EFFECTS OF A VOLUNTEER TUTOR PROGRAM ON SELF-ESTEEM AND BASIC SKILLS ACHIEVEMENT IN THE PRIMARY GRADES OF A SOUTHERN RURAL SCHOOL SYSTEM

By

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The purpose of this study was to explore what effects, if any, volunteer tutors might have on primary students in terms of academic achievement and self-esteem. The practical application of this study was the tentative resolution of the question: Is it worth the time, finances, and manpower required of a small rural school district to set up a volunteer tutoring program in terms of measurable learner-oriented gains in basic skills achievement and in self-esteem?

To give direction to this study, it was hypothesized that no difference existed between the adjusted posttest means for scale scores of learners in the experimental and control groups for total reading, vocabulary, reading comprehension, language

expression, math computation, and math concepts and application, all of which were measured by subtests of the Comprehensive Tests of Basic Skills, and for self-esteem as measured by the Coopersmith Self-Esteem Inventory -- P. K. Yonge Version 1972. A pretest/posttest experimental and control group design was used to gather data on 200 children in grades 1 through 3 of elementary schools in Sumter County, Florida.

Treatment consisted of a minimum of two hours per week of volunteer attention using language arts/reading prescriptions. Volunteer tutoring occurred over a period of five months. The model for the tutoring program was the School Volunteer Development Project, a Title III program developed by the Dade County School System.

A three-way analysis of variance, using the pretest scores as a covariate in order to adjust the posttest means, was performed on 76 complete data sets of the experimental subjects and on 71 complete data sets of the control subjects. The .05 level of confidence was selected for hypothesis-testing purposes. Sex and race were considered factors for statistical analysis, as well as treatment.

Gains were demonstrated in the areas of vocabulary, reading comprehension, and language expression, -- i.e., in those areas of the curriculum for which prescriptions were given to tutors.

No significant differences between experimental and control groups were noted for total reading, mathematics, or self-esteem.

In examining trends in the data, it would appear that blacks in general make more gains through being tutored than do whites, and boys seem to be helped more than girls.

Several unexpected side effects of the tutoring program were noted, including the reactivation of Parent-Teacher Organizations and Citizen Advisory Committees. Research is needed to determine if the apparent gains produced by volunteer tutoring maintain themselves over time.

CHAPTER I

INTRODUCTION

An expanding corps of volunteer workers in schools in every part of the nation is a phenomenon without parallel in the history of education (U. S. News & World Report, 1977). Literally millions of lay volunteers are coming into classrooms to share the instructional and noninstructional tasks ordinarily done by professionals in schools. In 1975 the number of volunteers in the nation's public schools was estimated at nearly four million, and their number now is believed to be much higher.

Recent legislation in Florida has done much to encourage the growth of volunteer programs in the state's schools. Law 74-238 focuses on the restructuring of education in the early elementary years through emphasis on basic skills instruction and citizen involvement. An assumption implicit in the legislation is that increasing citizen participation in the classroom, thereby reducing the adult-pupil ratio, improves the children's self-esteem and raises the level of their demonstrated competencies as measured by criterion-referenced assessment and/or norm-referenced standardized tests.

The purpose of this study is to explore what effects, if any, volunteer tutors may have on primary-level pupils in terms of academic achievement and self-esteem. The practical application of this study is the tentative resolution of this question: Is it worth the time, finances, and manpower required of a small, rural school district to set up a volunteer tutoring program in terms of measurable learner-oriented gains in achievement and self-esteem?

The Problem

Will the achievement scores and self-esteem scores of a group of primary children who have received the direct attention of volunteer tutors be significantly different from achievement and self-esteem scores of a similar group of primary children who have had no direct contact with volunteer tutors? The factors of sex and race will be considered to be independent variables so that the relative effects on male or female and white or black students can be investigated.

Delimitations

1. The sample for this experiment was restricted to primary students in grades 1, 2, and 3 or in non-graded classrooms for this same age span in five, later four, elementary schools in Sumter County, Florida, during the 1976-77 school year. Approximately 100 students were designated by random

selection as experimental subjects and the same number were designated for the control group. The population pool from which the experimentals and controls were chosen excluded, at the principals' request, the brightest, most advanced learners.

2. The volunteer program selected for use in this experiment was the one developed under Title III sponsorship in Dade County, Florida, and then only those portions involving tutoring functions in language arts/reading were implemented.
3. Only those factors measured by the basic skills subtests of the Comprehensive Tests of Basic Skills and the Coopersmith Self-Esteem Inventory -- P. K. Yonge Version 1972 were chosen for statistical analysis.

Limitations

Can the findings of this research be generalized to other similar populations? Three factors caution against generalizing without recognizing some limitations of this study.

In the first place, the social sciences have a disadvantage in experimental activities because of the human variables involved. While it is less difficult to control the behavior of inanimate objects in a laboratory setting in the physical sciences, the human

being whose behavior the social scientist is watching is not as predictable. Volunteers and teachers and volunteer coordinators cannot be totally controlled. Thus there is no way to assure uniformity in the behaviors of these participants in the experiment. An assumption of this research is that the volunteers followed the prescribed directions communicated to them during training sessions and by supervising teachers. However, many tutors worked with their charges in a secluded corner of the classroom or outside the classroom and there is no guarantee that every tutor followed every prescription in a similar manner.

Secondly, differential rates of scores on self-esteem or academic achievement might reflect regional, socioeconomic, or subcultural differences. The sample used in this study was approximately 60% white and 40% black, all rural. Most of the whites, as well as the blacks, are classified "lower socioeconomic" or poverty level. Care must be taken in generalizing results from this type of sample to an urbanized population with different racial and socioeconomic descriptors.

Thirdly, a tragic event in Sumter County history may have affected the internal validity of the experiment to some degree. In November of 1976 one of the elementary schools involved in the experiment burned to the ground. Within two weeks of that event, the entire population of the burnt-out school was moved to

a nearby elementary school, also involved in the experiment. Stress was evident as teachers and students of both schools now struggled to adjust to overcrowded conditions on a shared campus. Only one classroom participating in the experiment was affected directly. However, the indirect effects of the tragedy upon the experiment cannot be assessed precisely and hopefully are minimal.

Justification for the Study

Search of the research literature reveals that the past experiments involving volunteer or paid tutoring of school children have produced varying results. (See Chapter II.) The findings of this research project may make a modest contribution to the field of knowledge with respect to effects of volunteer tutor programs. This question of effects takes on significance as school administrators wrestle with the issue of whether or not to invest time and public monies into the implementation of a volunteer tutoring program.

Unpleasant side effects may arise from instituting a volunteer program: fear on the part of teachers' unions of volunteers replacing the professional, irregular attendance and unreliability of some volunteers, and the betraying of professional confidences, such as disseminating information on children other than one's own. Do the benefits of volunteer tutoring outweigh the administrative hazzards that may arise from bringing nonprofessional helpers into the school?

