class discussions. Teachers were responsible for monitoring the progress of their home-room children, and for reporting to parents.

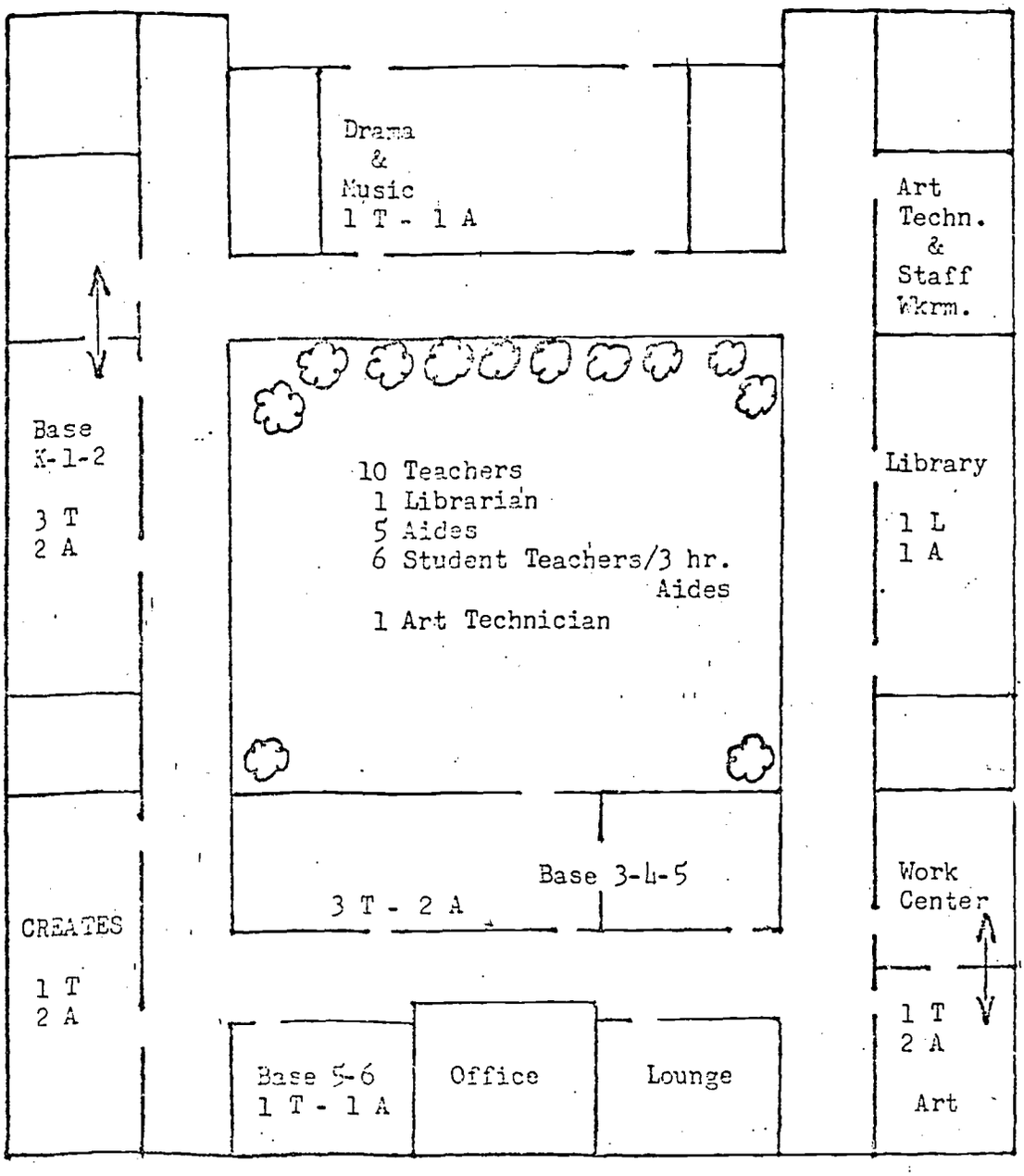
Other than home-room periods, children scheduled their own time and moved freely among the various centers in the school. An after-school program also operated daily, offering a variety of planned activities to children.

Staff development was a focus of the project. Team teaching and new roles for teachers, as well as utilization and role development of aides were concerns. In order to demonstrate that programs like Project CREATES could be operated solely on district funding, a differentiated staffing plan was implemented at the school in its third project year. Three teaching positions were exchanged for 48 hours daily in teacher aide time, reducing the number of teachers from 13 to 10. Student teachers were also assigned to the school who could work one-half day as student teachers and 3 hours daily as paid teacher aides. This plan maintained the student-adult ratio at any given time of the day at about 18 to 1.

The student population at the Exploratory Learning Center is provided through an open-enrollment policy, and has consisted of roughly 35% of students who

live in the immediate school area, and 65% who are transported from outside of the school area by their families. The ethnic balance of the school closely approximates that of Tucson District #1, as seen in the chart following.

The professional staff are younger both in terms of age and experience than the district average. They were specifically selected on a voluntary basis to serve in this school. They have had no special training for this project beyond what has been provided through inservice programs.


Drama
&
Music
1 T - 1 A
Art
Techn.
&
Staff
Wkrm.
Base
K-1-2
3 T
2 A
10 Teachers
1 Librarian
5 Aides
6 Student Teachers/3 hr.
Aides
1 Art Technician
Library
1 L
1 A
Base 3-4-5
3 T - 2 A
Work
Center
CREATES
1 T
2 A
Base 5-6
1 T - 1 A
Office
Lounge
1 T
2 A
Art

---Broadway---

ETHNIC ANALYSIS OF ENROLLMENT

Exploratory Learning Center

as compared to

Tucson District #1*

Ethnic Identification	Exploratory Learning Center	Tucson District #1
Total Students	399	62,878
American Indian	2 (.5%)	878 (1.3%)
Negro	17 (4.3%)	3,299 (5.2%)
Spanish Surname	98 (24.6%)	16,135 (25.7%)
Oriental	12 (3.0%)	478 (.7%)
Other	270 (67.7%)	42,088 (66.9%)
Total Minority	129 (32.3%)	20,790 (33.0%)

*Figures as of November, 1972

ANALYSIS OF ENROLLMENT BY SEX*

Boys	228	(57.14%)
Girls	171	(42.86%)
Total	399	

*Figures as of November, 1972

PROJECT GOALS AND OBJECTIVES

Activities, Procedures, Evaluation

Note
The goals and objectives, while retaining their original character, were refined each year of the project into more realistic, measurable terms. The following will deal with the objectives as they were stated during the final project year.

Documentation and supporting data will be found following each objective.

PROCESS GOAL AND OBJECTIVES

*1. To demonstrate that working with children in more open ways is an effective way of achieving skills and attitudes valued in our society

1.1 The staff will continue to explore and attempt to define effective ways of organizing an innovative program during the 3-year project period as evidenced by descriptions of changes in the program organization and operation.

1.1.1 School personnel will redesign and examine systems of assigning and moving children.

Only one major change was made this year in regard to the assignment of children. The staff planned and implemented a home room system beginning in January, documentation of which will be found in detail immediately following this section. This system proved the most satisfactory of the project in terms of monitoring children and meeting their needs for closer, more consistent personal contact.

Over the 3-year project period, several procedures for assignment and movement of children were tried. In general, children were required to be in a "basic skills" area for part of the day, and were charged with the responsibility of scheduling their own time purposefully among other areas of the school for the remainder of their day. In the third year, however, teachers gradually stopped requiring children to be in Base Centers, resulting in an "open base" system which allowed children the same choice in those centers as in other centers in the school.

* The numbering system should be interpreted as follows: The first number (1.) represents the goal; second number (1.1) represents the objective; third number (1.1.1) represents an activity; fourth number (1.1.1.1) represents the evaluation.

1.1.2 Teachers and school personnel will continue to explore and examine their roles in this program.

Through weekly staff meetings, meetings of team members, and informal conversations, the staff have engaged in on-going, ever-changing role definition. It has been said that teachers in an open school may never have "a role", but that their security and confidence lies in the acquired ability to adapt their roles to each new set of circumstances.

Teachers, just as students, have had a choice. Some preferred instructional periods with groups at specified times each day. Others preferred more informal, individual instruction. Some teams divided responsibilities, others shared responsibilities. With the child as the prime concern, teachers were encouraged to function in ways most consistent with their teaching styles, professional judgement, and total-staff efficiency. This philosophy seems to have resulted in a staff which is unusually sensitive, caring, and productive, with regard to children and co-workers.

1.1.3 Content, function and organization of areas in the school will be modified as the need arises.

Please see sheets following this section for explanation of organizational patterns and documentation of changes made during the year.

All aspects of this objective were monitored constantly by staff members. Weekly meetings were held throughout the year involving the total staff, and periodic meetings involved teams or special interest groups. The overriding principle was that anyone affected by a decision should be involved in making that decision. Therefore, the design and modification of the program have been the privilege and responsibility of the total staff.

PROJECT CREATES - EXPLORATORY LEARNING CENTER
ESEA Title III - Tucson Public Schools

DOCUMENTATION OF CHANGES
1972-73

Toward the middle of the first semester of the school year, staff members began to realize that many children were not being monitored closely enough, and that personal contact with many children was minimized by the free movement within the building. It also became apparent that Base teachers were responsible for so many children that they were not able to provide adequate services in terms of working with individuals and reporting to parents. It was felt that more time and a different situation were needed to provide for planning, monitoring, evaluation, and class discussions.

On January 25, a reorganization was implemented, utilizing home rooms. Initially, only 7 Base teachers were responsible for planning, monitoring and evaluation of children. But with the reorganization, 3 other Center teachers also assumed home room responsibilities. Each teacher was assigned a group of children (ranging in size from 32 to 45 children) with which they would meet three times each day, and for whose progress they were responsible. The largest home room groups, consisting of 43 and 45 children, include kindergarten. Since kindergarten children only attend for ½ day, the groups meeting with the teacher at any given time are substantially smaller than the total number for which the teacher is responsible.

Home rooms now meet for ½ hour each morning at the beginning of school, 15 minutes after lunch, and 15 minutes at the end of the school day. The morning time is used on one day for planning and the next day for class discussions. The 15-minute periods are used for taking roll, checking journals, and on-going evaluation with children. Generally, teachers conduct discussion groups and paraprofessionals conduct planning sessions, the two functions occurring simultaneously with small groups.

This change was the most carefully planned and analyzed of any yet made in the program, and the system was examined at the end of the first 3 weeks by the staff in a meeting. It was the feeling of the staff that the new plan seems to be working very well to meet the needs for which it was designed.

Jean Hammerstein
March 7, 1973

1.2 Project evaluator will provide information about and promote support for the CREATES program during the project period, as evidenced by written reports and records.

1.2.1 Visiting opportunities will be provided for interested people to come in and observe the program.

The guest register recorded 1281 visitors during the school year 1972-73. Together with the recorded visitors from the previous two years of the project, the total was 5864. In addition, there were those who neglected to sign the register. The visitors represented all socio-economic levels, occupations, many states and even other countries. There was a preponderance of educators, including many from great distances.

In the fall of 1972, a feedback instrument was designed, to be given to school visitors together with suggestions for structuring their visiting time. Since many people did not fully complete the questionnaire, samples of 25 and 20 were compiled in December and June, selection being based only on those questionnaires which had been completed.

Although this was not intended to be a pre-post instrument, a compilation was made in December to serve the prime function of the instrument -- that of feedback to the staff. It is interesting to note, however, that in the second compilation, in June, the visitor responses were generally more positive. For example, "structured for freedom", "student self-directed" and "individualized" as applying to the program all rose sharply in instances of observation. Similarly, there were increases in observed frequencies of positive, desired student behaviors. No attempt is made to explain these increases beyond the speculation that as the year progressed, teachers, children and the program all became more effective.

Copies of the instruments and summaries of the results follow this section.

1.2.2 Information will be disseminated, including newsletters, television and radio, and presentations by staff members to interested groups.

Dissemination activities included:

1) printed information given to visitors and sent to those requesting information;
2) personal responses to requests for specific information, generally from out-of-state;
3) local newspaper coverage;
4) feature articles in journals;
5) television feature coverage;
6) radio programs;
7) parent newsletters, published by the Parent Group;
8) slide show and accompanying sound tape;
9) illustrated article in Pacesetters, published by Arizona ESEA Title III;

10) a printed four-color brochure and a printed two-color booklet (A Manual For Kids) for public distribution;
11) contributions to two books about open education;
12) presentations by staff members to interested groups and classes;
13) an extension course from the University of Arizona entitled "The Open Classroom and the CREATES Model", held at ELC;
14) a visitor packet -- printed folder containing visitor materials.

The above activities are those which generally cover the three-year project period. Specific activities related to this school year are listed following this section.

1.2.3 Teachers from those schools which wish to do so may come to the Exploratory Learning Center to observe and participate for one day. Substitutes for these teachers will be paid by the project. These teachers will be encouraged to discuss the program with members of their own staff(s) who did not attend. Program representatives will visit the school(s) to follow up the visitations and further discuss the program with teachers.

An attempt was made to equalize visiting opportunities among District #1 elementary schools by initially allotting 4 half-day visits to each school. Toward the end of the year, when it became evident that some schools did not intend to use the time allotted to them, these visits were released to other schools and departments requesting them. Page 24 documents teacher visitations by school or department.

Another aspect of planned visitation was that included as part of a University of Arizona extension course held at ELC. Entitled "The Open Classroom and The CREATES Model", the course provided opportunities for three visiting days for each participant employed in Tucson District #1. Of 102 days provided, 61 were used.

THE FOLLOWING WAS DELETED FROM THE 1972-73 OPERATING OBJECTIVES, FOR THE REASONS EXPLAINED BELOW:

1.2.4 During the third year of the project, those schools which are interested will be asked to participate in a teacher exchange program. This program would provide for: 1) up to four teachers exchanging with a like number of Exploratory Learning Center teachers, 2) visiting teachers spending a week participating in the CREATES program, 3) teachers from the Exploratory Learning Center taking with them and/or developing materials which would be used in part to demonstrate the concepts of CREATES to teachers and parents in the school being visited. Additional consultation would be available from the program on request.

As explained on page 3 (Description of School and Population), the school operated with a smaller professional staff in the third year. In order to reduce costs and prepare for the termination of federal funds without raising the student-adult ratio, three teacher positions were exchanged for 48 hours daily in aide time. While this did maintain a favorable student-adult ratio, it placed an additional burden on teachers. Therefore, it was considered an unnecessary hardship on teachers to attempt to implement this exchange program.

PROJECT CREATES - EXPLORATORY LEARNING CENTER
ESEA Title III - Tucson Public Schools

Dear Guest,

It is important to us that we have some response from you about your visit. We would be very pleased, therefore, if you would take a few minutes to answer these questions.

Date_____

1. My main interest in coming to see Project CREATES is as

___a teacher ___a parent ___an education student ___an interested educator

___an interested citizen ___other_____

2. Please list below some of the things you liked:

_____

_____

_____

3. Please list below some of the things you did not like:

_____

_____

_____

4. The word structured or unstructured is often used to describe school programs. What do these terms mean to you?_____

_____

5. What do you believe you gained as a result of your visit?_____

_____

_____

_____

_____

6. Did the visit: (Check those which apply)

___encourage you to continue doing what you have done with basically no change?
___give you support for continuing to do things that are similar to what you saw here?
___encourage you to try some new things that you have not done before?
___give you the feeling you might like to try teaching in an "open school" program?

7. Please list the things about ELC you observed which are different.

_____

_____

_____

_____

Visitor Questionnaire

8. Please check the items that you feel apply to ELC:

___laissez-faire
___structured for freedom
___open
___permissive
___disorganized
___student self-directed
___unstructured
___imposed learning
___undisciplined
___individualized
___organized

9. Do you see most of the children at ELC (answer yes or no):

___involved with what they're doing?
___looking confused?
___involved in worthwhile learning?
___being creative?
___wasting too much time?
___making appropriate activity choices?

10. For each of the following methods, Mark...

A...if you plan to immediately implement the idea in your school.
B...if you consider the idea a long-range goal but not currently practical.
C...if you need more information to decide.
D...if you think you would not want to provide this for children.