This research project attempts to add some information that can be useful in answering this question.

Another question that this project attempts to shed light upon, if only informally and indirectly, is this one: What happens when a small rural school district adapts an innovative program that was developed in a large urban school district? The volunteer tutor program used in this study was created under a Title III grant in Dade County, Florida. It was validated during a three-year period and recommended for dissemination to other school districts. Sumter County, Florida, School District (about one percent the size of Dade County in population) adopted the program with the limitations specified in Chapter III. Since small school districts are usually limited in the amount of funds available for innovative programming, this study may be useful in raising some questions about what happens when small districts attempt to implement programs pioneered by larger and more affluent districts.

Definition of Terms

For this study the following definitions were used:

Volunteer Tutor — A person who after orientation and training by school personnel agreed to spend a minimum of two hours per week in a classroom working with individual students or small groups

in language arts activities, following the prescriptions of the teacher. No remuneration was offered for these services.

Basic Skills	Reading, writing, communication and mathematics skills as measured by several subtests of the Comprehensive Tests of Basic Skills
Self-Esteem	How a person feels about him- or herself in relationship to peers, family, possessions and abilities, as measured by the Coopersmith Self-Esteem Inventory -- P. K. Yonge Version 1972
Primary Grades	Grades 1, 2, and 3 or nongraded classes that are administratively synonymous with grades 1 through 3
Experimental Group	One-hundred students in the primary grades who were assigned by random selection for attention from volunteer tutors using language arts/reading prescriptions
Control Group	One-hundred students in the primary grades who were assigned by random selection to

a group that was not to receive attention from volunteer tutors in terms of language arts/reading instruction

Dependent Variables — The adjusted posttest means for scale scores for total reading, vocabulary, comprehension, language expression, computation, and math concepts and application, as measured by the Comprehensive Tests of Basic Skills, and the score of the Coopersmith Self-Esteem Inventory -- P. K. Yonge Version 1972.

Independent Variables — Sex, race, and treatment (attention from volunteer tutors or no attention from volunteer tutors)

Pretests — The Comprehensive Tests of Basic Skills administered in May of 1976

Posttests — The Comprehensive Tests of Basic Skills administered in March of 1977 and the Coopersmith Self-Esteem Inventory -- P. K. Yonge Version administered in March of 1977

Procedures

Hypotheses

To give direction to the experiment, the following null hypotheses were tested, and in each instance the .05 level of significance was used to reject the hypothesis:

	No difference exists between the adjusted posttest means for scale scores of learners in the experimental and control groups . . .
H_1	for total reading as measured by CTBS
H_2	for vocabulary as measured by CTBS
H_3	for reading comprehension as measured by CTBS
H_4	for language expression as measured by CTBS
H_5	for math computation as measured by CTBS
H_6	for math concepts and application as measured by CTBS
H_7	No difference exists between the means for scores of learners in the experimental and control groups for self-esteem as measured by the Coopersmith Self-Esteem Inventory -- P. K. Yonge Version 1972.

The alternative research hypotheses state that the various adjusted posttest means for scale scores of the experimental group do in fact differ significantly at the .05 level of significance from those of the control group. In other words, it does make a

difference in a pupil's basic skills achievement and in his self-esteem whether or not he is the recipient of attention from a volunteer tutor.

Design for Research

This study used a pretest/posttest experimental and control group design (Campbell and Stanley, 1963). Pretests were administered in May of 1976. Tutoring activities began in October and continued through March. Unfortunately the Coopersmith pretests were destroyed in the fire at Coleman Elementary School in November, causing a shift in the design with respect to the self-esteem measures to a posttest survey only. Posttests were administered in March of 1977.

Assignment to Experimental and Control Groups

Nineteen primary classroom teachers in five elementary schools elected to have volunteer tutors assigned to their classrooms. Before choosing students for this experiment, the most advanced students in each classroom were deleted from the roster at the principals' request. Principals feared criticism from the public if tutors worked with students who performed above grade level when the majority of pupils were one or two years below grade level on standardized test measures. Either three or six pupils in each classroom were chosen by random selection for the experimental groups. The number chosen (three or six) was dependent upon the number of tutors available for assignment to that classroom.

A similar number of students were selected randomly for assignment to the control group. The randomization process assumed that the two groups produced by this process were equivalent in general ability, achievement, sex and racial distribution. The CTBS pretest scores of the subtest "Total Reading" were used to test the equality of the two groups in regard to achievement. Sex and race proportions were tested against those of the total county population.

Program Under Adoption

A committee involving principals, supervisors, curriculum assistants, classroom teachers, and parents investigated several models for volunteer tutoring programs available in the fall of 1976. The School Volunteer Development Project from Dade County Schools was selected for implementation in Sumter County schools since it was inexpensive to operate and disseminators of the project were within a half day's drive of Sumter County. This program categorizes volunteer activities into several job descriptions. The Language Arts/Reading Tutor was selected to be the job function that would be highlighted in this research study. Volunteers were recruited and trained to serve a minimum of two hours per week as reading tutors who would work with the assigned children under the supervision of a classroom teacher. A description of this Title III program and the modifications that occurred during the adoption process are found in Chapter III.

Instrumentation

The Comprehensive Tests of Basic Skills (McGraw-Hill) are measures of basic skills designed for and standardized on a wide variety of students. Form S was used for this research, Level B for first grade, Level C for second grade, and Level 1 for third grade. Standardization for these tests took place in 1973. The sample used for norming these tests consisted of 212,000 students throughout the nation. Schools were randomly selected from districts chosen by stratifying all U.S. school districts by size, socioeconomic level, and geographic region. Public and parochial school students were tested.

The validity and reliability determinations followed the 1966 APA recommendations for testing instruments. Close attention was given to the issue of content validity. The Bloom taxonomy for the cognitive domain provided a basis for the classification of the objectives, each of which was stated in terms of student behavioral patterns. Numerous reliability determinations led to the conclusion that a high degree of reliability exists for subtest scores as well as for total scores (Buros, 1972). Kuder-Richardson Formula 20 reliability coefficients were usually in the .85 to .95 region, although a few drifted downward as low as .75. The conscientious construction procedures for creating this test and certain internal measures (e.g., percent passing items at each grade level) are used to support the content validity of the test. With the exception of

data relating CTBS scores to California Achievement Test scores, no empirical relationships with external measures (e.g., students' grades, teachers' ratings, other achievement tests) are reported, perhaps on the assumption that content validity is the sine qua non for an achievement measure.

A variety of types of scores are available for reporting student achievement data. This study uses scale scores, or expanded standard scores, which derive from a single, equal interval scale across all grades for use with all levels of the test. These scale scores have a mean of 600 and a standard deviation of 100 at grade 10.1 (Test Administrators' Handbook, 1974). Scale scores are useful for research across all grade levels and all schools in a district, and also for reporting in nongraded programs and for longitudinal studies.

The other instrument used in this study is the Coopersmith Self-Esteem Inventory, developed by Dr. Stanley Coopersmith at the University of California (Coopersmith, 1967). The original inventory consisted of 58 statements to which the respondent checks "like me" or "unlike me." The respondent's professed attitudes towards self are measured in four areas: (1) peers, (2) parents, (3) school, and (4) personal interests. In revealing how the child feels about himself in relationship to these four areas, this instrument allows for measurement of level of self-esteem.

The original version of the instrument was revised in 1972 at P. K. Yonge Laboratory School, reducing the number of statements to 25. Items considered redundant were eliminated, but the ratio of types of items to each other was maintained (Northrup, 1974). The correlation between the original and the revised versions is .86. Test-retest reliability coefficients of .70 and .88 have been obtained on the instrument.

Data Treatment

Data were collected in May of 1976 and in March of 1977. Scores on the May tests were used to test the equality of the experimental and control groups before treatment. Pretest scores were also used to adjust posttest scores, thus avoiding some of the pitfalls normally associated with working with gain scores (McLean, 1974; Cronbach and Furby, 1970).

The statistical analysis process used in this research was a three-way analysis of variance with pretest scores used as covariates. Statistical Package for the Social Sciences, Second Edition (Nie, 1975) was the program used for computerizing the analysis. Of 100 subjects in the experimental group, the system deleted 24 as not having complete data sets. Of 100 subjects in the control group, 29 were deleted for reasons of incomplete data. The .05 level of significance was selected for hypothesis-testing purposes. Assumptions for the statistical treatment are found in Chapter IV.

Summary

This research project was designed to explore the effects of volunteer tutors on primary students in terms of self-esteem and achievement on basic skills tests. An overview of the project has been given in Chapter I. Chapter II will survey some of the recent research studies that have involved tutoring. A brief description of the volunteer program selected for implementation in this study occurs in Chapter III. Chapter IV gives additional details about what happened as this volunteer program developed in a large urban school district was transported to a small rural school district. Chapter V provides a presentation and analysis of the data, while conclusions and implications for further study appear in Chapter VI.

CHAPTER II

REVIEW OF RESEARCH

Volunteers have been part of the educational scene in America ever since the inception of public education. Only in recent time, however, has the growth of the volunteer movement become so great that additional supervision is needed from administrators as well as from classroom teachers. Another recent development is the shift of volunteer labors from strictly noninstructional duties to tutoring activities once reserved for professionals or paid paraprofessionals. As Wright points out, "Community self-help programs through volunteerism are one of the most promising new developments of this century . . . . Chaos, confusion, and crises develop where there is citizen disinterest" (1969, p. xi).

The use of volunteers in the schools has been advocated as a means of improving academic performance of low-achieving pupils (Cf. Passow, 1967; Goldberg, 1967). Rosenshine suggests that volunteer programs should help students by providing needed individual attention, which might cause growth in self-esteem (1969). McClellin hails volunteers as a promising resource for the individualization of instruction and for changing the learning

climate of educational institutions (1971). The famous Plowden Report from England describes correlational studies of environmental factors and pupil achievement (Children and Their Primary Schools etc., 1967). One conclusion of this report is that variation in parental attitudes accounts for more variation in achievement than either variation in home or variation in school. Direct involvement of parents in school programs, either with their own or other people's children, is a powerful way of improving parental attitudes and, as a consequence, student achievement. This report from England is echoed in the American 1968 Report of the National Advisory Commission on Civil Disorders, which issued recommendations for achieving quality integrated education. One of the recommendations was "enlarged opportunities for parents and community participation in public schools." Volunteering for service in classrooms was viewed as a type of participation that would benefit all parties concerned — students, teachers, parents, and school administrators.

A rationale for volunteer programs has been offered by several authors. Wartenburg (1970) suggests that parent involvement in volunteer programs brings these benefits: support for the local educational program, appreciation of the school's daily problems, better understanding of the children's academic progress, an improved reading program, more competent staff through sharpening a teacher's program of instruction, more individualized help for pupils, and a focusing on new ideas and techniques for improved

education. Whaley (1973) views the volunteer movement as important in light of (a) soaring costs of education, (b) rising salaries for teachers, (c) increasing pressure to upgrade the duties of certified teachers, (d) growing demands for parent and community involvement in schools, (e) increasing attention to individualized instruction, and (f) mounting enrollment trends. Hedges states that "a successful volunteer program does more than help teachers and pupils directly with their work. It improves parent-teacher communication, has positive influence on parents' attitudes, enables parents to learn more about instructional procedures, and improves community support for the philosophy, program, and resources of the school." (Hedges, 1972, p. 6). Hedges then expounds 16 points accomplished by a volunteer program, most of which are variations of the points made by Wartenburg and Whaley above. In addition, Hedges affirms that models for differentiated staffing should have one level for volunteer workers.

Growth of Volunteer Programs

Volunteer work has always been a tradition in America, according to Dobson (1975). In the early days of public school education, "grass rootism" was prevalent, but as the schools grew in size and bureaucratic organization, communication between the home and the

school was impaired. In more recent times, however, the public is becoming more assertive in demanding "voice and vote" in determining how the schools, their schools, are to be run. Accompanying this concern is a greater willingness to go into the schools to assist teachers in the educational enterprise. Many parents and teachers agree with Jablonsky (1973, p. 6) who reports that schools opening their doors to community volunteers have greater success in educating children, because the changing perceptions of the adults who visit in the schools affect the children in a positive way.

The school volunteer movement received much impetus in New York City in 1956 through a grant to the Public Education Association from the Ford Foundation (Caplin, 1970). The purpose of this grant was to survey existing volunteer programs and to lay the foundation for a cooperative sharing of information and resources. In 1956 in New York City there were 20 volunteers in one school, but as attention was focused on volunteerism through the grant, the program began to expand. By 1971 there were 2000 volunteers in 161 schools in the city's school system.

The mushrooming effect of program expansion was not limited to New York alone. In Los Angeles the school volunteer program began in 1963 with 380 volunteers. Within a decade the number of volunteers had climbed to over 15,000 with over 45,000 hours

of service donated each week to the schools (Jackson, 1975). The National School Volunteer Program, Inc. was established by a grant in 1964. At the end of 1964 there were formally organized volunteer programs in seven school districts. By 1967 the number of districts sponsoring volunteer programs had increased to seventeen.