___multiple activities for children to choose from
___independent scheduling
___mini-courses
___cross-age grouping
___direct experience learning
___team teaching
___no report card grades
___de-emphasizing textbooks
___emphasis on interdisciplinary curriculum
___nondirective teaching
___individualized learning
___self-determined learning
___nonpunitive discipline
___in depth projects in comparison to exposure to many areas of knowledge

11. Quite often visitors observe things that we might overlook or take for granted. If there is anything in the program which you feel strongly about, we encourage you to comment on it._____

_____

_____

_____

Signature (optional)_____School_____

City_____Position, grade level, subject_____

INSTRUCTIONS TO VISITORS REGARDING SPECIAL PROJECTS:

Choose one of the following projects to explore during your second visit. Visit all the centers with the questions of the project in mind. Find the answers to the project questions and other related ones by observing, asking teachers, etc. Jot down your responses and comments on the project sheet to help you keep the answers in mind.

THESE PROJECTS ARE ONLY FOR YOUR BENEFIT. NOTHING WILL BE TURNED BACK IN TO US, SO PLEASE TAKE NOTES AND COMMENT FREELY.

Select a second project to explore if you complete the first one with time remaining. If two teachers are visiting from the same school, perhaps you'd like to select different projects to investigate.

The questions within each project could apply to your own school or other schools you visit. We suggest that after completing a project at ELC, it might be beneficial to make the same observations about your own or another school.

SELECT ONE OF THE FOLLOWING:

1. What is the structure of ELC? What communication networks are involved? What kind of planning and preparation is needed for the school to run? What are the staffing arrangements, patterns? How is student movement monitored? How do teachers know what and how kids are doing?

2. What is the nature of the cognitive activities? Do you see creativity going on? What kinds of problem solving, productive thinking do you see? In what ways is knowledge being acquired? Are the children forming questions of their own, seeking answers? What interests are they developing in depth?

3. What is happening to provide for reading and related language skills in each center? In BASES?
   In CREATES?
   In the WORKROOM?

4. What is being used in place of textbooks? What kind of direct experiences did you observe? What do you believe the children gained as a result of these experiences?

5. How are the individual students developing personally? In Responsible Self-Direction? In Social Skills? In being able to cope with their environment and with themselves? In Environmental Awareness? The task here is to select one child, follow him closely and observe his behavior. Ask for the Observational Rating Scales to guide your observations and to help you know what to look for in the child.

December 1, 1972

MEMORANDUM

RE: How the Visitors see ELC so far this year

LIKES (Listed in order of popularity)

1. INDEPENDENCE-RESPONSIBILITY SHOWN BY KIDS
   - --self-reliance
   - --self-direction
   - --handling of freedom & responsibility
2. ABUNDANCE & VARIETY OF MATERIALS
   - --interest centers
3. ALLOWING CHILDREN FREEDOM, CHOICE, MOVEMENT
   - --individual work
4. POSITIVE ATMOSPHERE, RELAXED CLIMATE
   - --teachers' attitudes: humanistic, helpful
   - --pupil-pupil & pupil-teacher interactions
   - --good relationships
   - --admin. who knows what's going on in class & is part of it
5. (tied) NUMBER OF ACTIVITY CHOICES AVAILABLE
   CREATES: opportunity for arts, crafts, cooking, book printing
   BULLETIN BOARD DISPLAYS, DECORATIONS
6. HAPPY CHILDREN
   - --involvement
   - --children showing interest in their work

MISC. COMMENTS:
- --creative use of materials
- --hospitality
- --clean school grounds
- --music and drama opportunities
- --good library

DISLIKES (Listed in order of popularity)

1. KIDS LACK OF RESPECT FOR OTHERS & PROPERTY
   - --rudeness
2. EXCESSIVE NOISE
3. EXCESSIVE PERMISSIVENESS
   - --too self-directed
   - --too much freedom -- too "open"
   - --lack of structure & discipline
   - --lack of supervision in halls
   - --not enough direct instruction
4. CONFUSION/DISORGANIZATION
   - --lack of self-direction
   - --undirected wandering in halls
   - --kids looking lost, esp. during change of activities
   - --running in halls
   - --kids looking unorganized
5. NO OBJECTIVE EVALUATING OF PROGRESS
6. WASTING TIME
   - --in drama
   - --among older children

MISC. COMMENTS

--materials displayed with misspelled words
--sloppy rooms -- cluttered
--teachers' inhospitable -- looking rundown
--little rapport among students & teachers
--little challenge for children to perform
--unsupervised use of paper cutter
--having kindergarten in with 1st and 2nd grades

Did your visit:

FIRST CHOICE: encourage you to try some new things that you have not done before.

2nd CHOICE: give you support for continuing to do things that are similar to what you saw here.

3rd CHOICE: give you the feeling you might like to try teaching in an "open school" program.

4th CHOICE: encourage you to continue doing what you have done with basically no change.

Visitor Questionnaire

8. Please check the items that you feel apply to ELC:

8% laissez-faire
72% structured for freedom
8% open
40% permissive
15% disorganized
6% student self-directed
20% unstructured
1% imposed learning
8% undisciplined
60% individualized
35% organized

9. Do you see most of the children at ELC (answer yes or no):

66% involved with what they're doing?
10% looking confused?
50% involved in worthwhile learning?
60% being creative?
28% wasting too much time?
30% making appropriate activity choices?

10. For each of the following methods, Mark...

(often)

A...if you plan to immediately implement the idea in your school.
B...if you consider the idea a long-range goal but not currently practical.
C...if you need more information to decide.
D...if you think you would not want to provide this for children.

A multible activities for children to choose from
C independent scheduling
often not) B mini-courses
even split cross-age grouping
A direct experience learning
B team teaching
re D's given--B no report card grades
even split de-emphasizing textbooks
understand the emphasis on interdisciplinary curriculum
even split nondirective teaching
A individualized learning
A & C self-determined learning
A nonpunitive discipline
left blank --C in depth projects in comparison to exposure to many areas of knowledge

Some of A votes meant teachers are already doing it.

SUMMARY OF VISITOR QUESTIONNAIRES
June, 1973

* All comments are listed in order; most often mentioned to least often mentioned.

LIKES

1. Freedom of children
2. Involvement of children
   Relaxed attitude of children and teachers
3. Children's responsibility; good use of time
   Using children's interest to help learning
   Wide variety of choices, materials, books
4. Displays and decoration in building
   Creative, stimulating atmosphere
   Respect for children by adults
   CREATES Center
5. Courtesy and hospitality of staff
   Slide show; orientation
   Personal storage spaces for children
   Drama presentation
   Use of space in building and rooms
   Written directions
   Preparation for real world
   Child as a teacher

DISLIKES

1. Noise level in school, library
   Messiness; disorganization; clutter
2. Running in building
3. Lack of discipline; non-punishment
   Lack of supervision for less self-directed children
   Children taking advantage of freedom; lack of teacher control
4. Possibility of neglecting quiet children
   Lack of differentiation in age groups, expecially younger ones
   Unsuitable building

THINGS ABOUT ELC WHICH ARE DIFFERENT

1. Freedom
2. Absence of regimentation, physical and human
   Many choices
   Student responsibility and self-scheduling
3. Informality
   Interest in individual children
   Mixing of age groups
   Couches in rooms
4. True concern with learning
   Stress on self-control
   Relaxation, contentment; happiness

THINGS ABOUT ELC WHICH ARE DIFFERENT (continued)

Interesting, unusual materials and equipment
No obvious behavior problems
5. Interest in growth of "whole child"
Not having to do anything
Mini-courses
Lack of discipline
Advanced social interaction
TV in library
Good student-teacher relationships
Open communication of children
Much use and display of student work
Creative use of space; large areas
Excellent teaching techniques

MISCELLANEOUS COMMENTS

1. Actual implementation of innovative systems and techniques
2. Good number and variety of choices
Noticed children not doing anything but playing
Should be more structure and teacher direction
3. Good use of inexpensive materials
Children taking advantage of freedom; out of control
Happy decorations
Too many children in a room
Roaming in halls
Need more coat hooks
What about evaluation of progress?
School is daring to "break the mold" -- "stretching"
Like real life

ITEM #6 (Did the visit:) * In order: most often to least often chosen

1st Choice: encourage you to try some new things that you have not done before.

2nd Choice: give you the feeling you might like to try teaching in an "open school" program.

3rd Choice: give you support for continuing to do things that are similar to what you saw here.

4th Choice: encourage you to continue doing what you have done with basically no change.

ITEM #8 (Please check the items that you feel apply to ELC:)

15% laissez-faire
100% structured for freedom
85% open
60% permissive
5% disorganized
90% student self-directed
20% unstructured
5% imposed learning
10% undisciplined
95% individualized
45% organized

ITEM #9 (Do you see most of the children at ELC [YES answers])

90% involved with what they're doing?
5% looking confused?
90% involved in worthwhile learning?
100% being creative?
20% wasting too much time?
70% making appropriate activity choices?

ITEM #10 (For each of the following methods, mark . . .)

A...if you plan to immediately implement the idea in your school.
B...if you consider the idea a long-range goal but not currently practical.
C...if you need more information to decide.
D...if you think you would not want to provide this for children.

A multiple activities for children to choose from
A independent scheduling
C mini-courses
B cross-age grouping
A direct experience learning
A team teaching
A no report card grades
A de-emphasizing textbooks
C emphasis on interdisciplinary curriculum
C nondirective teaching
A individualized learning
C self-determined learning
A nonpunitive discipline
A&C in-depth projects in comparison to exposure to many areas of knowledge

DISSEMINATION ACTIVITY
1972-73

PRINTED DISSEMINATION

Materials sent for information in response to requests . . . . . 26 mailings

TELEVISION

Nov., 1972; 5 minute segment on ELC Political Party Conventions; Marie Fraesdorf; KVOA-TV; 7:25 a.m. (local portion of NBC Today)

RADIO

April, 1973; segments of taped interview with Ron DeWitt re Project CREATES-ELC; KTKT; 9:00 - 10:00 p.m.

PRINTED PUBLICITY AND INFORMATION

October, 1972; Tucson Daily Citizen; article on ELC Political Conventions; Kathleen MacDonald, writer; Manuel Miera, photographer.

May, 1973; Pima Community College newspaper; article "Kids Learn Freedom at ELC"; John Young, writer; with photograph.

Chapter in book Open Sesame -- A Primer in Open Education; (to be released January, 1974); Myra Danielson, contributor (teacher at ELC); Evelyn Carswell and Darrell Roubinek, authors; Goodyear Publishing Co.

SPEAKING ENGAGEMENTS AND PRESENTATIONS

Group	No.	Place	Topic	Participants
September				
Education Students	70	Pima Com. Coll.	CREATES-ELC	Ron DeWitt
EKNE (Elementary, Kindergarten and Nursery Educators)	15	U. of A.	CREATES-ELC	Ron DeWitt
October				
Education Students	30	U. of A.	CREATES-ELC	Ron DeWitt
Education Students	25	U. of A.	CREATES-ELC	Ron DeWitt
Innovation Fair for convention of ESEA Title III National Advisory Councils	400	Scottsdale, AZ	Exhibit and presentation; CREATES-ELC	Ron DeWitt & 2 teachers

Group	No.	Place	Topic	Participants
October (continued)				
U. of A. Education Students	25	ELC	CREATES-ELC	Louis Cordova
U. of A. Education Students	25	ELC	CREATES-ELC	Ron DeWitt
U. of A. Education Students	25	ELC	CREATES-ELC	Louis Cordova
U. of A. Education Students	20	ELC	CREATES-ELC	Ron DeWitt
U. of A. Graduate Seminar	35	ELC	CREATES-ELC	Ron DeWitt
U. of A. Education Students	30	ELC	CREATES-ELC	Ron DeWitt
Graduate Seminar	125	U. of Calif., Riverside	Developing an Alternative School Through A Synergistic Approach	Ron DeWitt
November				
Education Students	10	U. of A.	CREATES-ELC	Louis Cordova
January				
P.E.O. Woman's Club	40	Private home	CREATES-ELC	Jean Hammerstein
February				
Teachers' Workshop sponsored by State Dept. of Education	25	Joseph City, AZ	Teaching of Science in Centers	Shirley Brown & Myra Danielson
Education Students	25	U. of A.	CREATES-ELC	Ron DeWitt
March				
Graduate Seminar	20	U. of A.	Innovative Materials	Myra Danielson
Teachers from Miami, Arizona		ELC	Planning and setting up an open school	Sandy Guerrieri Bettye McCant
Education Students	25	U. of A.	CREATES-ELC	Ron DeWitt
ASCD Convention (special session)	75-100	Minneapolis, Minn.	Freedom in Schools -- Can It Be?	Ron DeWitt Myra Danielson Shirley Brown

Group	No.	Place	Topic	Participants
March (continued)				
Innovation Fair of Ariz. Title III	400	Phoenix, AZ	Exhibit	Ron DeWitt & 2 teachers
April				
Education Students	35	U. of A.	CREATES - slide show and pre-sentation	Sandy Guerrieri
Parent Group	10	San Diego, CA	CREATES-ELC	Ron DeWitt
May				
Education Students	30	U. of A.	CREATES curriculum	Ron DeWitt

TUCSON DISTRICT #1 TEACHER VISITATIONS AT ELC
(only those with substitutes provided by Project CREATES)
1972-73

School/Dept.	No. of Visits
Bonillas	4
Booth	2
Borton	2
Brichta	4
Cavett	2
Davidson	3
Erickson	8
Fort Lowell	1
Fruchthendler	3
Gale	2
Holladay	1
Hudlow	7
Jefferson Park	2
Keen	4
Lawrence	2
Lineweaver	3
Lynn	2
Menlo Park	2
Mission View	1
Ochoa	2
Pueblo Gardens	1
Reynolds	2
Rogers	4
Roosevelt	1
Rose	2
Roskruge	4
Steele	4
Tolson	4
Tully	1
Van Buskirk	3
Vesey	3
Wheeler	6
White	2
Wright	6
Gumo	2
Doolen Jr. High	2
Librarians	2
Adaptive Education	2
	108

NOTE: Of 65 elementary schools in the district, 35 sent teachers to visit during the year.

* *

THE OPEN SCHOOL AND THE CREATES MODEL -- University of Arizona Extension Course (Substitutes provided by Project CREATES for participants to visit ELC) . . . . 61 visiting days were used as part of this course.

1.3 Project administrators will be aware of general acceptance of the program by parents, as evidenced by an opinionnaire to be distributed in February, 1973.

1.3.1 An opinionnaire will be sent to parents of children in the school. The opinionnaire may be answered and returned anonymously.

Parents were surveyed (see sample and data tallies following) in February to determine generally how they felt about various aspects of Project CREATES. The results showed that 75% of the parents responding were pleased with the program without reservation. Most parents (91%) felt that their children were happy at school. It is interesting to note that parents as a group ranked "positive attitude toward learning" as the highest priority for their children, as compared to "skills" the first project year. This represents a change in parent attitudes and in the values they assign to their children's educational experiences.

It was evident from comments made by parents on the questionnaire that there is broad support for the school as an alternative. The comments have been compiled and are available on request.

[illegible]

[illegible] sent
165 responses
42.6% return

PROJECT CREATES - EXPLORATORY LEARNING CENTER
ESEA Title III - Tucson Public Schools

February, 1973

Dear Parents:

In the last year of federal funding for Project CREATES, we are concerned with your feelings and opinions of the project. Since the school will continue to operate under the auspices of Tucson District #1, your ideas and suggestions will help us to better meet your needs and those of your children.

We would appreciate your filling out this questionnaire and returning it to us in the enclosed envelope at your earliest convenience. Please notice that a separate copy is enclosed for each child in your family who attends ELC.

You have the choice of signing the questionnaire or leaving it unsigned. Thank you for your cooperation.