Title III (now Title IV-c) funding for innovative programming became involved in the historical development of volunteer programs. HOSTS (Help One Student To Succeed), a reading program developed by the Vancouver School District, No. 37, in Washington state under an ESEA grant, focused on the role of volunteers in the teaching process. In Miami, Florida, a feasibility study for a volunteer program was conducted with funds from the Emergency School Assistance Act of 1971 and the volunteer program itself was initiated in 1972 under the aegis of Title III. Throughout the nation Headstart and Follow Through programs developed home visitation, parent education, and in some cases school volunteer programs. The Florida Follow Through models in Dade County, Duval County, Hillsborough County, and Okaloosa County had components that enabled schools to utilize citizen volunteers in classrooms (Greenwood, Breivogel and Bessant, 1972).

Florida school districts, as elsewhere, experimented with volunteer programs, sometimes with success, sometimes without success. In 1974 the State Legislature mandated volunteer

programs by requiring lower adult-student ratios in basic skills instruction without funding additional teachers' aides. In June of 1976 the various districts were surveyed by the State Department of Education just prior to the time when the new laws on lower teacher-student ratio would go into effect (Florida Department of Education, 1976). The results were as follows:

17 counties had district-wide school volunteer programs

21 counties had school-based volunteer programs

20 counties had no organized school volunteer program

9 counties did not report

An updated report has not yet been published, but it is expected that in light of the legislated mandate, all counties would have some semblance of a volunteer program in operation at the present time.

Current leadership in the field of volunteer programming remains with the National School Volunteer Program, Inc., a professional organization composed of approximately 700 local school volunteer programs (Directory of the N. S. V. P., 1976) This organization has four major functions:

(1) to help local programs achieve standards of quality

(2) to help local programs expand efforts to meet student needs

(3) to emphasize the role of citizen participants

(4) to strengthen the programs as community institutions.

In all there are approximately four million citizens involved in some 3000 programs in all fifty states. Not all volunteers are given instructional tasks to do, but an increasing number are finding themselves working side by side with professionals in the teaching of basic skills and other subjects. This type of involvement has raised some legal questions about nonprofessionals doing instructional tasks as well as their personal liability while on campus. As a result, state legislatures are acting to plug the holes in the present legal frameworks within which school personnel must operate. In Florida, for example, the definition of "teacher aide" has taken on a multi-faceted character since the passage of the Public Education Act of 1975. The teacher aide is now "appointed" rather than assigned by the school board (228.042 (25) Florida Statute). Through this process, the teacher's aide receives the same legal protection as other professional personnel. The Act also broadened the definition of "teacher aide" in the Florida Statutes as follows:

> Teacher aides may include parents, foster grandparents, paraprofessionals, students, and others who serve in the classroom as instructional or paraprofessional assistants to the teacher, whether such aides be paid workers or volunteers (228.041 (25) Fla. Statute).

Research on Volunteer Programs

With the surge of interest in volunteer programs, a vast amount of literature has been produced ranging from serious books to innumerable handouts churned out on mimeograph machines around the

nation. Most of the literature is hortatory or testimonial in nature, sharing the assumption that volunteer tutoring is benefiting the student in many ways. Many case studies describe local programs and focus on obvious successes. Few articles or books on volunteer programs have much to say about evaluation of objective measures.

This review of research is considering only those studies in which evaluation was a component. The question being explored is this one: What does available research reporting tell about the effectiveness of tutoring in basic skills in terms of student achievement and/or self-esteem? The treatments under discussion involve tutoring rather than simply citizen involvement (such as parent-teacher conferences) or some form of parent education or home visitation. In each case under review, the volunteer tutor comes in or near the classroom to work with designated students in their pursuit of basic skills knowledge.

Three general categories of tutoring are considered: (1) tutoring by the student's own parent, (2) tutoring by peers, and (3) tutoring by adults or high school age persons other than parents. The first two categories will be presented in simplified chart form, while the third category will be described more comprehensively in narrative form, since it is tutoring by adults other than parents that corresponds most nearly to the current research project in Sumter County. Levels of significance for hypothesis testing should be understood as being at the .05 level, unless otherwise noted.

Tutoring by Parents

In the following studies, arranged in alphabetical order, the tutoring relationship is established between a child and his own parent.

	Researcher	Date	Program Description	Evaluation Results
1.	Brzienski	1964	Use of TV and printed materials to assist parents in intervention in beginning reading	There is a direct relation between reading practice under parent's control and student achievement -- minimum 30 minutes per week.
2.	Buchanan	1969	Parents supervise students' math homework to test home-school contact effect on performance and attitude.	No significant difference in performance. In attitude, high achievers showed negative change while low achievers showed positive change.
3.	Casaus	1974	Ten-session training for minority parents	Affected parents' pride and knowledge positively, but not student performance
4.	Champagne and Goldman	1971	Three-day training in specific tutoring skills	11 of 12 parents increased positive reinforcement (small N)

	Researcher	Date	Program Description	Evaluation Results
5.	Clegg	1972	Eight games taught to economically disadvantaged parents for teaching reading	Experimental group scored better in vocabulary and IQ, but not in comprehension
6.	Flint Public Schools	1963	1000 k-6 students (mostly black) tutored by parents over 5 months	Mean gain on vocabulary and comprehension for experimentals 5.3 months; for controls 2.8 months
7.	Henderson and Swanson	1973	Parents trained to help children develop intellectual skills (Native Americans)	Conclusion: well planned instruction, targeted on specific skills, may be effective regardless of child's general level of past achievement in academic subjects
8.	Hoskisson, Sherman and Smith	1974	Two students tutored by mothers 20 minutes per week for 4 months	Significant gains, but too small N to generalize
9.	Hirst	1972	96 grade 2 Caucasians tutored by parents for five 30-minute periods over 16 weeks	No significant difference in achievement
10.	Keele and Harrison	1971	Parents and high school students tutor beginning reading students, using tutoring handbooks	Experimentals did better in sounding letters, not in naming letters.

	Researcher	Date	Program Description	Evaluation Results
11.	Mayes	1966	Parents supplement math instruction through use of kits with third graders	Experimentals showed greater improvement in mathematics
12.	McKinney	1975	Parents are taught tutoring skills in reading and math. Tutoring occurs 2 hours per week for 15 weeks.	Experimentals gained academically. Their parents gained in positive attitudes towards school.
13.	Niedermyer	1969	Parent-monitored practice in reading	High level of achievement for experimentals
14.	O'Neil	1975	3 groups of reading-disabled primary pupils: (1) tutored by supervised parents (2) tutored by unsupervised parents (3) not tutored Ten-week period	No significant differences, but small gains in some reading subtests
15.	Rosenquist	1972	90 first graders of high socioeconomic level tutored by parents and older siblings using games and fun activities	Experimentals made gains of 3 to 4 months over controls
16.	Ryan	1964	232 second graders tutored by parents in reading	Experimentals did better in word meaning, not paragraphs

	Researcher	Date	Program Description	Evaluation Results
17.	Slater	1970	Monthly workshop for parents of kindergarten for intervention in perceptual development	Experimentals did better on only one of three scales
18.	Waters	1968	Ten sessions with parents of primary students	No significant difference
19.	Wise	1972	Economically disadvantaged parents trained to tutor in reading over 8 months	Effective in improving pupil performance

Of these 19 studies, 8 can be termed successful in terms of student gains, 6 were unsuccessful, 3 had mixed results, and 2 had too small a number of subjects to generalize results to other populations. Techniques of tutoring were varied, including book work, supervising homework, conducting educational games, use of kits, and in Henderson's case, asking questions designed to enhance intellectual capacity of respondents. In all cases where the tutors' positive feelings or knowledge were surveyed, gains occurred in conjunction with the tutoring experience.

Recurrent patterns of methodology are difficult to detect in either the successful or unsuccessful experiments. All successful experiments utilized specific recommendations targeted on clear objectives, but so did Hirst and also O'Neil and also Waters — without success.

All experiments except O'Neil's and Keele & Harrison's have a treatment group and a "no treatment" control group, which raises the issue of how to control for Hawthorne effect. How much positive change can be traced to the treatment effect, and how much is due to the children's excitement over being the recipients of special attention? In some cases (Rosenquist, 1972; Clegg, 1972), treatment was no more than special attention, under the assumption that positive association with parents in fun activities would enhance the students' self-esteem and therefore cause a rise in achievement measures.

Tutoring by Peers

In general, experiments involving peer tutoring are easiest to design since both tutors and tutored are day-time residents of educational institutions and can therefore be more easily scheduled, monitored, and controlled. The following studies focus on peer tutoring:

	Researcher	Date	Program Description	Evaluation Results
1.	Bradshaw	1971	32 grade 1, 2, 3 students tutored by grade 4, 5, 6 pupils 15 minutes daily over 8 weeks	75% of subjects in only one of two schools involved met criteria for successful remediation
2.	Bremmer	1972	80 grades 1 - 4 students tutored by 40 grade 7 - 8 students	Almost half tutees gained. 60% tutors improved in attendance. No change in attitude of either group

	Researcher	Date	Program Description	Evaluation Results
3.	Diamond	1970	92 grade 5 males with low self-esteem tutored second graders low in reading skills	No positive effect on either tutors or tutees
4.	Harrison	1972	172 grade 2 nonreaders tutored by grades 4-6 students 15 minutes 4 days a week for 5 months	Experimentals performed better than controls
5.	Kelly	1971	216 grade 2 pupils tutored by 60 grade 4 students 20 minutes per day for 6 months	No gains in tutees, but gains showed up in tutors
6.	Liette	1971	82 grade 3 black male underachievers tutored by 41 grades 4 - 6 underachievers 30 minutes a day 3 days a week for 12 weeks	Experimentals gained only in comprehension
7.	Lopp	1972	Pupils from 10 elementary schools tutored by underachieving middle school students for six weeks	No gains
8.	Paoni	1971	120 grade 3 students tutored by 60 grade 6 students 30 minutes per day, 3 days a week for 4 months	Experimentals gained in comprehension and attitude but not in vocabulary. Tutors gained in attitude only.

	Researcher	Date	Program Description	Evaluation Results
9.	Plumb	1974	108 grades 2 - 3 students tutored by grades 5 - 6 students for 6 weeks	Experimentals gained, with only one student failing to make significant improvement.
10.	Robertson and Sharp	1971	66 grade 1 students tutored by 33 grade 5 low achievers	Experimentals gained only in sight word vocabulary
11.	Rogers	1969	40 grade 3 and 30 grade 6 underachievers tutored by grade 6 pupils 40 minutes per day for 8 weeks	Only third graders made gains
12.	Snapp	1970	40 grade 1, 2, 3 underachievers tutored by grades 5 - 6 students 20 minutes, 4 times a week for 8 weeks	Experimentals made gains.

Of 12 studies, 3 were successful in terms of learner (i.e., tutee) results, 3 were unsuccessful, and 6 rendered mixed results. Effects upon tutors were also ambiguous. McClellin (1971) in her own survey of peer tutoring research reports that no study of cross-age tutoring produced negative or damaging results, although not all produced positive results. Hedges (1972), in surveying the peer tutoring scene in Ontario, concludes that when older students tutor, they

make important academic gains, although the effects upon the tutees are more inconclusive. A search for recurrent patterns in either the successful or unsuccessful studies listed above does not yield firm conclusions about why some efforts succeed and others fail.

Tutoring by Other Adults

What can happen in a child's life when someone other than teacher, parent, or sibling takes an interest in him and expresses it in tutorial functions? To read the case studies on volunteer tutoring, it would appear that many positive influences occur when subjective judgement is used to draw conclusions. Students feel better about themselves, relate to other children more congenially, improve their attendance record, and increase their work output. But when objective measures are utilized, do these favorable influences hold up under close scrutiny? Many studies have been conducted concerning the effects of tutors other than parents or peers on student achievement. Few studies have questioned the effects of tutors in the affective domain, no doubt because matters of pride, self-concept, and other feelings are difficult to document.

Some experiments report only positive results from volunteer tutoring programs. The Ferguson-Florissant report (1974) describes a Saturday School Program for elementary grades that combines home visitation with volunteer service four times a year in the school district's tutorial program held every Saturday. Parents are not

expected to tutor their own children in the Saturday sessions. Between 76% and 96% of the students made significant improvement in basic skills, the percentage varying from year to year. No control group was used, however.

Good results are also reported by McCleary (1971) for the Tutorial Reading Project of North Carolina, with tutors and tutees meeting every day during the school year on a one-to-one basis. The experimental group demonstrated a significantly higher mean than did the control group on all phases of the reading achievement test.

Children attending a neighborhood tutoring center in Milwaukee, after being referred by school personnel for special assistance, were tutored by volunteers for as long as the need seemed to be pressing. Average gains on seven reading measures were much better than expected, based on past performances. In addition, subjective evaluation by school personnel showed improvement in self-concept, work habits, attitude, library usage, and reading enjoyment (Schoeller, 1970). Similar gains both cognitively and affectively are described by Gaulke (1972) for a volunteer program in which the tutors were trained using the Laubach method. In this study 23 boys from grades 5 and 6, after being tutored, appeared to have made gains in self-concept, interest, and classroom academic work. On more objective measures associated with reading test scores, 100% of the experimentals, as opposed to 89% of the controls, showed significant gains in vocabulary and/or comprehension.

Tutoring using a programmed approach to the teaching of decoding skills is described by Richardson (1971). Twelve nonreaders from grades 3 and 5 were assigned to tutors for 43 sessions. While these children could all apply decoding skills to new materials in a way that implied significant growth, the small number of subjects causes one to view the results with caution. The problem of having no control group similarly raises questions about Hassinger and Via's work (1969). Underachievers from grades 4 through 6 were tutored during two-hour blocks for a period of six weeks. Their mean growth on the Stanford was 4.6 months after only 1.5 months of treatment. Unfortunately, without controls it is impossible to know what other factors contributed to this gain, nor do we know if the gain persisted over time.