1. When did your child enter ELC for the first time?

←'69	'70	'71	'72→
4 yrs	3 yrs	2 yrs	1 yr
13	15	47	84
7.9%	9.1%	28.5%	50.9%

2. How did you feel about the project as your child entered ELC?

118 (71.5%) enthusiastic
33 (20.0%) interested
5 (3.0%) indifferent/no opinion
7 (4.2%) doubtful

3. How do you feel about the project now?

124 (75.2%) pleased
10 (6.1%) indifferent/no opinion
29 (17.6%) doubtful

4. Do you feel your child is generally happy at school?

151 (91.5%) yes
5 (3.0%) no
7 (4.2%) don't know

5. What ideas or activities does your child bring home from school?

126 (76.4%) Art and craft projects
88 (53.3%) Academic projects (writing, research, etc.)
90 (54.5%) Activities from the Work Centers (music/drama, cooking, sewing, etc.)
124 (75.2%) Library books
32 (19.4%) Science projects
6 (3.6%) None
0 Don't know

6. Does your child continue to work on or finish the ideas and projects he brings home from school?

39 (23.6%) often
103 (62.4%) sometimes
0 don't know
17 (10.3%) never

7. Please check how you feel your child is doing in each of the following:

	better than expected	about what I expected	worse than expected	don't know
Reading	25 (23.8%)	60 (57.1%)	20 (19.0%)	4 (3.8%)
Writing	19 (18.1%)	63 (60.0%)	23 (21.9%)	3 (2.9%)
Mathematics	25 (24.0%)	51 (49.0%)	23 (22.1%)	13 (12.5%)
Social development	27 (25.7%)	67 (63.8%)	11 (10.5%)	9 (8.6%)
Creative development	27 (25.7%)	71 (67.6%)	17 (16.2%)	10 (9.5%)
Self-reliance	27 (25.7%)	75 (71.4%)	14 (13.3%)	7 (6.7%)

8. Do you feel that your child is being adequately disciplined at school?

0	12 (7.3%)	120 (72.7%)	30 (18.2%)
too much	too little	about right	don't know

9. Have there been any problems you needed or wanted to discuss with someone at school?

104 (63.0%)	57 (34.5%)
yes	no

10. If you answered "yes" to Question 9, have you contacted the school?

83 (50.3%)	10 (6.1%)	10 (6.1%)
yes, successfully	yes, but without success	no

Explain, if you wish: Please see list of comments (separate list)

11. Please rank the following in order of importance according to what you think your child should develop at school:

Academic skills
Positive attitude toward learning
Creativity
Social growth
Self-reliance

See following sheet for ranks

12. What changes, if any, have you noticed in your child this year? Please indicate both good and bad changes, perhaps in such things as: 1) child's attitude toward school and learning, 2) child's ability to assume responsibility, 3) child's response to challenges, and 4) child's dealings with other people.

See separate list of comments

Please feel free to make any other comments you wish. Thank you for your help.

See separate list of comments

Signature (optional) _____

ITEM #11

	1	2	3	4	5
Academic Skills	25 (15.2%)	24 (14.5%)	42 (25.5%)	18 (10.9%)	41 (24.8%)
Positive Attitude	92 (55.8%)	22 (13.3%)	13 (7.9%)	14 (8.5%)	7 (4.2%)
Creativity	11 (6.7%)	29 (17.6%)	38 (23.0%)	46 (27.9%)	22 (13.3%)
Social Growth	10 (6.1%)	20 (12.1%)	31 (18.8%)	37 (22.4%)	49 (29.7%)
Self-reliance	27 (16.4%)	56 (33.9%)	32 (19.4%)	22 (13.3%)	9 (5.5%)

Rank order:

1. Positive attitude toward learning
2. Self-reliance
3. Academic skills
4. Creativity
5. Social growth

1.4 Project administrators will provide continuing opportunities for school personnel to examine and define their roles and explore new ways of working, as evidenced by written evaluation of a summer pre-service.

1.4.1 A 9-day paid summer pre-service will be held in August for teachers and administrators, including some auxiliary personnel.

Report completed and submitted October 31, 1972.

1.5 Project administrators will assess whether the use of teachers' aides allows more attention to the individual needs of children, as evidenced by teacher survey.

1.5.1 Teachers will be surveyed in October and April to determine whether the use of aides has allowed them more time to attend to the individual needs of children.

The survey instrument, administered fall and spring, was constructed in such a way as to "camoflage" the primary questions. As may be seen on the sample following, "working with small groups" and "working with individuals" were among several items to be ranked by teachers in terms of aides and student-teacher-aides. Both of these items ranked high, being chosen as first, second or third by teachers as functions which they were best able to perform because of their aides.

Other general observations drawn from the survey are that teachers seemed to be more satisfied with both aides and student-teacher-aides in the spring than in the fall. However, teachers did not conclude that student-teacher-aides were as effective as regular aides, and overwhelmingly (90%) indicated their preference for a regular full-time aide next year. Also, the teachers were more positive in the spring about the replacement of three teachers with equivalent aide time. They seem to have compensated satisfactorily and were able to improve their programs during the year.

The plans for continuation of the program next year do not include the use of student teachers as part-time paid aides.

AIDE EVALUATION
'72 - '73

TEACHER TALLY DATE FALL 1972

1. We are interested in knowing where your aides are giving you the most help or extra time. Rank the following teacher functions from 1 to 8, in terms of how your aides give you more time to be effective (1 being the function you perform best because of your aides' help, 8 being the function you perform least effectively). Mark "NO" for any function you do not perform.

Student Teacher-Aide	Regular Aide	
		working with large groups
89%	83%	working with small groups
		planning
84%	73%	working with individuals
Most often chosen	last	record keeping
		evaluation of students
		discipline
		monitoring student movement

Marked as 1st, 2nd or 3rd choice

2. (YES) or NO - - - I am satisfied with the usefulness of my aides in ...

Student Teacher Aide	Regular Aide	
0%	3%	contributing new ideas
0%	7%	Helping with preparations
12%	3%	clean up
88%	77%	knowing her/his role
100%	97%	cooperative team-work
72%	83%	record keeping
100%	100%	working with individuals
100%	100%	approach to teaching

3. Generally speaking, do the student teacher-aides serve as effectively as regular aides? 67% YES 33% NO

4. What was the effect on your program of replacing 3 teachers with equivalent aide time? Is your program now:

none	more effective
12%	the same
88%	less effective

5. Could parent volunteers take the place of an aide? _____ Why or why not?

20% YES 80% NO

6. Do you want an aide next year? 100% - yes Do you prefer 56% regular full-time?
27% student teacher?
20% half & half?

AIDE EVALUATION
'72 - '73

TEACHER TALLY DATE SPRING 1973

1. We are interested in knowing where your aides are giving you the most help or extra time. Rank the following teacher functions from 1 to 8, in terms of how your aides give you more time to be effective (1 being the function you perform best because of your aides' help, 8 being the function you perform least effectively). Mark "NO" for any function you do not perform.

Student Teacher-Aide	Regular Aide		
		working with large groups	
88%	100%	working with small groups	Marked as 1st, 2nd or 3rd choice
		planning	
[illegible]	90%	working with individuals	
Most often chosen last		record keeping	
		evaluation of students	
		discipline	
		monitoring student movement	

2. (YES) or NO - - - I am satisfied with the usefulness of my aides in ...

Student Teacher Aide	Regular Aide	
75%	[illegible]	contributing new ideas
100%	[illegible]	helping with preparations
88%	100%	clean up
100%	90%	knowing her/his role
100%	100%	cooperative team-work
75%	[illegible]	record keeping
100%	100%	working with individuals
100%	[illegible]	approach to teaching

3. Generally speaking, do the student teacher-aides serve as effectively as regular aides? 46% YES 54% NO

4. What was the effect on your program of replacing 3 teachers with equivalent aide time? Is your program now:

20% more effective
40% the same
40% less effective

5. Could parent volunteers take the place of an aide? ________ Why or why not?

9% YES 91% NO

6. Do you want an aide next year? 100% - yes Do you prefer 90% regular full-time?
0 student teacher?
10% half & half?

1.6 Teachers and auxiliary personnel will develop new curriculum materials which place emphasis on non-textbook sources, as evidenced by records kept by teachers and auxiliary personnel.

Teachers and the art technician were asked three times during the year to summarize their ideas and list them. In addition, the data collector observed in classrooms and talked with teachers, making notes about unusual materials and techniques to supplement or replace textbooks. The resulting ideas are catalogued beginning on the next page.

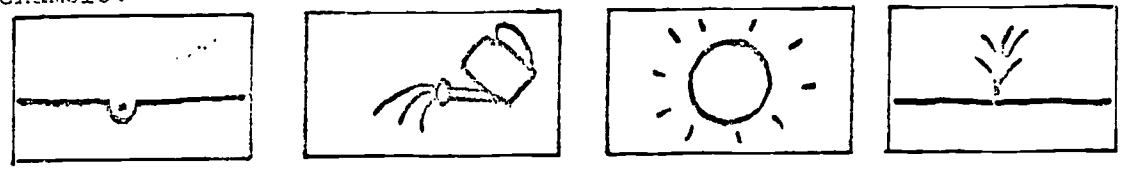
CURRICULUM MATERIALS AND IDEAS

1. Creative writing -- have children cut headlines from newspapers and write their own articles.

2. Read a story to children. Let them make up their own by changing words, etc. (Ex.: "Never Talk to Strangers" -- If you see a big fat bear lurking around far and near, don't tell him to comb his hair. Never talk to strangers.)

3. Using magazines, have children cut out different heads, bodies and feet and put them together. "Wierdo". Have them name their animals, tell where they live, what they eat, etc. Reading, writing practice.

4. Classification -- Cut out sequence cards, string them, and have children put them in order of what happened first, second and third. For example:



Plant a seed 1 | Water the seed 2 | Sun comes out 3 | Plant grows 4

5. Science kits developed from E.S.S. to be checked out for individual work or used in learning center. Example is "structures".

6. Concept kits developed from "Workjobs" book -- areas of math, science and language arts.

7. Use of homemade and commercial games for all areas of the curriculum as well as problem solving, reading.

8. Use of resource people for special interest areas. For example, political candidates to talk about city planning.

9. First-hand experiences such as field trip to high school to work in the industrial arts areas such as photography, welding, woodshop, etc.

10. Role-playing such as mock political convention at national election time.

11. Interest centers set up by children (examples: plants, rocks). Teach children problem-solving, research, seeking and using resources, planning.

12. "Hands-on" experiences such as wood and junk construction. Tinker table teaches the use of tools, problem-solving, creativity, math, etc.

13. Live animals (many possibilities)

14. Child-run mini courses, such as a class in Ecology run by 4th and 6th-grade girls.

15. Independent study ideas -- posters, charts, bulletin boards, folder suggestions, independent dittoed activities.

16. Children as a group select words to be made into spelling lists. Children independently choose lists to learn, and when able to write them correctly from memory, go to the next list. Each child keeps mastery record.

17. Parts of speech -- fill three cans with silly words. One can contains adverbs, the second adjectives, and the third nouns. Ditto stories with lots of blanks (e.g., John bought a _____ (adverb), _____ (adjective), _____ (noun). Child draws a word from the can called for and writes in word. Read the stories aloud in class.

18. Math -- collect weights, beans, measuring instruments, etc. On stiff cards, write out problems to work out with the materials. Put cards on a metal ring. Good for independent work.

19. Cooking activities for measuring practice. Sewing activities for measuring and fine motor coordination. Woodworking for planning, math, problem-solving.

20. Set up entire room as a postal district of the city. Name streets and assign addresses. Children develop and make stamps and other necessary jobs. Deliver addressed valentines or Christmas cards. Good activity for money value, purchasing stamps, learning sequence of address numbers.

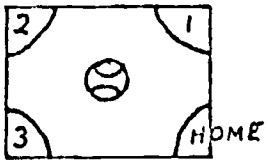
21. Creative writing -- story starters done on manila folders with pictures to stimulate writing.

22. Math -- bingo-type cards for multiplication. Calling cards have problems such as 2 X 4, etc. Bingo cards same as commercial games but sturdier.

23. Rather than individual consumable activity sheets, put activity ideas into manila folders or on poster board. Cover with clear contact paper for durability and multiple use. Good for independent work.

24. Regrouping boards -- paint small rectangular wood scrap, place nails at an acute angle so that they will hold key tags. On key tags write numerals. Child places key tags to set up a problem, computes, and finds tags for the answer. For young children, make only + and - boards, for older ones, also provide X and — boards.

25. Baseball -- to be played by 2 children. Write addition, subtraction, multiplication or division facts on "baseballs" made of cardboard. Place a new one on the pitcher's mound each time. Each correct answer allows player to move one base, 3 incorrect answers in a row are an out, etc.

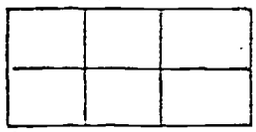


26. Math matching cards -- facts and answers.

27. Games in Envelopes -- For all games, need felt board and cut-out pieces with answers on small cards in the envelopes so that children can check their own work.

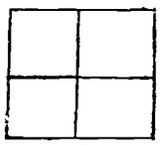
1) The Three Squares
Materials: 4 full-length strips of felt
4 half-length strips
Problem: Place the 8 pieces on the flannel board so they will form 3 equal squares. Check your work.

2) From 6 to 3 Squares
Materials: 17 felt strips
Problem: First, arrange the 17 strips, as shown, to form 6 squares.



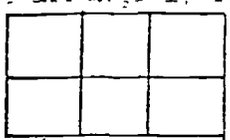
Then, remove 5 strips, without touching any others, and leave 3 squares, each with the same size and shape as the original squares. Check your answers.

3) From 4 to 2 Squares
Materials: 12 felt strips
Problem: First, arrange the felt strips to form 4 squares as shown below.



Then, remove 2 strips and leave just 2 squares. Check your work.

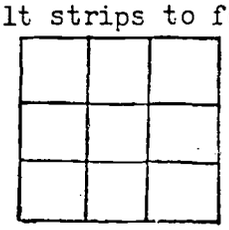
4) From 6 to 2 Squares
Materials: 17 felt strips
Problem: First arrange 17 felt strips to form 6 squares as shown.



Then, remove 6 of the strips and leave 2 squares. Check your answer.

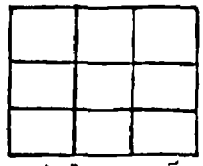
5) Triangles
Materials: 10 felt strips
Problem: Make 5 triangles with the 10 strips. Check your answer.

6) From 9 to 2 Squares
Materials: 24 felt strips
Problem: First, arrange 24 felt strips to form 9 squares as shown.



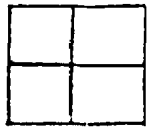
Then, remove 8 strips and leave 2 squares. Check your work.

7) From 9 to 5 Squares
Materials: 24 felt strips
Problem: First, arrange the 24 felt strips to form 9 squares as shown below.



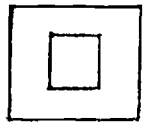
Then remove 4 strips and leave 5 squares. Check your work.

8) 12 Felt Strips Make How Many Squares?
Materials: 12 felt strips
Problem: First, arrange the felt strips to form 4 squares as shown.



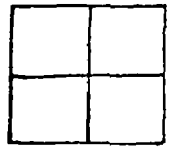
Then move 3 strips so that instead of 4 squares you will make 3 squares, all of which will be the same size as the original squares. Check your answer.

9) Big and Little Squares
Materials: 12 felt strips
Problem: Arrange 8 strips into a large square. Make a small square from 4 strips inside it as shown.



Then, remove 2 strips from the large square, then join the remaining 6 strips to the inner square so as to form 3 squares all the same size. Check your answer.

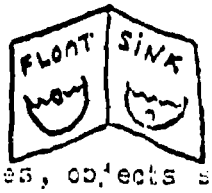
10) Same Strips, Fewer Squares
Materials: 12 felt strips
Problem: First, arrange the 12 strips (make 4 adjoining squares) as shown below:



Then, remove 3 strips and put them back in a different position so as to form 3 squares, all the same size. Check your work.

28. Measurement Kit -- Shoe-type box containing materials and instructions
Materials: ruler, stick, cord, ribbon, red tape, elastic strip, metal strip
Instructions: 1) Measure the length of each piece of material.
2) What is the total length of the materials?
3) What is the average length?
4) Are some materials hard to measure? Why?

29. Float or Sink Kit -- Box containing materials and instructions
Materials: Stand-up board illustrating "float and sink"



2 sponges, objects such as plastic toys, marbles, sticks, blocks, styrofoam pieces, etc., and plastic water container

Instructions:
1) Place Float or Sink board on a table.
2) Place a sponge on the table by each side of the board.
3) Fill the plastic container with water.
4) Take the objects from the box one at a time and place in the water.
5) Does the object float or sink?
6) Remove the object from the water and place it on the sponge by the correct answer.
7) After all the objects have been classified, see if is possible to reverse the results.
8) Explain how you alter your testing and what happens.
9) When finished, dry container and objects and wring out the sponges.

30. Primary children -- cut out magazine pictures to illustrate "I want to be a _____ when I grow up". Also, "Thinking about home makes me think of _____.".

31. Small "reading houses" -- visually blocked, carpeted corners, packing crates with pillows, couches behind bookcases, etc.

The following section deals with ideas from the CREATES Center. The main idea behind CREATES is stimulation for individual projects in science, geography, math applications (such as architecture) and a little art -- all mixed together for the acquiring of empirical knowledge through doing. Therefore, no texts are used. Reference books such as encyclopedias are both available and displayed in interest centers with appropriate pages opened. Bulletin boards made by teachers and children both give knowledge and project ideas. As children finish a project, they write it up and display it for others to share, thus language arts are integrated into the program.

32. Bulletin Boards
1) Cultures of metal, sand, salt, steel wool, washing soda, sunflower seeds, mixture of sand and salt
Signs -- "Things which may or may not change"
"Things which will never change"
"What changes do you observe? --

drying	fuzz
crystals	rusting
dissolving	mold
corrosion	color change
evaporation	cracks
rotting	slime
sprouting	melting"

2) "Design a ship and build a model of your design.
Will your model float?
What kind of ship is your model?"

33. Tinker Table -- table of machines such as old typewriters with directions on how to take something apart and put it back together.

How To Take Something Apart

1) Place the first part you take off on the far left hand side.
2) Place the next part to the right of the first part.
3) Continue to place each part you take off to the right of the last part you took off.

How To Put It Back Together

1) Pick up the last part on the far right hand side.
2) Continue to pick up the last part on the far right-hand side until the object is complete.
3) If you have any parts left, then you must take the thing apart and find out where it goes.

34. "How many ways can you sort rocks? Try it!" Box of rocks with display of magazine articles about rocks, or reference books. Or, "How many ways can you sort shells?", etc.

35. "Make a drawing of the inside of a fish. Label the parts."

36. "Make an ocean diorama. Show what the ocean floor looks like."

37. Picture of a shark displayed with reference books and sign "What kind of shark is this?"

38. Bird's nest (de-bugged) with sign "What can you discover about a bird's nest?"

39. Use of parents as resources -- such as specialist on octopi, silversmith, optical sciences specialist (lenses and prisms), mini-course in tye-dying and batik.

40. Individual folders with independent-study projects, such as:

Layers of Sediment

Needed: Table with several books on rocks
Bulletin Board display with rocks
Place for student to sit
Table display with labeled rocks
Sign: "What is soil? Get a piece of paper and two rocks. Rub them together and you will see soil."

In folder: Materials -- a pint of soil; pint of pebbles, gravel and sand; a tall glass jar that will hold two quarts or more; water

Procedure:
1) Put the soil, pebbles, gravel and sand in the jar. Add about the same amount of water.
2) Shake the mixture up, or stir it up thoroughly. Let it stand.
3) Observe how the sediment settles to the bottom.

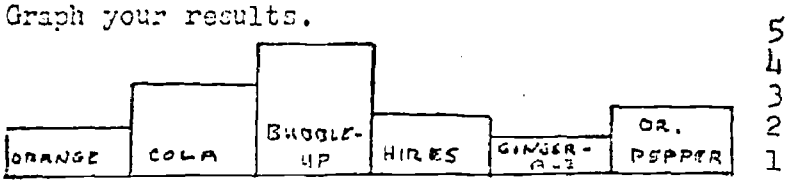
4) What sediment settles to the bottom first? Can you explain why and test your explanation?
5) If you shake the jar again, predict what will happen. Will the sediment settle in the same order?

41. Bulletin Board Activities

1) Structures
   a) Build the highest structure you can with 10 pins and 10 straws.
   b) Can you build a structure coming out of the wall?
   c) Build a bridge between 2 desks (using model desks).
   d) Test the strength of your structure.
   e) How many pieces of cargo will your structure support?

   Encyclopedia pictures of buildings with sign "How are these structures alike? How are they different?"

2) Graphing
   a) Sort the bottle caps by color.
   b) Graph your results.



   c) What other ways can you sort the bottle caps?

3) Ecology
   -- cartoon reminders
   -- newspaper articles
   -- posters

   Write an anti-pollution poem or song.
   Write a report on an animal that is becoming extinct.
   Make a food chain. Example: A minnow eats a small sea plant, then a salmon eats the minnow and a shark eats the salmon.

Something to think about:

Have you ever thought of earth as a space ship? With people, plants and animals on board as passengers. But Earth is not like space ships that went to the moon. It cannot be loaded up with new supplies. It will never stop. Junk cannot be thrown off our spaceship Earth. And there is no second Earth waiting if this one doesn't work. All that Earth's passengers can do is take care of their space ship.

Today the Earth is low on supplies, and it is getting crowded and dirty. Now suppose all of a sudden people start killing the plants and animals.

To help control and help animals and plants there is ecology.

PRODUCT (BEHAVIORAL) OBJECTIVES

Activities, Procedures, Evaluation

The first year of the project, a stratified random sample of 40 children was chosen and identified as the targets for data-gathering related to product objectives. For stratification criteria, please see yellow sheet following this section. Each subsequent project year, approximately one-half of the sample was lost due to change of schools (graduation, families moving, etc.). The replacement sample children were selected according to the original criteria to maintain a balanced sample.

Data-collection procedures and instrumentation have differed each year of the project, as reported in each year-end evaluation. As with other aspects of the project, evaluation procedures have continued to evolve and change according to the requirements of the program. Unless otherwise indicated, explanations and data that follow refer to the third year only. Where data deal with three-year comparisons, they will be labeled as such.

GENERAL INFORMATION

Sample: n = 40, tested fall and spring. Sample was used for all product objectives except 4.1, 4.4 and 4.5, for which the total school population was used.

Procedure: The same procedure of teacher observations was followed for Objectives 2.1 - 2.4, 3.1, 3.2 and 4.6. That is, sample children were observed by teachers for specified two-week periods in the fall and again in the spring. All of the above listed objectives were observed during the same two-week period. During observation teachers would rate children daily in many areas (see the instruments), according to the following criteria:

1 = needs much improvement
2 = needs some improvement
3 = satisfactory
4 = above average

Thus, all rating criteria for the various objectives were uniform to aid the teacher in making judgments. Also, operational definitions of terms were written to help make teacher ratings more reliable. These may be found on page 46.

Each sample child received ratings from several teachers. As each teacher completed her two-week observation of a child, she compiled her daily ratings to derive final ratings for each child, in all the categories indicated on the rating instruments. Final ratings from all teachers were then averaged to give each sample child an average rating in each category. Within a given category, then, such as Self-Direction, ratings of all children were averaged to compute primary, intermediate and total school averages. For further

information, refer to the yellow sheets behind this section giving observation instructions to teachers.

Instruments: Separate observation instruments were designed for Objectives 2.1 - 2.4, 3.1, 3.2 and 4.6. Teachers rated according to the 1 to 4-point rating scale on all four instruments, however. Within each broad category, such as "initiative", a number of concrete examples were listed upon which a child might receive a rating, according to how he handled the situation. Thus, teachers rated situations throughout the day as they saw them occur, not merely at specified time periods. Thus at the end of a day, a child received an "initiative" rating according to the examples which were observed. Examples where there was no opportunity for observation that day did not count as a zero for the child; rather, he was observed and rated as soon as the opportunity did occur.

In this way teacher ratings were subjective. Because of the flexibility for movement and activity within the school, a more objective time interval sampling of behavior was not practical.

Please refer to the table on page 75 for the combined results of all teacher observations on all scales.

2. To allow children to become responsibly self-directing

2.1 Each child will develop means for initiating individual study during the school year as evidenced by a system of observation.

2.2 Each student will seek out materials, equipment or people as resources for pursuing his selected interests during the school year, as evidenced by a system of observation.

2.3 Each child will indicate responsibility during the school year by supporting the activities of others and by caring for materials and equipment, as evidenced by a system of observation.

2.4 When provided with the opportunity, a child will respond to or evaluate a product of his creative exploration, as evidenced by a system of observation.

The instrument used can be found on page 51. Since Objectives 2.1, 2.2, 2.3 and 2.4 are closely related and are considered to be components of self-direction, they were evaluated together.

As described earlier, sample children were observed fall and spring for specified two-week periods. Final data, however, only included those children who remained in school the entire year, to allow a self-paired analysis. With four major categories of observation, the rating scale allowed each child to earn from 4 to 16 points, a higher number of points indicating greater achievement. Teachers were instructed to rate each child according to what they might expect for an average child of the same chronological age.

The average number of total points per child was computed for fall

and spring. Mean points received for primary children were also calculated separate from those of intermediate children.

The mean number of points received in the spring was greater than in the fall, both for primary and intermediate children. Results indicate statistically significant ($p < .01$) growth in self-direction at all age levels.

	Primary Averages	Intermediate Averages	Total Averages
FALL	8.695	10.120	9.387
SPRING	10.565**	12.015**	11.269**
n	18	17	35

** Improvement significant at $p < .01$ level

SELF-DIRECTION

Mean Numbers of Points
(Possible Range = 4 - 16 Points)

STRATIFICATION OF SAMPLE

The sample of 40 children was chosen according to the following considerations:

1. Geographical area -- Tucson District #1 was divided into 5 areas: northeast, northwest, southeast, southwest and immediate school area. Immediate school area is considered to be within a total of 5 blocks of the school. The ratio of students in each area to total enrollment was maintained in the sample.

2. Ethnic -- Enrollment was categorized into Negro, Mexican-American, Oriental, American Indian, Anglo and Other. Numbers of sample children from each category represent the percentages of those ethnic groups in total enrollment.

3. Primary-Intermediate -- Primary is approximately 60% of enrollment, intermediate is approximately 40%. This was represented by 22 primary sample children and 18 intermediates.

4. Male-Female -- Percentage of males and females in sample was figured as was percentage of primary and intermediate children.

5. Handicapped children -- In the first two project years, there was 1 physically handicapped child in the sample and one with a learning disability. In the third project year, there were no handicapped children in the school, therefore no handicapped children in the sample.

6. Siblings -- No siblings were selected.

7. Base Centers -- An attempt was made to equalize the distribution among Base centers as much as possible. This was the lowest priority for selection of the sample. No kindergarten children were included in the sample.

THE NEW, IMPROVED EDITION OF - - - - - - - - OBSERVING CHILDREN CAN BE FUN??

WHEN? → Oct. 2 - Oct. 27, 1972

ALL DAY --- EVERY DAY

WHERE? → All Bases, Creates, Music/Drama, Workroom, Library

WHO? → All teachers observe the 40 sample kids

HOW? → BASES: Each teacher select ¼ the subjects in your area to concentrate on each week, for one week. Details on next page.
OUTSIDE CENTERS: Rate kids as you see them.

WITH WHAT? → RATING SCALES:
1. Responsible Self-Direction
2. Environmental Awareness
3. Coping Behavior
4. Social Skills Development

DUE DATES? → Every Monday morning, beginning Oct. 2----
Have ready for checking:
(1) Who is going to be observed that week, and by whom
(2) Observation records from the week before (none due Oct. 2)

OCTOBER 27: Final rating sheets on <u>every</u> sample child, from <u>every</u> teacher. Outside-center teachers, give your ratings to the appropriate base teachers. Base teachers, staple all rating sheets for the same child together and hold onto them. We'll collect them.

SPECIFICS

1. Please put the student's name on <u>every</u> sheet of paper.

2. You will notice all 4 Checklists require rating of the child's performance in several <u>broad</u> categories.
   --Rate the child in <u>every</u> category, based on what you've observed. Leave no blanks.
   --Rate <u>only</u> the broad categories where boxes are provided. The other detailed categories are selected examples to help you observe.
3. We have changed the observation procedure to allow you to complete the checklists after the children leave in the afternoon. Several other changes accompany this:

**You will be generally observing children all day, instead of at selected observation times.

**You will be rating children on a 1-4 point scale on all rating scales, but only for a few broad categories. Your rating should be based on an average of your ratings of the examples listed in each broad category. Giving only a few broad ratings eliminates the problem of the child not having the opportunity to be rated on all items. So--you only rate him on what you did get to observe. The unobserved items will not count against the child. You will be given an "observation packet" for each sample child. Each packet contains: Directions, Explanations, 2 green weekly observation sheets and 4 yellow Final Rating Scales.

**Look at the green observation sheets. Each sheet covers one week. Make temporary notes and ratings on these sheets as you observe. NOTE: YOU DON'T NEED TO OBSERVE EVERY CATEGORY EVERY DAY. Review your observation sheets at the end of each day, rating what you can; but if you didn't see something, remember to watch for it the next day---then rate that category.

**Each teacher should concentrate on ½ the subjects for one week. Then observe the other half the next week. Start over after 2 weeks, so every child will eventually be observed for 2 weeks by October 27. On October 27 each teacher should take her 2 green weekly observation sheets for each child, review them carefully and complete the 4 yellow final rating scales for every child.

EACH TEACHER SHOULD BASE HER FINAL RATINGS ON HER OWN OBSERVATIONS. NO GROUP CONFERENCES OR DISCUSSIONS ARE TO BE HELD ABOUT THESE CHILDREN.

**Within each base, do discuss who is observing which children each week. By assigning children to specific teachers, you can be sure that each child is being covered by someone every week.

4. All teachers in a base will rate all sample children. Outside-centers teachers, such as those in Music/Drama, CREATES, Workroom and Library will also rate as many sample children as they can. However, if outside center teachers haven't seen a child a total of one hour in 2 weeks, they will not give him a rating. If "not rated" please return a packet for that child with his name, your name and "NR" on the front.

5. Although we are not nailing the observations down to exact time intervals, please observe very carefully whether or not the listed behaviors occur. We want you to present a typical picture of each child, but based on his typical behavior from Oct. 2 to Oct. 27, 1972. Your overall ratings on the checklists should come from your day-by-day observations, not from how you remember this child last year, etc. Comprende?

6. Again, you will notice that the items on the Rating Scales with a * also appear on the Student Progress Report Form. Please feel free to transfer your observations to the Progress forms---before turning in the checklist to us.

Since many checklist items are identical to the ones you want to record, please refer to your List of Operational Definitions to clear up questions about observation.

PROBLEMS?? Please clear them up with Jean or Mary RIGHT AWAY. Don't wait until it's too late to get good data.

OPERATIONAL DEFINITIONS OF EVALUATION MATERIALS

I. SELF-DIRECTION

A. Started work on his own: Child came into center with an idea and began working within 5 minutes independent of adult direction. This does imply knowing basic physical resources (paper, books, arrangement of room) and being prepared (pencil, other materials or equipment he needs to bring with him). Informing adult of his ideas or intentions is appropriate; asking assistance or advice before beginning is not.

B. Organized work plans: Was able to conceptualize a logical order to his work, including materials and resources needed to begin, realistic goals, approximate time needed to complete, and sequential steps to follow. Indicated by verbal or written plan.

C. Sought resources: Was aware of resources needed for his work, either human or physical, and either asked for them or sought them out independent of adult direction. Implies increasing awareness of what is available and how to go about getting it.

D. Cared for equipment and materials: Operated equipment carefully, put it away when finished. Took only what material was needed, returned the rest to the proper place. Reported damage or loss to adult.

E. Finished work: Completed what he started to his own satisfaction, and according to his original plan. May include leaving work for a time and coming back to it, but without having to be reminded more than once.

II. SOCIAL DEVELOPMENT

A "closed group" is defined as that group of 2 or more children who are usually together, good friends, and seem to exclude others. These groups may change composition from time to time, but have a relatively high degree of stability.

"Open group" refers primarily to more dynamic, changing groups open to new members and often goal-oriented. An "open group" may be as small as a committee of 3 who come together for a special purpose, or as large as the total school population. It consists of those outside a child's sphere of good friends.