An ESEA Title I program in Omaha Public Schools enabled 1,460 children in grades 1 through 3 to receive special assistance through volunteers and paraprofessionals trained to teach specific reading skills. While most students exhibited improvement in the tutored skills, it is impossible to sort out the effects of the various components of the total program (Texley, 1973). A cost-effectiveness study reported by Conant (1971) examined the use of teacher aides in elementary schools, most of whom were salaried paraprofessionals rather than part-time volunteers. Pupil achievement gains were noted, especially among the educationally disadvantaged.

Similar gains in achievement, plus some gains in self-esteem, were reported for Project Upswing in Maryland (Plantec, 1972). Project Upswing was a two-year program of volunteers helping first graders overcome learning difficulties. One experimental group was tutored by trained volunteers, another experimental group by untrained volunteers, and a control group was not tutored. Both experimental groups made similar significant gains.

An Ohio study focused on ways to help educators learn to use volunteer support, with training sessions provided for educators. Correlative studies pointed to significant improvement in certain language arts and math skills by 80% of the students (Logan, 1975). A study by Rist (1971) shows how reading scores can be affected by experiments with a non-language-arts focus. Over a nine-month period, 127 grade 7 black students were tutored in Black Awareness by black university students. When a comprehensive barrage of tests was administered, it demonstrated that experimentals had gained 3.4 years in reading while controls gained only .6 years.

Study of longitudinal effects of volunteer efforts is almost nonexistent, but Shavor (1971) attempts to inject this element into his study. Tutors worked with 194 grades 4, 7, and 10 underachievers one hour per day for one year. The experimentals showed greater immediate gains for reading and writing, especially in grades 7 and 10. Two years later, the mean gains were sustained at the grades 7 and 10

levels but not for grade 4. More longitudinal analyses are definitely in order for assessing the effects of volunteer tutoring in the nation's schools over an extended period of time.

Mixed Results

If every experiment's results were as clear-cut as those cited above, the issue of volunteer effectiveness would not be a live issue for research. However, many studies have produced effects that are inconclusive. The following reports suggest that more experimenting and more evaluation are needed in the area of volunteer programming.

More tests rendering ambiguous results have experimentals showing gains on some test components but not on others. Glatter (1967) observed 60 underachieving grade 5 and 6 students tutored by 60 college students for 2 hours once a week for 9 weeks. The experimentals were superior on arithmetic subtests but not on word knowledge tests. Similarly, when 60 first graders in Ohio were tutored for 15 minutes daily for one year, the experimentals did better in word knowledge and comprehension, but not in word discrimination. And when Ellson used programmed versus directed tutoring with 480 first graders (1968) and later with 280 first graders (1970), in both cases 15 minutes daily for one year, similar results occurred. The programmed instruction produced gains when measured by the basal

reader tests, but not on the standardized test. No gains were associated with the directed instructional format.

Other year-long programs producing some, but not all, positive indicators are PACE of Cleveland (Carter and Dapper, 1972, p. 21) and East Charles Mix (1971). In addition, Nichols (1968) tells of the tutoring of grades 4 through 6 disadvantaged children by university students with the intention of raising self-concept, reading achievement, and attitudes. While there is no significant difference in the pretest and posttest means in reading, there was change in three measured factors: (1) creative expression, (2) recreational activities, and (3) adult and peer interaction.

Like Ellson, Ronshausen (1971) did a study contrasting directed versus programmed tutoring activities with first graders, 15 minutes per day of individualized tutoring. Ronhausen's results contradict Ellson's findings. The directed approach produced gains in achievement and attitude, while programmed instruction did not.

In addition to format for tutoring, does the sex of the tutor have impact upon the experiment's results? Gentile (1975) tested the effect of tutor sex on reading scores of children. In second grade, apparently women make the best tutors while in third and fourth grades men are either better, or in some schools there is no difference. And does time make a difference? After examining the results from 515 grades 4 and 5 students after tutoring, Cloward (1963) reports that tutees who were tutored twice or more each week

showed gains while those who were tutored once a week showed none. Kirk (1966) observed a tutoring program over two years. Through post hoc analysis he divided the students into three groups: (1) more than 20 hours of tutoring, (2) 10 to 20 hours, and (3) less than 10 hours. At the end of the first year, group 3 students had significantly higher posttest scores (.001) after the scores were adjusted for pretest scores. At the end of the second year, there were no significant differences at all. In neither year was there any meaningful correlation between the number of hours of tutoring and gain in the posttest scores.

In the Great Cities School Service Assistance Project in Michigan, tutoring occurred with other elementary children. When the data were analyzed, it appeared that the fourth grade pupils gained in reading and mathematics, while the third and fifth graders showed no differences (Poulos, 1971).

An innovative tutoring program in New York City used executives from major corporations to work with 160 inner-city elementary pupils (Reading Newsreport, 1971). Project directors, teachers, and tutors felt that positive gains had been made, but unfortunately the quantitative evaluation design was inadequate to stipulate any objective results. Many early attempts at evaluation were also inadequately designed to meet current standards for social science experimentation. Howell (1959) did some of the earliest studies on volunteerism, but even though the effects of the experiments were somewhat greater where volunteers were used, the data cannot be

generalized because of design flaws. Howell, however, reaches the tentative conclusion that the experimental conditions probably did not impede pupil learning in general and may have tended to promote it.

"No Change" Experiments

Seven recent studies have turned up no significant differences between experimentals and controls or between pretest and posttest scores. Larson (1975), Olsen (1969), and Meyers (1971) note that teachers felt that tutoring produced positive changes in self-concept and attitudes even if the achievement scores did not show improvement. In Murton's study (1966), college students worked with grades 3 through 5 students, deemphasizing the academic and focusing on affective relationships. While there were no clear gains, parents were pleased with the program. Again, no differences occurred when Smith's (1971) untrained volunteers worked with "problem children" in grades 1 through 6.

Grannick (1972) examined the data from a summer tutoring program in Pennsylvania and New Jersey. The tutors were high school potential dropouts working under the supervision of teachers. Attrition rate was high among the tutors and tutees. The means for pretest and posttest were almost unchanged. About this same time, Worl (1973) was observing three groups of inner-city children in an eight-week study in New York. One group was tutored by adults trained by reading specialists, another group was concentrating on self-esteem

advancement, and the third group was tutored in whatever seemed appropriate by adults who received no training. When no significant difference occurred in any of the measures, Worl questioned the effectiveness of volunteer tutoring in general and this specific program in particular.