A. Got along well with others: Was able to accommodate others and control his own behavior to the extent that he functioned without conflict in the group. This may include virtual self-imposed isolation at times, but not disruptive behavior.

B. Respected rights and property of others: Demonstrated respect by handling the property of others with care, by not causing damage to another's property, by extending the same rights to others that he claims for himself.

C. Supported and helped others: Offered positive feedback to others; offered and/or gave assistance to others; supported others verbally or non-verbally (e.g., when offering "moral support").

D. Participated with group: Was able to assume a role in a group and function as part of the whole. Implies cooperation, accomodation, compromising individual goals for the sake of group goals.

E. Expressed feelings constructively: Was able to express his feelings in a way that would improve the situation, excluding destructive behavior. Anger, for example, is considered appropriate if it clears the air and improves the situation which caused it without harm to other people or property.

III. PRODUCTIVE THINKING

A. Initiated new ideas or products: Child either (1) selected an activity which was individually conceived and not modeled in the classroom, or (2) undertook a project which had no identical replica.

B. Participated in group creativity: Child contributed to the group project or discussion by adding an original comment or suggestion or by actively adding to a concrete group product.

C. Identified a problem to be solved: Child at some time showed an understanding of a problem by verbalizing (in his own words) an existing or given problem or one he was personally seeking to resolve.

D. Offered/tried possible solutions to problems: Child at some time either expressed or demonstrated flexibility of problem-attack skills; i.e., he was able to seek alternative routes to unsolved problems.

IV. COMMUNICATION SKILLS

A. Read aloud: Child was willing and able to orally read material.

B. Told about what he had read: Child was able to relate material he had read with enough competency to demonstrate comprehension of the content.

C. Used the library: Child demonstrated a working knowledge of the library resources by either browsing, reading silently at a table, checking out a book, looking up a word in the dictionary, encyclopedia, etc.

D. Sought the meaning of new words: Child explored an unfamiliar word by looking up the meaning in a glossary or dictionary or by asking an adult.

E. Read to find information: Child sought answers to questions through material which had to be read. Verbalized either the question or the answer.

F. Read by choice: Child on occasion selected to read a book, article, etc., either silently or aloud, when other choices of activities were available.

G. Communicated thoughts through writing: Child was able to translate a thought or idea into written language well enough so that others could repeat what he meant.

H. Wrote lucidly: Child wrote clearly enough for an adult to distinguish the words without difficulty.

I. Communicated thoughts through speaking: Child was able to express himself with enough clarity of articulation and thought that the listener comprehended the central ideas.

J. Listened to others: Child attended to another child or adult long enough to be able to relate what was being discussed.

V. MATHEMATICS

"Increasing ability to": any progress shown in the listed areas is considered satisfactory.

A. Use computational skills: Child shows progress in his ability to solve problems in addition, subtraction, multiplication and division.

B. Demonstrates understanding of math concepts: Child can verbalize and/or apply a general understanding of how related parts constitute a whole idea or rule; e.g., understanding place value, quantity and measurement comparisons, fractional parts of a whole, operational terms and symbols, charts and graphs, the relationships between fundamental operations, and problem-solving.

C. Apply math to practical situations: Child is able to correctly interpret and solve story problems; is able to use tools of measurement and use math concepts to solve everyday problems (e.g., reducing recipes, spacing nails in a board).

OPERATIONAL DEFINITIONS

ENVIRONMENTAL AWARENESS

1. Appropriateness/Adaptability: child responds to a situation in ways which are socially acceptable and in line with school expectations. Appropriateness is judged with respect to time, place and situational variables. Adaptability involves adequate handling of unexpected situations or obstacles.

2. Communication Skills: child accurately perceives and interprets both objective and subjective messages; implies child will grasp the meaning of a social message or situation to the extent that he can anticipate likely conclusions or events.

3. Sensitivity to Self and Others: Child makes use of the nonverbal cues others project to portray personal feeling (example: facial expressions, hidden or subtle messages), such that he correctly interprets his effect on others and is not offensive. Sensitivity may imply modifying his behavior to make it compatible to the situation.

4. Awareness of Surroundings: child is able to apply personal observations of objects in his environment to either create a personal version of a product or add to an existing version of some product. Is "tuned in," observant of changes and is visibly responsive to his surroundings.

DEFINITIONS FOR RESPONSIBLE SELF-DIRECTION

INITIATIVE: The student started promptly and completed self-, teacher- or group-assigned tasks that together comprised the minimum requirements related to the various curriculum areas.

UTILIZATION OF RESOURCES: Was aware of resources needed for his work, either human or physical, and either asked for them or sought them out independent of adult direction. Implies increasing awareness of what is available and how to go about getting it.

RESPONSIBILITY: Child showed understanding that he is personally accountable for his actions, projects and materials. At the same time the student showed respect for the rights of others.

EVALUATION: After completing a project to his satisfaction and/or commitment, the child will demonstrate his opinion of his work (positive, negative or neutral). Not evaluating his work would be leaving his work, completed or not, with no verbal response or non-verbal expression of his feeling about it.

The goal is to get the child to rely on his own evaluation of his work, independent of the standards of others. Therefore, in order for the child to receive a higher rating, he should show an increasing trend toward having opinions about his work, whether positive or negative, and he should be decreasing the amount of evaluation he seeks or depends on from others.

Appraises work realistically: Emphasizes point that student need not think all his work is great. He needs to know when work needs correction or improvement, or when the quality of his work is not up to his average performance level.

RESPONSIBLE SELF-DIRECTION (2.1-2.4)

Student_____ Teacher_____ Date_____

RATING SCALE:

1 = needs much improvement
2 = needs some improvement
3 = satisfactory
4 = above average

	needs much imp. 1	needs some imp. 2	satis. 3	above aver. 4
I. INITIATIVE				
(I.A)*A. Starts work on his own				
(I.B)*B. Organizes work plans				
C. Keeps working when met with obstacles or interruption				
(III.D)*D. Offers/tries alternative solutions to problems				
E. Works without direct supervision				
(I.E)*F. Finishes work				
G. Makes constructive use of spare time (reads, works, explores without disturbing others)				
* II. UTILIZATION OF RESOURCES				
A. Listens to teacher				
B. Listens to ideas of peers				
C. Asks questions about work				
D. Follows directions				
E. Seeks out material resources				
(III.A)*F. Uses own ideas or products				
(III.B)*G. Contributes to group activity				
(III.C)*H. Identifies a problem to be solved				
III. RESPONSIBILITY				
A. Has materials ready when needed				
B. Works without disturbing classmates				
C. Moves quietly between areas				
D. Picks up work when finished				
(I.D)*E. Takes care of his own materials				
(I.D)*F. Takes care of school's and others' materials				
IV. EVALUATION				
A. Makes evaluative response about his own work				
B. Corrects his own errors				
C. Improves on his product				
D. Appraises work realistically				

* Indicates item also appears on reporting checklist

ADD TOTAL POINTS REC'D. _____

3. To allow children to become more aware of themselves and their total environments.

3.1 Each child will become more deeply aware of his total environment, his relationship to it and his effect on it, as evidenced by a system of observation.

The instrument used to evaluate this objective is found on page . As with Objectives 2.1 - 2.4, the previously described system of teacher observation and the 1 to 4-point rating scale were used. Both fall and spring ratings were conducted on all sample children, but again children who dropped from the program mid-year were deleted from the self-paired analysis. As on the Self-Direction instrument, children could receive a total of 4 to 16 points, a higher number of points indicating greater achievement. Mean points received for primary children were calculated separate from those of intermediate children.

The results indicate statistically significant growth in environmental awareness for both primary and intermediate children.

	Primary Averages	Intermediate Averages	Total Averages
FALL	9.112	10.730	9.898
SPRING	10.912*	11.640*	11.265**
n	18	17	35

* Improvement significant at $p < .05$ level
** Improvement significant at $p < .01$ level

ENVIRONMENTAL AWARENESS

Mean Numbers of Points
(Possible Range of Points = 4 to 16)

ENVIRONMENTAL AWARENESS (3.1)

Student_____ Teacher_____ Date_____

RATING SCALE:

1 = needs much improvement
2 = needs some improvement
3 = satisfactory
4 = above average

	needs much imp. 1	needs some imp. 2	satis. 3	above aver. 4
I. Appropriateness/Adaptability				

Consider:
--appropriateness to the time, place and task
--contributes appropriate additions to the environment
--handles unexpected situations well

II. Communication skills				

Consider:
--understanding of verbal instructions
--understanding of nonverbal messages
--correctly anticipates events or conclusions from cues present

III. Sensitivity to self and others				

Consider:
--sensitive to feelings of peers
--aware of his effect on others
--sense of humor
--correct interpretation of adult feelings

IV. Awareness of surroundings				

Consider:
--able to avoid obstacles, human or physical
--selects an activity displayed in the environment
--notices new things in the room
--picks up ideas from peers
--brings ideas from home or community to apply to school
--notices resources in the room
--brings in related resources to on-going projects
--sense of humor

ADD TOTAL POINTS RECEIVED	

3.2 <u>During the school year, children will learn appropriate ways to cope with the consequences of their own behavior and with situations, as evidenced by teacher observations</u>.

For this objective, as for Objectives 2.1 - 2.4 and 3.1, the previously described system of teacher observation was used. The instrument used can be found on the next page. General procedure for rating was also the same as described for Objective 3.1. For coping skills each child could earn from 2 to 8 points, the higher number of points indicating greater achievement.

The results indicate improvement in coping skills on both the primary and intermediate levels, as judged by an increase in the mean number of points received.

	Primary Averages	Intermediate Averages	Total Averages
FALL	4.715	5.270	4.985
SPRING	5.264	5.903**	5.574**
n	18	17	35

** Improvement significant at $p < .01$ level

COPING BEHAVIOR

Mean Numbers of Points
(Possible Range = 2 - 8 Points)

COPING BEHAVIOR (3.2)

Student _____ Teacher _____ Date _____

Operational definitions:

APPROPRIATE BEHAVIOR: That which is situationally constructive in terms of socially acceptable standards

COPE WITH: show an appropriate response

RATING SCALE:

1 = needs much improvement
2 = needs some improvement
3 = satisfactory
4 = above average

Please consider the student's ability to appropriately respond to both

(1) the consequences of his own behavior
(2) a situation in which the student merely finds himself

	needs much imp. 1	needs some imp. 2	satis. 3	above aver. 4
COPING WITH OTHER PEOPLE				

Consider:
--dealing with confrontations
--acceptance of praise and criticism
--appropriate amount of anger shown
--appropriate amount of timidity shown
--willingness to compromise

COPING WITH SITUATIONS	

Consider:
--adjustment to new and different situations
--appropriate amount of emotion shown:
example: joy, anger, timidity, satisfaction
--dealing with frustration in his work
--dealing with transitions to new activities
--response to accidents or damage

ADD TOTAL POINTS RECEIVED	

4. To develop skills on many levels

4.1 Each child during the school year will develop psychomotor literacy (the ability to use his body in various ways), as evidenced by his performance on a challenge course.

A challenge course was set up as a part of spring testing to measure psychomotor skills. It was patterned after the challenge course set up during Year 2 of the project, so that comparisons could be made from spring to spring. The test consisted of 4 tasks for each child: throwing, kicking, batting and balance. The throwing sub-test was differentiated for primary and intermediate children. Primary children threw bean bags at a target marked from 1 point at the outside to 3 points in the center, and were given 5 bean bags. Intermediate children were given 30 seconds to score as many baskets as possible, using only 1 basketball.

All other tasks were the same for all children. Kicking consisted of kicking 3 kickballs at a backstop, the first being simply a practice kick, not scored. Scoring was as follows:

Square kick	= 2 points
Side-swipe	= 1 point
Miss	= 0 points

Batting skill was tested with the use of a batting tee, the test being conducted and scored the same as the kicking test. Balancing skill was tested by asking children to walk a balance beam 18 inches above the ground, marked off in feet from zero to twelve. Score recorded was the last marker crossed successfully.

As summarized in the following tables, scores from spring 1972 to spring 1973 generally showed little, if any, improvement. Whether the fault lies with the program or the measurement technique would be impossible to know. However, the data did produce evidence supporting the decision to concentrate on a more carefully planned and executed physical education program for next year.

PROJECT CREATES - EXPLORATORY LEARNING CENTER
ESEA Title III - Tucson Public Schools

Summary of Challenge Course Data
Spring 1972 to Spring 1973

Total School Population

BASKETBALL THROW

Task: Make as many baskets as possible in 30 seconds.
Intermediate children only.

	Grade	Average Number of Baskets	Number Tested
Spring '72	4	1.075	40
Spring '73		1.019	52
Spring '72	5	2.395	43
Spring '73		2.150	40
Spring '72	6	2.703	37
Spring '73		2.775	40

BEAN BAG THROW

Task: Score as many points as possible in 5 throws to the marked target.
Possible point range = 0 to 15.
Primary children only.

	Grade	Average Number of Points	Number Tested
Spring '72	1	6.286	56
Spring '73		4.182	55
Spring '72	2	8.439	57
Spring '73		6.431	51
Spring '72	3	10.255	55
Spring '73		6.981	53

KICKING

Task: Kick 2 balls as squarely as possible from a line.
Possible point range = 0 to 4.

	Grade	Average Number of Points	Number Tested
Spring '72 Spring '73	1	3.21 3.81	53 57
Spring '72 Spring '73	2	2.69 3.78	54 50
Spring '72 Spring '73	3	2.50 3.87	38 52
Spring '72 Spring '73	4	3.76 3.75	46 56
Spring '72 Spring '73	5	3.86 3.78	43 40
Spring '72 Spring '73	6	3.78 3.90	32 39

BATTING

Task: Hit 2 balls as squarely as possible from a tee.
Possible point range = 0 to 4.

	Grade	Average Number of Points	Number Tested
Spring '72 Spring '73	1	2.46 3.23	56 56
Spring '72 Spring '73	2	2.79 3.06	56 50
Spring '72 Spring '73	3	3.17 3.06	52 51
Spring '72 Spring '73	4	2.67 3.30	45 57
Spring '72 Spring '73	5	2.80 2.80	46 40
Spring '72 Spring '73	6	3.13 3.23	40 40

BALANCE BEAM

Task: Walk the marked balance beam as far as possible on the first try.
Possible distance range = 0 to 12 feet.

	Grade	Average Distance in Feet	Number Tested
Spring '72 Spring '73	1	8.036 ft. 8.571 ft.	55 56
Spring '72 Spring '73	2	8.400 ft. 8.000 ft.	55 50
Spring '72 Spring '73	3	10.618 ft. 9.019 ft.	55 53
Spring '72 Spring '73	4	11.778 ft. 11.091 ft.	45 55
Spring '72 Spring '73	5	11.978 ft. 11.615 ft.	46 39
Spring '72 Spring '73	6	11.919 ft. 11.333 ft.	37 42

4.2 Each child will develop skills in musical activities during the school year as evidenced by participation and skill growth on a teacher rating scale.

The drama/music teacher gave temporary daily ratings as the children came into the area, over a four-week observation period fall and spring. Criteria for rating were teacher-designed. Daily ratings were then averaged to obtain each child's score, and individual scores were averaged into an overall sample rating, as seen in the following table:

Fall	1.96	n = 35
Spring	1.87	n = 35

MUSICAL SKILLS

Average Point Ratings
(Possible Point Range = 0 to 5)

Since the same children were used in the sample fall and spring, it is felt that the overall averages did not improve because these children explored and became involved in other areas. Children tended to "come and go" from this area, perhaps not sustaining interest all year. Also, musical skill represents only 1/3 of the drama/music program. Therefore, some of these children may have concentrated on other areas of the fine arts such as acting or improvisation.

See copy of the teacher-made rating scale on the next page.

TEACHER OBSERVATIONS

4.2 - Skill in musical activities; investigation of sounds

Observe and record anecdotes on the children listed below from October 2 through 27, 1972. Give each child a temporary skill development rating at the end of each day you have observed him. On October 27 rate each child from 1 to 5 as follows:

1 = comes to music
2 = participates in group
3 = seeks to achieve individualized skills of playing musical instrument, singing, or reacting observably to music, on a basic level
4 = seeks to enhance skills beyond basic
5 = tries to share skills with others

Base your rating on the development of the following skills:
- --use of instruments
- --singing
- --rhythm
- --observed reaction to music, e.g., dancing, clapping, etc.
- --willingness to create musical arrangements

WEEK OF _____

SAMPLE CHILDREN	TEMPORARY RATINGS M	T	W	Th	F	WEEKLY RATING	COMMENTS

4.3 During the school year, each child will respond to aesthetic visual and tactile experiences, as evidenced by growth on a teacher rating scale.

As with musical skills (see preceding section), a 5-point rating scale was designed by the teacher doing the observations in the art workroom. Observations were made in the fall and spring on the same sample children. Daily ratings were given over a 4-week period and averaged to give each child a final rating. These were then averaged to produce an overall sample rating, as seen in the following table:

Fall	1.99	n = 35
Spring	3.34	n = 35
Improvement	1.35*	

* Improvement significant at $p < .01$ level

VISUAL AND TACTILE SKILLS

Average Point Ratings
(Possible Point Range = 0 to 5)

One reason for the significant improvement seems to be the integration of this center with other areas of the school. For example, children in other areas had a need for art materials and techniques to complete projects initiated outside of the art workroom. There was more transfer of art skills into other areas than perhaps was the case with music skills.

See copy of the teacher-made rating scale on the next page.

TEACHER OBSERVATIONS

4.3 - Response to aesthetic visual & tactile experiences

Observe and record anecdotes on the children listed below from October 2 through 27, 1972. Give each child a temporary skill development rating at the end of each day you have observed him. On October 27 rate each child from 1 to 5 as follows:

1 = child seeks experience infrequently; shows little interest in exploring or projects
2 = child seeks experience more frequently; shows limited knowledge of media; has a general idea of the purposes of the area but no great skill development
3 = child seeks experience frequently; limited use of materials; usually imitates the projects of others; rarely tries new things
4 = child seeks experience frequently; has an idea or looks for new ones; comes for instructional classes; uses media in original ways
5 = child doesn't just come to come--he always has a specific purpose in mind when he attends; often uses materials in new, unique ways; open to exploring new things or ideas

Base your ratings on the development of the following skills:

--interest in art instruction classes
--ability to create new ideas from old
--use of materials in original ways
--aesthetic awareness, shown through use of color, media and proportion in a manner pleasing to the child and observers

WEEK OF _____

SAMPLE CHILDREN	TEMPORARY RATINGS M	T	W	Th	F	WEEKLY RATING	COMMENTS

4.4 Each child will improve in mathematical literacy during the school year through the acquisition and application of mathematical skills in all areas of experience, as evidenced by his performance on standardized tests.

Mathematics skills were measured by standardized tests administered in the spring. (See testing schedule for 1972-73 on the next page.) It was felt that since scores for the whole school population were used as data for this objective, comparisons of spring scores over the three-year project period would yield the most useful information. Therefore, the following data summaries deal with spring scores for project years 1, 2 and 3.

Although all scores are entered in the table and included in the graph, it should be noted that in first grade, years 2 and 3, the Metropolitan Achievement Test was given. Mathematics scores are from that test. All other math scores, including grade 1, year 1, are from the Stanford Achievement Test.

Mean stanines in Table I, including subtests and totals or combined means, show normal or greater than normal growth in grades 1, 2, 3, 5 and 6. Grade 4 scores dropped slightly over the three years. It should be pointed out that in any given grade level, the scores for years 1, 2 and 3 represent different groups of students.

Figure I shows stanine distributions over the three-year project period. Stanines for each year of the project at each grade level are grouped into low (1-3), average (4-6) and high (7-9) scores. Baseline data from the fall of 1970 are included for comparison. It can be seen that the higher stanines, except in grade 2, have included more children as the project progressed. Yet, on the whole, math skills have not shown the increase that was anticipated. Both mean stanines and stanine distributions indicate that more than half of the students scored lower than would be expected by the norms.

Exploratory Learning Center
Tucson Public Schools

TESTING SCHEDULE FOR 1972-73

GRADE	TEST	TYPE	DATE
1	Metropolitan Readiness Tests Form A, 1964 Edition (System-wide)	Readiness	September
1	Scholastic Ability Test (System-wide; to be determined)	Scholastic Ability	March
1	Metropolitan Achievement Tests Primary I Battery, Form F Word Knowledge, Word Analysis, Reading, and Mathematics	Achievement	May
2	Stanford Achievement Tests Primary II Battery, Form W Arithmetic	Achievement	May
2	Metropolitan Achievement Tests Primary II Battery, Form F Word Knowledge and Reading	Achievement	May
3	Metropolitan Achievement Tests Primary II, Form H Word Knowledge, Word Analysis and Reading (State-mandated test)	Achievement	January
3	Stanford Achievement Tests Primary II Battery, Form W Arithmetic	Achievement	May
3	Metropolitan Achievement Tests Elementary Battery, Form F Word Knowledge and Reading	Achievement	May
4	Metropolitan Achievement Tests Elementary Battery, Form F Word Knowledge and Reading (System-wide test)	Achievement	September
4	Stanford Achievement Tests Intermediate I, Form W Arithmetic Computation, Concepts, and Applications	Achievement	May
4	Metropolitan Achievement Tests Elementary Battery, Form F Word Knowledge and Reading	Achievement	May
5	Lorge-Thorndike Intelligence Tests Form I, Multi-Level Edition, Level C or D (System-wide)	Scholastic Ability	January

ELC TESTING SCHEDULE 1972-73

GRADE	TEST	TYPE	DATE
5	Stanford Achievement Tests Intermediate II, Form W Arithmetic Computation, Concepts and Applications	Achievement	May
5	Metropolitan Achievement Tests Intermediate Battery, Form F Word Knowledge and Reading	Achievement	May
6	Stanford Modern Mathematics Concepts Test Intermediate II Battery, Form W (System-wide test)	Achievement	October and May
6	Metropolitan Achievement Tests Intermediate Battery, Form F Word Knowledge and Reading	Achievement	May
6	Science Research Associates Diagnosing Classroom Learning Environments, Tool 21	Self-Concept Scale	May

Spring testing, total school -- May 1 and 2, 1973

Materials delivered to school from GTU by April 20, 1973

Materials to be returned to GTU by May 11, 1973

Scores and data needed from Data Processing by June 1, 1973

Revised 11/72

TABLE I

MATHEMATICS

Mean Stanines Over Three Project Years

	Mathematics			Arithmetic Computations			Arithmetic Concepts			Arithmetic Applications			Modern Math Concepts			Total Subtests/ Combined Means		
	Yr 1	Yr 2	Yr 3	Yr 1	Yr 2	Yr 3	Yr 1	Yr 2	Yr 3	Yr 1	Yr 2	Yr 3	Yr 1	Yr 2	Yr 3	Yr 1	Yr 2	Yr 3
Gr 1	N=38 3.76	N=46 4.30	N=60 4.62													N=38 3.76	N=46 4.30	N=60 4.62
Gr 2				N=46 3.30	N=64 3.92	N=51 3.26	N=46 3.09	N=64 4.06 +	N=54 3.82 *							$\bar{X}_c$= 3.20	$\bar{X}_c$= 3.99	$\bar{X}_c$= 3.55
Gr 3				N=46 2.46	N=50 3.58 +	N=54 3.00	N=46 3.52	N=51 3.78	N=54 4.59 *+							$\bar{X}_c$= 2.99	$\bar{X}_c$= 3.68	$\bar{X}_c$= 3.80
Gr 4				N=42 2.67	N=44 1.84	N=59 2.34	N=38 4.39	N=47 3.64	N=57 3.32	N=38 4.45	N=47 3.87	N=59 3.61				$\bar{X}_c$= 3.80	$\bar{X}_c$= 3.14	$\bar{X}_c$= 3.09
Gr 5				N=44 2.95	N=42 2.48	N=41 1.85	N=43 3.86	N=42 3.69	N=43 4.07	N=43 3.49	N=43 3.79	N=42 4.00				$\bar{X}_c$= 3.43	$\bar{X}_c$= 3.32	$\bar{X}_c$= 3.32
Gr 6													N=33 2.91	N=38 3.42	N=39 3.80	N=33 2.91	N=38 3.42	N=39 3.80

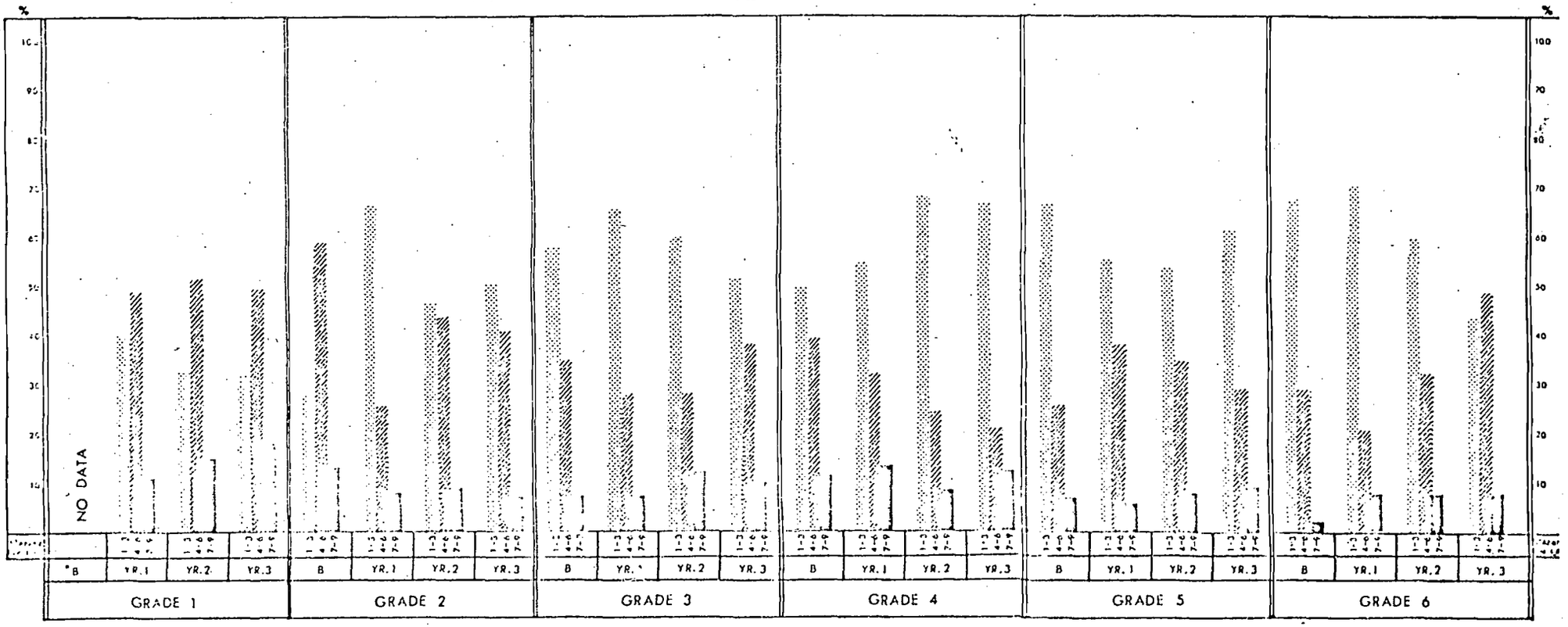
Symbols:

+ = significant improvement ($p < .05$) over previous year

* = significant improvement ($p < .05$) from ist to 3rd year.

Only Math Subtests analyzed for significance, not totals or combined means.

FIGURE I



TOTAL MATHEMATICS

Distributions by Percentages in Stanine Groupings (1-3, 4-6, 7-9)

Comparisons of Three Project Years -- Spring Scores

*B = Baseline Data (Fall 1978)

Baseline - Year 1 -- (all grades) Stanford Achievement Tes
Years 2 - 3 -- (grade 1) Metropolitan Achievement Tes
(grades 2 - 6) Stanford Achievement Tes

4.5 Each child will improve in language (communications) skills during the school year through meaningful experiences in a wide variety of media, as evidenced by his performance on standardized tests.

Reading skills were measured by standardized achievement tests given in the spring. A copy of the testing schedule in the preceding section shows tests and sub-tests given for each grade level in 1972-73. It was felt that since scores for the whole school population were used as data for this objective, comparisons of spring scores over the three-year project period would yield the most useful information. Therefore, the following data summaries deal with spring scores for project years 1, 2 and 3.

Although spring scores for three years are entered in the table and included in the graph, it should be noted that these represent two different tests. In the first year of the project, the Stanford Achievement Test was used for reading assessment, but in the second and third years, the Metropolitan Achievement Test was used. The Measurement and Evaluation division of District #1 changed to the Metropolitan for system-wide reading tests in the fall of 1971, and it was considered advisable for the project testing to conform as much as possible.

Mean stanines in Table I, including subtests and totals or combined means, show normal or greater than normal growth in all grades. In some cases (grades 1, 2, 4 and 5), the second year of the project produced the highest total reading scores, which then dropped slightly in the third year. It should be pointed out that in any given grade level, the scores for years 1, 2 and 3 represent different groups of students.

Figure I shows stanine distributions over the three-year project period. Stanines for each year of the project at each grade level are grouped into low (1-3), average (4-6) and high (7-9) scores. Baseline data from the fall of 1970 are included for comparison. On almost every grade level, there was a shift from the lower stanines to the average or high stanines as the project progressed. Grade 4 shows a slightly different pattern, but it is not considered to be significantly different.

Reading skills in the project have developed at a normal rate or above according to this analysis.

TABLE I

READING

Mean Stanines Over Three Project Years

	Word Meaning/ Word Analysis			Word Reading/ Word Knowledge			Paragraph Meaning/ Reading			Vocabulary	Subtest Combined Means/Total Reading		
	Yr 1	Yr 2	Yr 3	Yr 1	Yr 2	Yr 3	Yr 1	Yr 2	Yr 3	Yr 1	Yr 1	Yr 2	Yr 3
Gr 1			N=59 4.86	N=56 2.64	N=60 4.45	N=59 4.42	N=55 1.98	N=45 4.44 +	N=58 4.04 *	N=57 4.98	$\bar{X}_c$= 3.22	$\bar{X}_c$= 4.45	N=58 4.28
Gr 2	N=46 2.98				N=38 4.32	N=52 4.19	N=43 2.67	N=38 4.37 +	N=53 4.28 *		$\bar{X}_c$= 2.83	N=38 4.37	N=53 4.17
Gr 3	N=46 3.24				N=50 4.50	N=52 5.15	N=46 3.24	N=50 4.16	N=52 5.23 + *		$\bar{X}_c$= 3.24	N=51 4.25	N=52 5.04
Gr 4	N=40 4.47				N=45 4.40	N=56 4.25	N=41 3.95	N=45 4.76	N=56 4.39		$\bar{X}_c$= 4.21	N=45 4.51	N=56 4.30
Gr 5	N=44 4.27				N=42 4.83	N=42 4.85	N=43 3.72	N=42 5.21 +	N=42 4.76 *		$\bar{X}_c$= 4.00	N=42 5.02	N=42 4.73
Gr 6	N=32 3.09				N=39 4.51	N=39 4.82	N=33 3.30	N=39 4.41 +	N=39 4.74 *		$\bar{X}_c$= 3.20	N=39 4.44	N=39 4.84