Summary of Research

In this overview of current research concerning volunteer tutoring, 21 studies displayed positive gains associated with tutoring, 16 studies showed no gains, and 20 studies had mixed results. In 1969 Rosenshine examined 13 current studies and concluded that "well structured, cognitively-oriented tutoring programs are relatively few, but when they occur, there are usually measurable achievement benefits to the pupils. The majority of tutoring programs apparently do not have these characteristics, but consist of less structured, helping, affective interactions. In these 'softer' situations, the anecdotal reports are that the tutors and the pupils develop increased pride, positive attitudes towards self and school, enhanced self-image, and greater patience " (p. 2). Even if the objective measures do not indicate positive gain, often the subjective evaluations given by teachers, parents, tutors or tutees would suggest that participants in the tutoring programs see themselves as benefiting in many ways from the experience.

Hawkridge and his associates (1968) prepared a review in which 18 well designed programs for producing cognitive gains in disadvantaged pupils were compared with 27 matched unsuccessful programs. While tutoring was not ordinarily a function of these programs, the conclusions may have some light to shed on why some tutorial programs seem to work and others do not. All of the successful programs displayed careful, deliberate planning, high intensity and concentration in the treatment, and individualized attention to the subject. The unsuccessful programs were more diffuse in their objectives, usually attempting to provide a variety of enrichment services rather than focusing on cognitive gains. More time was spent on cultural activities, for example, and less time on academic activities. It is difficult to see patterns emerge that would distinguish between the successful and unsuccessful tutoring programs. However, future researchers may wish to take Hawkridge's analysis into account as experiments are planned.

Few trends or patterns can be deduced from existing studies. With regard to time devoted to tutoring, for example, there is no evidence of any optimum frequency of tutoring sessions. Tutoring programs meeting daily or as infrequently as once a week have been successful and unsuccessful. In two separate years Kirk (1966) found no correlation between amount of time spent in tutoring and pupil achievement. Also, in terms of optimal size of groups, Shavor (1969) reports no significant differences between one-to-one and

one-to-three tutoring experiences in three replications. One-to-five also seems to yield the same effects as smaller groupings. However, more data are needed in this area as well as in the area of longitudinal studies.

If viewed only in terms of academic growth of pupils and gains in self-esteem, volunteer tutoring programs are obviously not the panacea that some educators might wish. Rosenshine (1969) tells about reading reports which had been issued with negative findings but which later became "unavailable" from funding sources. There is no doubt that there continues to be a great need for unbiased, objective reporting of data concerning the effects of various volunteer tutoring projects going on in all parts of the nation. Landberg (1968) tells of surveying 33 school districts in California concerning their tutoring programs only to discover that not one of them had evaluated the effects of the programs on the students. In some ways the situation is no better one decade later. Much honest analysis of data from volunteer programs needs to be done. This current study in Sumter County, Florida, is one contribution to fulfilling this need. It does this by utilizing a model with clear goals and objectives, definite job descriptions for participants, and specified tasks to be performed. It also targets a specific sample and measures the effect of association with volunteers on achievement and self-esteem scores. It then uses analysis of variance procedures

to investigate the concomitant effects of treatment, race, and sex upon the experiment's results. Data from this study may then be added to data generated by the original School Volunteer Development Project in Miami to provide useful information on the effectiveness of this approach to volunteer tutoring in both urban and rural settings.

CHAPTER III

DESCRIPTION OF THE SCHOOL VOLUNTEER PROGRAM

Dade County is the most populous county in Florida. Within its urban and suburban communities can be found all socioeconomic groups including Caucasians, Negroes, Asians, and Cuban-Americans. The school system serving the multi-ethnic population is the sixth largest in the nation, with approximately 250,000 pupils and 20,000 employees. The need for academic improvement in basic skills has been brought to the public's attention through the state assessment program. As a result, the School Volunteer Development Project was created with assistance from ESEA Title III. The developmental aspect of the project was in operation from 1972 to 1975. On the basis of meeting the criteria of innovativeness, success, cost-effectiveness, and exportability, the project was validated for federal support as a dissemination project. Since then the creators of this program have been attempting to share their

insights into the ways and means of volunteer programming with all schools and school districts that express interest.

Project Objectives

The purpose of the School Volunteer Development Project was to develop and implement a delivery system of school volunteer services which could deliver a number of different types of volunteer services to meet different and varying kinds of learner needs. (Abstract, School Volunteer Center, 1975, p. 2).

Two major objectives addressing critical learner needs were in the area of basic skills: (1) Students who are one or more years below national norms in reading achievement and who are tutored by volunteer reading tutors of the School Volunteer Project will gain significantly more in reading achievement than will non-tutored students. Reading achievement will be measured by the reading comprehension section of the Metropolitan Achievement Test. (2) Students who are one or more years below national norms in math achievement and who are tutored by volunteer math tutors of the School Volunteer Project will gain significantly more in math achievement than will non-tutored students. The math comprehension section of the Metropolitan Achievement Test will be used to measure gains.

Project Activities

Administrators are trained through workshops by the staff of the School Volunteer Development Project concerning the overall delivery system of the project and the administrator's supportive role in it. A School Resource Person is appointed by the administrator from among his staff and a Volunteer Chairperson is selected from the community to jointly coordinate the volunteer effort in the school. The two leaders also receive training in their respective roles.

The faculties of each school are then trained by the project staff and a needs assessment is conducted in order to ascertain the needs of the school and of each classroom within the school with respect to volunteer assistance. Then the recruitment of volunteers from the community begins in earnest. As sufficient volunteers enlist, workshops are held to orient the volunteers to the school and also orient the teachers to the effective use of volunteers.

Students performing one or more years below grade level in reading or mathematics are identified as needing special attention from volunteers. Assignments of students to volunteer care are made. The program is from that point on monitored through teacher and staff observations, feedback from volunteers, and feedback from teachers, New ways of expressing gratitude for the volunteers' services are constantly being sought and utilized.

During the first year of operation of the project, 1,237 volunteers worked in 35 schools. The lives of 45,537 students were affected by the project. Approximately 48% of the volunteers were parents of school-age children or in some way already associated with the school, 50% were senior high school or college students, and 2% were senior citizens.

During the trial-and-error process of training tutors and teachers, materials were developed to assist with future inservice work. These materials have been packaged into a Starter Kit for the Utilization of Volunteer Services. The contents of this kit are multi-media in nature and include administrative reference books, introductory training materials in print format, training modules with individualize cassette tapes, and optional modules with filmstrips and tapes.

Evidence of Effectiveness

The successfulness of this project can be inferred from specific evaluation of the two major objectives. The objectives were measured within the context of Campbell and Stanley's pretest/posttest design. The results obtained from analysis of the data gathered during the experiment may be viewed in Tables 1 and 2. Students who were tutored by volunteer reading tutors gained significantly more in reading achievement than non-tutored pupils, exceeding them at the .0005 level. The same results occurred

with the math-tutored students. Improved achievement was associated with volunteer efforts.