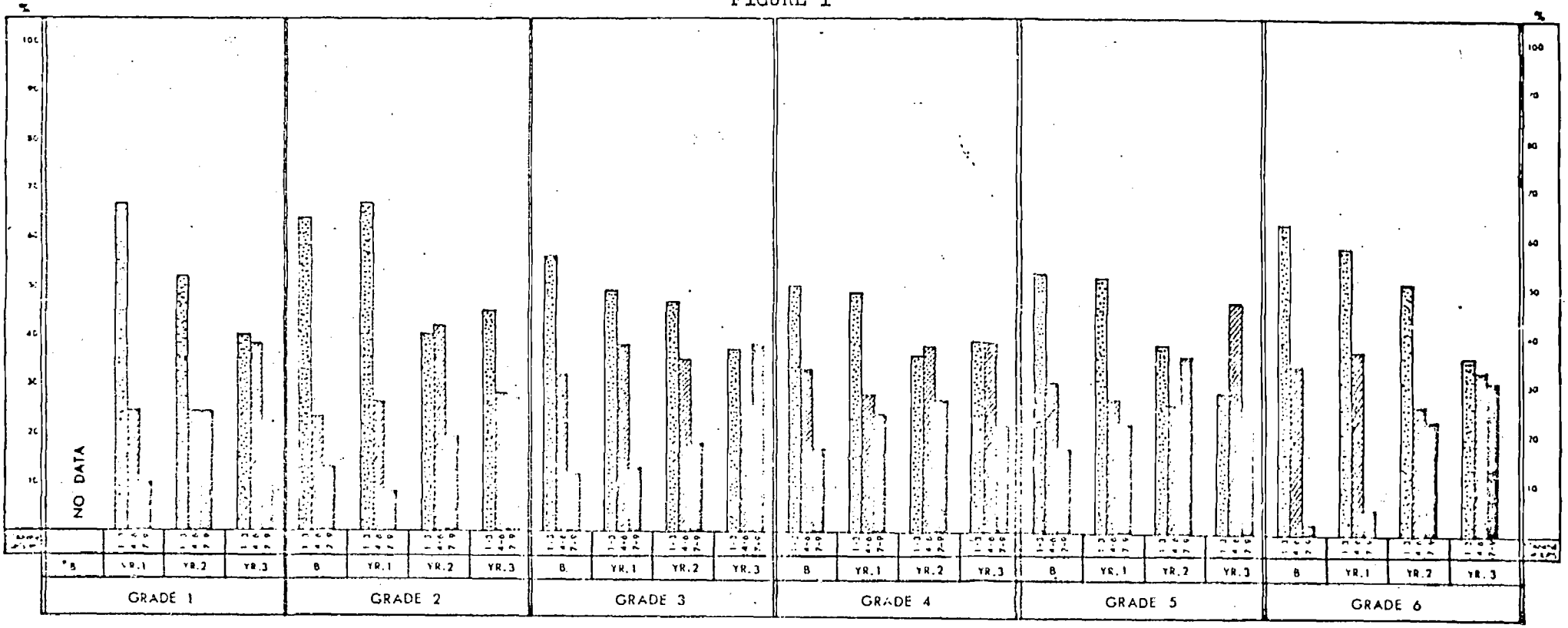
Symbols:

+ = significant improvement ($p < .05$) over previous year

* = significant improvement ($p < .05$) from 1st to 3rd year

Only Paragraph Meaning/Reading Subtests analyzed for significance

FIGURE I



TOTAL READING

Distributions by Percentages in Stanine Groupings (1-3, 4-6, 7-9)

Comparisons of Three Project Years -- Spring Scores

*B = Baseline Data (Fall 1970)

Baseline - Year 1 -- Stanford Achievement Test
Years 2 - 3 -- Metropolitan Achievement Test

4.6 Each child during the year will improve his social skills of living compatibly with others, as evidenced by a system of teacher observation.

A system of teacher observation was used, as described for Objectives 2.1 - 2.4, 3.1 and 3.2. The sample children were observed for specified two-week periods fall and spring. The instrument used, found on the next page, asked teachers to rate each child's social skills in six different areas. Using the 1 to 4-point rating system, each child could potentially earn from 6 to 24 points, a higher number of points indicating greater achievement. The average number of total points received by each child was computed for fall and spring. Mean points received for primary children were calculated separate from those of intermediate children.

The results indicate that the average number of points received in the spring was greater than in the fall. This improvement held for both primary and intermediate children. Improvement shown in both groups was statistically significant at $p < .01$ level.

See the table of combined data on page 75 comparing growth in social skills to that in other areas.

	Primary Averages	Intermediate Averages	Total Averages
FALL	14.303	15.960	15.108
SPRING	16.357**	17.649**	16.985**
n	18	17	35

**Improvement significant at $p < .01$ level

SOCIAL SKILLS

Average Point Ratings
(Possible Point Range = 6 to 24)

SOCIAL SKILLS DEVELOPMENT (4.6)

Student _____ Teacher _____ Date _____

1= needs much improvement
2= needs some improvement
3= satisfactory
4= above average

			needs much imp. 1	needs some imp. 2	satis. 3	above aver. 4
(II.A)	*I.	Getting along with others				
		Consider: --sees merit in others' ideas or comments --takes turns willingly with talking and materials --willingness to compromise --avoids or works out conflicts without too much help				
(II.B)	*II.	Respecting rights & property of others				
		Consider: --works without disturbing others, teasing, etc. --listens when others are talking --quickly returns materials to supply shelf --uses only materials he needs				
(II.C)	*III	Supporting and helping others				
		Consider: --helps teacher or aide during activity --helps others clean up --helps others with self-, teacher- or group-assigned tasks & projects --responds quickly & positively to requests for assistance				
(II.D)	*IV.	Group participation				
		Consider: --enthusiasm & willingness to be actively involved --avoids being dominated --avoids dominating group --assists in preparing a work or activity area --shares information by contributing to a group discussion --works constructively with others in groups				
(II.E)	*V.	Expression of feelings				
		Consider: --able to express joy, sadness, etc. by facial expression & gestures --expresses feelings verbally --feelings are appropriate to the situation --does not over-react --willingness to ask questions when he has them --awareness of his own and others' feelings				
	VI.	Friendships				
		Consider: --is liked by others; chosen for activities and as a friend --has many acquaintances --has some special "buddies" --seeks peers to talk to, play with, or work with --seeks evaluation of work from peers --has friends of the same sex				
					ADD TOTAL POINTS REC'D	

COMBINED DATA

TEACHER OBSERVATIONS

	SELF-DIRECTION	ENVIRONMENTAL AWARENESS	COPING SKILLS	SOCIAL SKILLS
Possible Point Range	(4 - 16)	(4 - 16)	(2 - 8)	(6-24)
	Fall Spring	Fall Spring	Fall Spring	Fall Spring
Primary Average (n=18)	8.695 10.565**	9.112 10.912*	4.715 5.264	14.303 16.357**
Intermediate Average (n=17)	10.120 12.015**	10.730 11.640*	5.270 5.903**	15.960 17.649**
Total Average (n=35)	9.387 11.269**	9.898 11.265**	4.985 5.574**	15.108 16.985**

*Improvement significant at $p < .05$ level
**Improvement significant at $p < .01$ level

ADDITIONAL INFORMATION

Planning Time

An early dismissal day each week was requested and approved by the district for ELC. This helped meet the crucial need for planning time that seemed to exist because of the innovative nature of the program, particularly in terms of the unusual staffing patterns. The time has been well utilized and has contributed greatly to the program's effectiveness.

Research Studies

Two studies were completed during the year beyond the scope of the specific project objectives. Both were done to provide information in areas of concern to staff members, administrators and parents. The summaries of these studies follow. (See "ELC Follow-Up Study" and "Cognitive Comparison Study".)

ELC FOLLOW-UP STUDY
May, 1973

Although children may "do well" at the Exploratory Learning Center, the question arises as to how these children will be able to adjust to junior high. Does exposure to open education make it difficult for a child to accept the limits of a more traditional school? Or, might the opportunity for choice during the early grades facilitate the acceptance of responsibility in junior high?

All children who graduated from the sixth grade at the Exploratory Learning Center in 1972 and who went on to a junior high school in Tucson School District #1, were rated in April 1973 as to their adjustment to junior high. Whereas some of these students had been with the experimental school since its inception, other students arrived at various points thereafter. Therefore, the following hypothesis seems reasonable:

HYPOTHESIS: There will be no significant difference between the adjustment to junior high of ELC and non-ELC graduates.

Sample: It was possible to locate 32 ELC graduates currently enrolled in a District #1 junior high school. A comparative sample of 32 non-ELC seventh graders was matched to the ELC sample on the following criteria: junior high school attended, sex, ethnic group and history teacher. Since all seventh graders take history, each history teacher blindly rated an equal number of ELC and non-ELC graduates.

Instrument: A 25-item rating scale was designed to rate each sample child on the following dimensions:

Self-Direction/Responsibility	(10 items)
Personal & Group Development	(9 items)
Communication Skills	(6 items)
TOTAL	25 items

Within each dimension teachers were asked to rate the given child on each item according to the following criteria:

Most of the time
Often
Seldom
Never

A score was computed for each child in each dimension, and in total, by assigning weights to the rating criteria:

Most of the time	= 3 points
Often	= 2 points
Seldom	= 1 point
Never	= 0 points

Thus, each child could receive from zero to 30 points for Self-Direction, zero to 27 points for Personal and Group Development and from zero to 18 points for Communication Skills. A total of 75 points was possible, a higher number of points indicating better adjustment in these categories. The items and categories on this rating scale were purposely chosen to correlate with the objectives of the Exploratory Learning Center.

In addition to the scaled items, teachers were asked to answer Yes or No as to whether they feel the student's adjustment to junior high has been satisfactory.

Procedure: Rating scales were distributed to the selected history teachers without any mention of the study having to do with ELC graduates. Rather, the communications for the study were handled through the District #1 Research Office. Teachers rated the children in April 1973.

Results: t-tests showed that, as hypothesized, there is no significant difference between the overall adjustment of ELC and non-ELC graduates to junior high. Likewise, none of the three main categories rated showed significant differences. Also, when flatly asked, "Do you think this student has made a satisfactory adjustment to junior high?", 81% of the ELC graduates received an answer of "Yes". Likewise, 83% of the non-ELC graduates received an answer of "Yes".

n = 32	Points Possible	ELC GRADUATES (μ)	NON-ELC (μ)
Overall Total Range	0 - 75	55.47 (15-75)	56.10 (16-75)
Self-Direction Range	0 - 30	19.92 (1-30)	20.80 (0-30)
Personal & Gp. Dev. Range	0 - 27	21.58 (5-27)	21.80 (6-27)
Communication Skills Range	0 - 18	14.00 (6-18)	13.50 (6-18)
Satisfactory Adjustment		80.65%	82.75%

FOLLOW-UP STUDY
Comparison of Point Averages

TUCSON PUBLIC SCHOOLS
RESEARCH DEPARTMENT

We would appreciate your assistance in evaluating the students we have selected to participate in a seventh-grade research project. Since we have chosen a rather small sample of children, your cooperation is essential to this study.

Please rate the student on this check list in terms of the following characteristics. We realize that some of these items will be an estimate on your part, but we ask only your best judgement. If you have no basis on which to make a judgement, just put "NI" after the item, indicating "no information."

Please return your rating forms to your principal no later than April 19. We sincerely appreciate your cooperation.

Barbara Prentice, Ph.D.
Director of Research

STUDENT _____ SCHOOL _____

	most of the time	often	seldom	never
I. SELF-DIRECTION/RESPONSIBILITY				
A. Starts work on his own				
B. Organizes work plans				
C. Seeks out people, equipment & material resources independently				
D. Finishes work				
E. Meets time requirements				
F. Makes good use of spare time				
G. Accepts responsibility for care of materials & equipment				
H. Works without disturbing others				
I. Has materials ready when needed				
J. Demonstrates satisfactory study skills & habits				
II. PERSONAL & GROUP DEVELOPMENT				
A. Maintains good mental health				
B. Maintains good relationships with adults				
C. Supports & helps others				
D. Respects the rights & personal property of others				
E. Participates in group or class activities				
F. Expresses his emotions appropriately				
G. Is able to adjust to new situations or obstacles				
H. Demonstrates positive attitudes toward school and learning				
I. Obeys school rules				
III. COMMUNICATION SKILLS				
A. Understands verbal instructions				
B. Demonstrates satisfactory reading skills				
C. Demonstrates satisfactory spoken language skills				
D. Demonstrates satisfactory writing skills				
E. Demonstrates adequate acquisition & retention of knowledge				
F. Demonstrates satisfactory achievement in your class				

Do you think this student has made a satisfactory adjustment to junior high?

OTHER COMMENTS:

Completed by: (teacher) _____ Subject _____

Date _____

COGNITIVE COMPARISON STUDY

A Comparison of Performance On Cognitive Tasks Between Students In An Open School and A Traditional School

Purpose: It has been assumed that the treatment children receive in an open school is a more effective way to teach some skills than are more traditional methods. More specifically, open schools are assumed: (1) to allow children to become more independent, self-directed learners; (2) to allow children to become more aware of themselves and their environment; and (3) to develop a variety of learning strategies and specific skills. The self-contained classroom, on the other hand, is often assumed to provide less opportunity for both the expression of curiosity and exploration of individual interests.

The purpose of this study is to discover whether children in an open school are, in fact, able to receive higher scores than children at a traditional school on four selected cognitive tasks.

Hypothesis: Children in the open-school treatment group will receive significantly higher scores on the cognitive tasks than will children in the self-contained classroom group.

Sample: A sample of 33 children was selected from each of the following treatment groups:

(1) Exploratory Learning Center: A Tucson School District #1 and Title III project with open-school structure; and
(2) A local traditional school within School District #1, with self-contained classrooms and more traditional teaching structure.

Treatment #2 school was selected by a comparison with Treatment #1 as to school size, socioeconomic status of residents and ethnic distribution. The two treatment groups are considered nearly equal by these criteria. Sample children from both groups were randomly selected, as long as they met the following criteria: (1) They must have been enrolled in their respective treatment group since the fall of 1970; and (2) they must currently be enrolled in either fifth or sixth grade. Subjects in both groups were also matched as to grade placement, sex, ethnic group and Lorge-Thorndike stanines received. Thus, the two sample groups are considered comparable.

Tasks: All Ss from both treatment groups were given four tasks in March and April of 1973. Each task has been nationally standardized according to chronological age and is assumed to measure a cognitive ability, e.g., abstract reasoning, social judgment and awareness, general comprehension, awareness of surroundings and ability to manipulate objects in space. Two of the tasks require verbal responses; the other two are non-verbal tasks. Testing time for each S, tested individually, was approximately 20 minutes.

Analysis of Data: Mean scores were computed for Treatment 1 and Treatment 2 on both individual tasks, verbal and non-verbal subtotals, and on all four tasks combined. Scale scores were used in these computations, which were derived from the standardization norms, knowing each S's raw score and chronological age. The two treatment groups were compared for any significant mean differences, as demonstrated by t-tests.

Results: The children in the Open School Treatment (T_1) received higher mean scale scores than the Traditional School Treatment (T_2) on all four subtests. Combining each S's scores on the two verbal and the two non-verbal tasks, the T_1 group scored significantly better on the non-verbal tasks ($p < .05$). There were no significant differences between the two treatment groups on the verbal tasks. Combining the scores received on all four tasks, T_1 Ss showed some gain over the T_2 group, at $p < .10$.

TABLE 1

	Verbal	Performance	Total
Open School Group	25.94	23.97**	49.91*
Traditional Group	23.97	21.15	45.12

* Significant at $p < .10$ level
** Significant at $p < .05$ level

One might assume these differences partially due to a motivational factor. That is, one might speculate that children in the Open School Treatment would demonstrate a more positive attitude toward school and themselves, influencing their willingness to perform. Such motivational differences would, over time, affect skill development and their performance in this study. An attitude questionnaire was developed (see samples attached) to check on this variable. All children in both treatment groups were given the attitude questionnaire at the time of testing. The questionnaire was also adapted and given to 30 second and third graders from each treatment school (see sample, Primary Form). The multiple choice responses on each item on the questionnaires were given a weight of one to four points, to enable each person to receive a total school-attitude score. A higher number of total points was assumed to indicate a more positive attitude toward school. Comparing the mean scores received by each treatment group revealed no significant differences in attitude. Attitudes toward school among the primary grade children at both treatment schools were also comparable. Thus, difference in attitude toward school does not seem to be an important variable contributing to the results on the cognitive tasks.

TABLE 2

Attitude Questionnaire

	Primary Averages	Intermediate Averages
Open School Treatment	12.47	21.33
Traditional Treatment	12.77	21.12
Range of Points Possible	(5-15)	(7-28)

It appears from the results of this study that the Open School Treatment is a more effective way of teaching non-verbal, performance-type tasks. Providing a greater opportunity for exploration of the environment and for manipulation of materials does seem to develop skill which generalizes to other such non-verbal tasks.

May, 1973

MY SCHOOL

NAME_____ SCHOOL_____ GRADE_____

DIRECTIONS: Circle the answer to each question which BEST tells how you feel.

1. HOW DO YOU LIKE SCHOOL?

a.) very much, nearly always
b.) I usually do
c.) It's O.K., sometimes
d.) not at all.

2. YOUR SCHOOL HAS:

a.) all good things
b.) mostly good things
c.) as many good and bad things
d.) mostly bad things

3. HOW HARD ARE YOU WORKING WHEN DOING OUR SCHOOL WORK?

a.) very hard
b.) pretty hard
c.) not very hard
d.) not hard at all.

4. WHEN I'M IN SCHOOL I:

a.) usually feel wide awake and very interested
b.) am pretty interested, kind of bored part of the time
c.) am not very interested, bored quite a lot of the time
d.) don't like it, feel bored and fed up with it

5. HOW DO YOU FEEL ABOUT YOUR SCHOOL WORK?

a.) It's very good.
b.) It's usually pretty good.
c.) I do O.K., sometimes.
d.) It's not very good.

6. DO OTHER KIDS LIKE ME IN THIS SCHOOL FRIENDLY?

a.) always
b.) most of the time
c.) sometimes
d.) hardly ever

NAME _____

7. THE TEACHERS IN THIS SCHOOL ARE:

a.) nice and helpful
b.) usually nice
c.) sometimes grouchy, not nice
d.) not very nice

8. WOULD YOU RATHER BE GOING TO A DIFFERENT SCHOOL?

a.) yes
b.) no
c.) I don't care

THANK YOU VERY MUCH.

WOULD YOU LIKE TO SAY ANYTHING ELSE?

MY SCHOOL

NAME _____ SCHOOL _____ GRADE _____

DIRECTIONS: Teachers, please read each question and the choices of answers aloud to each child. Questions may be repeated if necessary. Circle the child's response to each question.

1. HOW DO YOU LIKE SCHOOL?

very much
O.K. (average)
no

2. HOW DO YOU LIKE YOUR TEACHER(S)?

very much
O.K.
I don't

3. WHAT KIND OF STUDENT ARE YOU?

very good
O.K. (average)
not very good

4. ARE THE KIDS IN THIS SCHOOL FRIENDLY?

yes
sometimes
no

5. WOULD YOU RATHER BE GOING TO A DIFFERENT SCHOOL?

yes
no
I don't care

COMMENTS:

RESOURCES

Personnel

The following are those people working with children who were needed to implement the project:

Director
Administrative Intern
Research Assistant
Data Collector
Librarian
Teachers (10)
Aides (11)
Art Technician
After-School Program Supervisor

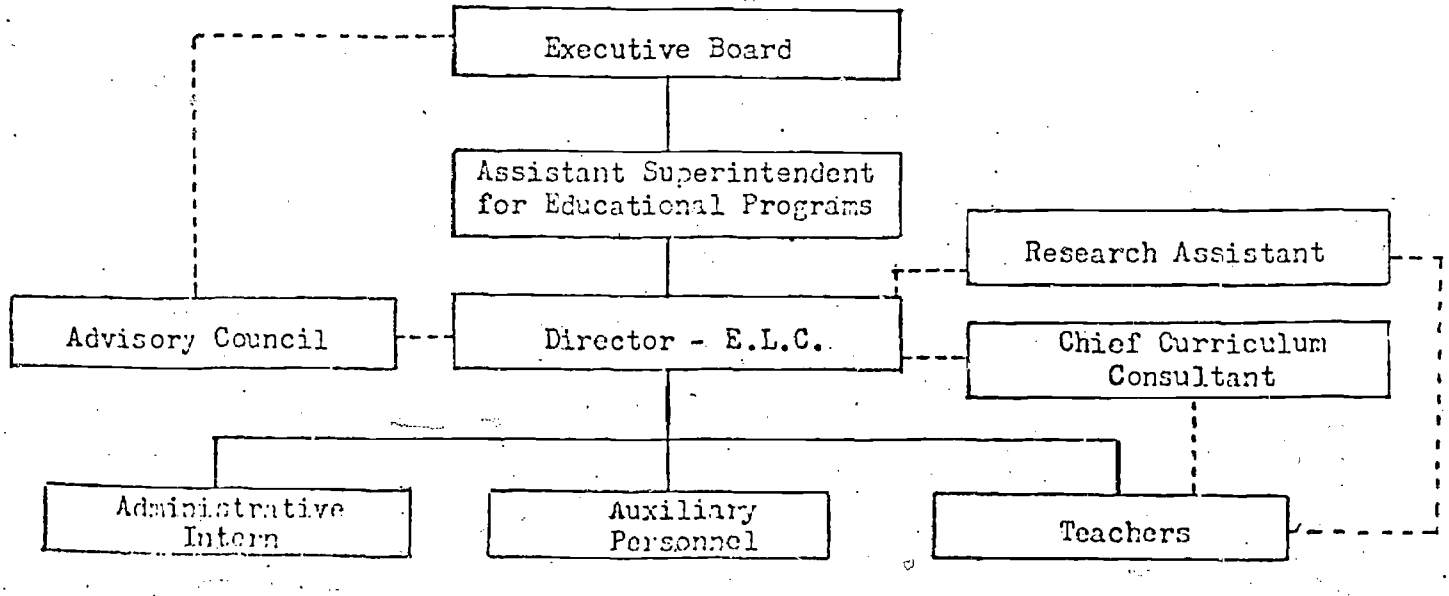
Following are those people paid by the project in 1972-73:

Data Collector
½ Librarian
Art Technician
½ Research Assistant

Personnel in the project possessed the credentials required by the district for their positions. In addition, all personnel were hand-picked for this school, with considerations being the innovative nature of the program to be implemented, their desires to reach out in new directions, and their attitudes about children and teaching.

Administrative Structure

Following is a chart illustrating the administrative structure of the school, showing line and staff relationships:



Facilities, materials, and equipment

Facilities and materials were provided by the district on the same basis as they would be provided for any elementary school in the district. In general, the equipment purchased with Title III funds included such things as typewriters, camera and projection equipment, tape recorders, playground equipment, art prints, sculpture, reference books and manipulative materials. See pages 89 and 90 for list of equipment purchased and assurances dealing with its disposition.

The Budget Summary may be found immediately following. The cost per participant (child) above district cost was $110.80.

PROJECT CREATES

ARIZONA
DEPARTMENT OF EDUCATION
ROOM 165, CAPITOL BUILDING - PHOENIX, ARIZONA 85007

P.L. 89-10, TITLE III - FINAL EXPENDITURE REPORT OF FEDERAL FUNDS

Name and Address of Agency	Project Number	Grant Number	Monthly Expenditure Report	Budget Period (Month, Day & Year)
Tucson Elementary School Dist. No. 1., P.O.Box 4040 Tucson,AZ 85717	10-001-12-70-0020-3		[ ] Monthly Expenditure Report [x] Final Expenditure Report	7-1-72 - 6-30-73

MONTHLY EXPENSE CLASSIFICATION

FUNCTIONAL CLASSIFICATION	ACCT. NO.	SALARIES PROFESSIONAL	SALARIES NON-PROFESSIONAL	CONTRACTED SERVICES	MATERIALS AND SUPPLIES	TRAVEL	EQUIPMENT	OTHER EXPENSES	EXPENDITURES TO DATE	BUDGET TOTALS	BUDGET BALANCE
Administration	100										
Instruction	200	$14,811.84	$7,127.00	$700.00	$1,784.80	$584.92		$2,772.42	$27,780.98	$30,257.00	$2,476.02
Pupil Services	300										
Health Services	400										
Pupil Transportation	500										
Operation of Plant	600										
Maintenance of Plant	700										
Fixed Charges	800							2,663.36	2,663.36	3,669.00	1,005.64
Food Services	900										
Community Services	1100										
Remodeling (less than $2,000)	1220c										
Capital Outlay (Equipment only)	1230						708.45		708.45	750.00	41.55
TOTAL EXPENDITURES		14,811.84	7,127.00	700.00	1,784.80	584.92	708.45	5,435.78	31,152.79	34,676.00	3,523.21
BUDGET TOTALS		17,425.00	7,035.00	800.00	1,500.00	697.00	750.00	6,469.00		34,676.00	

(1) Expense account expenditures (Line 14) may not deviate from expense account budgeted amounts (Line 16) by more than 20% without prior approval. A request to transfer funds from one expense account to another must identify the expense accounts listed in the negotiated budget for each account, and the amount as they would be listed if the proposed transfer was approved. No funds may be transferred into or out of the Equipment Account without prior approval. An explanation of the need or justification for the change in the budget must also be included, together with a statement that the total amount of the negotiated budget will not be affected by the proposed change.

Cash Balance beginning of year plus additional allocations received..... $ 34,676.00

Less expenditures this year..... 31,152.79

Cash balance to be refunded to Arizona Dept. of Education..... $ 3,523.21

I hereby certify that the above is a true and correct statement for the year ending: June 30, 1973

SIGNATURE H. V. Summers DATE July 16, 1973
Project Director H. V. Summers

SIGNATURE _____ DATE _____
County School Superintendent

E - BFS
Form FED. 19 (Rev.)
1970 2M

EQUIPMENT

STATEMENT OF ASSURANCE FROM THE SUPERINTENDENT OF A SCHOOL DISTRICT WHERE EQUIPMENT (PURCHASED WITH FUNDS FROM AN ESEA TITLE III PROJECT) IS BEING RETAINED IN THE DISTRICT TO BE USED FOR THE PURPOSES FOR WHICH THE TITLE III PROJECT WAS ESTABLISHED.

E. Use of Equipment

Each item of equipment purchased with Title III funds for use in a given Title III project shall be used continually during the expected useful life of that equipment, from the date of purchase and after the expiration of the project, for purposes clearly within the approved scope of the project unless earlier final disposition of the item is made.

The LEA or SEA exercising administrative control over each item is responsible for assuring full compliance with these requirements during and after the project period.

Throughout the expected useful life of an item of Title III equipment, the utilization of it for any purpose other than those described above, even though such use or purpose is an educational one, requires, in every case, the prior written approval of the SEA.

G. Unauthorized Use of Equipment

Whenever, in the absence of prior written approval by the SEA, an item of Title III equipment is diverted to any use or purpose other than those described above, the fair market value of such item at that time must be treated as an unexpended balance of Federal (Title III) funds and must be refunded promptly to the SEA Title III, ESEA office. Such refund shall be made by the LEA exercising administrative control over the item of equipment in question at the time such item was utilized for any unauthorized purpose.[1]

Action will be taken if the LEA is not using Title III equipment in accordance with guidelines specified in statements E and G above.

AS THE DULY AUTHORIZED REPRESENTATIVE OF THE Tucson School District No. 1 SCHOOL DISTRICT, WHERE THE ESEA TITLE III PROJECT, CREATES, WAS FUNDED, I GIVE ASSURANCE THAT THE ESEA TITLE III EQUIPMENT BEING RETAINED IN THIS DISTRICT AFTER THE PROJECT FUNDING PERIOD ENDS WILL BE USED IN COMPLIANCE WITH THE AFOREMENTIONED STATEMENTS.

Russell N. Jones — Director of Federal Programs — 7/23/73

(Signature) (Title) (Date)

[1] State Plan Administrator's Manual, ESEA Title III, U. S. Department of Health, Education, and Welfare, Office of Education, Title III, Elementary and Secondary Education Act, 1971, Pages 92-93.

EQUIPMENT

End of Project Report

ESEA TITLE III EQUIPMENT EXCEEDING A COST OF $100
All equipment is stored and used at the
EXPLORATORY LEARNING CENTER
1400 East Broadway
Tucson, Az. 85719

1	set	Play Planks	$ 120.00	ea
1		Jumbo File Cabinet	247.00	
1	set	Electronic Music Lab	186.65	
6	ea	Linea 88 Std. Typewriter	109.00	ea.
1		Sony TC630 Tape Recorder	312.00	
1		Seal Press Jumbo 150	125.00	
2		Single Concept Movie Projector	109.95	ea.
2		Talking Page	695.00	ea.
1		Kodak Carousel Slide Projector	137.95	
1		Torso	112.00	
1		Game Time, Giant 9-piece obstacle course	598.00	
1		Camera 500TL Mamiya/Sekov	139.50	
1	set	Building Blocks	237.00	
1	set	Hollow Blocks	235.00	
1		Palm Tree Climber	299.00	
1		Playweb Magic Carpet	350.00	
1		Printing Press Outfit	129.95	
1		Sound-O-Matic Programmer Recorder	174.50	
1		Graflex Model 1050 16mm Projector	390.00	
2		Pine & Fir Display Case	125.00	ea.

CONCLUSIONS

Project CREATES has been the evolution of an innovative program from a somewhat idealistic beginning to a more realistic current position. While retaining its spirit of experimentation and professional growth, the staff has found a more stable base from which to operate -- to diverge. Staff decision-making has been an important part of the project, with special reference to how each part of the program affects the whole.

The school has served nearly 5900 visitors (on record) over the three years, and the feedback has been mostly positive. It was felt that the visits could be revealing, though, even to those who did not agree with the attitudes and techniques they witnessed at ELC. Teachers and parents need to know themselves and to define their individual philosophies before they can successfully help children. ELC has provided a new situation that encouraged visitors to examine their own educational values.

Parents indicated their approval; 75% were pleased without qualification. There was a shift in parent attitudes from ranking "skill development" in first place to expressing "positive attitude toward learning" as their first priority. Since one of the philosophical bases of the program was that children should enjoy school, it was rewarding to note that 91% of the responding parents indicated that this was the case.

Aides were an important part of the program, but the use of student teachers as part-time paid aides was not as successful as had been expected, due to conflicting university schedules and problems with obtaining substitutes. Only full-time regular aides will be employed in the future.

Children's growth in the affective domain was significant. In all areas measured the third year (self-direction, environmental awareness, coping and social skills), improvement from fall to spring was significant at $p < .01$ level. The observational system which produced these data was difficult and time-consuming for teachers, but is considered the most reliable of the three years of measurement attempts. Teachers generally conceded that the first time (fall) was the hardest, but that spring was less difficult for them.

Psychomotor skills and musical skills did not show the same level of improvement. Both assessment techniques were considered inadequate, and the general structure of these two aspects of the program precluded accurate judgments of skill on the part of teachers. Art skills seem to have improved more obviously, however, perhaps due to the greater degree of integration with the program as a whole.

Math and reading skills were measured by standardized tests. Over the three years, math scores did not show the anticipated increases. Reading development, on the other hand, was considered to be successful, the scores reflecting greater growth and higher mean stanines.

In two additional studies, some concerns of educators and parents were investigated. The first produced evidence indicating that ELC students who enter 7th grade adjust to junior high with the same degree of success as other District #1 elementary school students. The second study dealt with 5th and 6th graders at ELC and another District #1 school, and indicated that an open school situation is a more effective way of teaching non-verbal, performance-type skills. There were no significant differences in verbal skills between the two groups of children, as demonstrated by the tasks used to measure verbal skills.

Project CREATES has demonstrated that an open school can develop and function effectively within the framework of a public school system. This pilot program required the additional support of Title III funds, but it is hoped that the experimentation and the lessons learned as a result of the three years of Project CREATES will be of help to others. Perhaps other educational programs similar to CREATES may begin at a more sophisticated level, without the trial and error methods which characterized the beginning of this project.

It has been stated that the Exploratory Learning Center will continue to operate essentially the same program for the coming school year. Following the patterns developed over the three-year Title III funding period, it is likely that the school could continue indefinitely without becoming static.

THE STAFF AND MANAGEMENT OF THE EXPLORATORY LEARNING CENTER WISH TO EXPRESS THEIR APPRECIATION TO ALL THOSE WHO HAVE MADE THIS PROJECT POSSIBLE, ESPECIALLY TO ESEA TITLE III OF ARIZONA AND TO TUCSON PUBLIC SCHOOLS.

RECOMMENDATIONS

1. It is recommended that follow-up studies continue in the future, eventually assessing project children as they move into the high school years.

2. Measurement of cognitive skills by criterion-referenced rather than norm-referenced tests should be considered. The former would provide more useful information about individual students, in keeping with the individualized nature of the program.

3. Teachers should be urged to record ideas and techniques which supplement or replace textbook curricula. This seems to be an extremely valuable aid to other teachers who would like to use open-school methods, but need practical assistance.

END