TABLE 1

COMPARISON OF EXPERIMENTAL AND CONTROL GROUPS ON READING COMPREHENSION SCORES FOR STUDENTS WITH TUTORS AND STUDENTS WITHOUT TUTORS

Group	Number of Observations	Mean Grade Equivalent Gain Score	SD	F
Tutored	119	1.02	.84	20.85*
Non-tutored	117	0.038	2.11	

*df = 1,234; $p < .0005$

TABLE 2

COMPARISON OF EXPERIMENTAL AND CONTROL GROUPS ON MATHEMATICS ACHIEVEMENT SCORES FOR STUDENTS WITH TUTORS AND STUDENTS WITHOUT TUTORS

Group	Number of Observations	Mean Grade Equivalent Gain Score	SD	F
Tutored	119	0.808	.87	47.93*
Non-tutored	117	-0.059	.75	

*df = 1,234; $p < .0005$

The school volunteer program in Dade County has grown to over 12,000 volunteers, the second largest program in the nation. An enormous amount of talent and resources have been donated to the schools. The project staff has documented over $4,400,000 of time and resource contributions during 1974-75.

The cost analysis per pupil for three stages of development of the project for one school year is presented in Table 3:

TABLE 3

COST ANALYSIS FOR SVDP FOR ONE YEAR

	Start Up	Manage	Operate
Total	$14,511.00	$17,380.49	$71,141.37
Total number of learners upon which costs were based	45,537	45,537	45,537
Costs per learner	.31	.38	1.56

Start-up costs include pre-service staff development, all printed and taped materials, facilities, media equipment, and office equipment. Management costs include administrative materials, evaluation services, employee benefits, and project director's salary. Operation costs include travel expenses, teachers' and clerical salaries.

As a perspective on the yield which this investment of funds provides, it is necessary to consider the dollar return to Dade County during its first year of the project when 1,237 persons volunteered for tutoring. Each volunteer served approximately 4 hours per week for 35 weeks, thus giving a total of 173,180 hours. If $6.00 per hour (the mean tutorial rate in Miami at that time) is the value attributed to the volunteers' hours of service, the School Volunteer Development Project added $1,039,080 in services to the educational program as a result of the $85,220 investment from ESEA, Title III and $17,812.86 in donations.

The project staff instrumental in creating and disseminating this project are the following:

Dr. Audrey Jackson, Coordinator of Volunteer Services
Johanna Bullock, Volunteer Specialist
Regina Craig, Coordinator of Training Program
and Thelma Greene, Volunteer Specialist.

Modification Through Adoption

As Sumter County school personnel made plans to adopt the Dade County model for a volunteer program, only one change was required, it seemed. The Dade County project differentiated the roles and responsibilities of volunteers until finally the following volunteer positions had job descriptions and training modules:

Arts and Crafts Assistant
Audio-Visual Assistant
Classroom Assistant
Clinic Assistant
Clerical Assistant
Counselor's Assistant
Language Arts/Reading Tutor
Listener
Library Assistant
Math Tutor
Physical Education Assistant
Special Education Assistant
Storyteller
Supervision Assistant
Spanish Assistant
Special Activities Volunteer
Special Course Instructor
Special Interest Club Sponsor

In Sumter County the decision was made by the ad hoc committee to limit the focus of the local experiment to language arts/reading tutors only, allowing hopefully for a small but successful beginning for the volunteer movement in local schools. Chapter IV details other changes that occurred as the program evolved over the course of its first six months of existence. Chapter V presents an analysis of the data generated by this study, and Chapter VI ends this report with conclusions and recommendations for further study.

CHAPTER IV

THE EXPERIMENT

Sumter County, Florida, is a rural area in the central region of the state. With its limited job market capabilities, the county has few distractions to compete with organized school activities for public support and attention. Consequently, PTA's are active, "open house" at school causes congestion in some classrooms, and Friday evenings the place to be is the local high school football field to watch "our boys" play "their boys." And so whenever the call for school volunteers has gone out from the schools, there has usually been a good response, even though there was no district program organized to legitimize or lend support to the volunteer effort, or to give it direction.

In many cases, however, the call has not gone out; in fact, many educators have worked to discourage any threatened spread of the volunteer movement in educational circles. The rationale for impeding the spread of volunteerism usually took the form of one of these arguments: (1) The teaching of reading, writing, and

arithmetic are complex tasks that require professional training. Volunteers should not attempt to do anything except menial tasks, and certainly to allow volunteers to do instructional work would be a betrayal of the public trust in education. (2) Many volunteers are deficient in educational graces and academic proficiencies, using incorrect grammar, for example, without even being aware of it. They provide poor models for appropriate student behavior. (3) Many volunteers are tempted to treat confidential matters as public domain, spreading improper information of the children's progress and the teacher's eccentricities.

In Law 74-238, passed by the Florida Legislature in 1974, volunteerism was endorsed over and against all opposition. Aides, including unpaid volunteers, were mandated for use in order to lower adult-student ratios during the time period set aside for basic skills instruction. Also, according to the law, all primary teachers were to be trained in the use of aides, volunteers, and paraprofessionals in their classrooms. Sumter County administrators, like their colleagues all over the state, were now faced with a mandate and puzzled over how to implement more effectively basic skills instruction in their schools in light of the mandate.

The issue of district-based <u>versus</u> school-based programming immediately came to the fore. Both approaches to volunteer program organization have positive features to commend them; they have drawbacks as well. The county office administrators, in consultation

with school administrators, determined to search for a model that would combine the best features of district-based and school-based programming.

Organizing a Committee

A search committee was set up, involving principals, supervisors, curriculum assistants, classroom teachers, and parents. Several models for volunteer programming were examined in depth by the committee, which finally decided to adopt the Dade County model for the following reasons:

(1) The Dade County program seemed to combine most effectively the advantages of both a district-based and a school-based approach.

(2) Dade County was close enough for easy communication and dissemination of the program. Local personnel could journey to Miami for training and consultants could travel to Sumter County very conveniently by turnpike.

(3) The Dade County model seemed to have all one could hope for in terms of group-oriented and individualized modules for training volunteers and teachers.

(4) The adoption of this model was inexpensive. The Starter Kit containing all materials needed for implementing the program cost $55.00. However, all school districts in Florida are entitled to receive one without charge. Only one kit was needed for a district the size of Sumter County's.

The committee had a few additional tasks to do before it could be disbanded, such as identifying a School Volunteer Program Resource Person (professional educator) and a School Volunteer Program Chairperson (lay volunteer) for each school. In addition, a policy statement needed to be adopted to guide the establishment of a School Volunteer Program in Sumter County. The following policy statement was adopted by the committee and subsequently by the Board of Public Instruction.

Policy Statement

Citizens who voluntarily contribute their time, talents and services to extend and enrich both instructional and noninstructional programs of the public schools are valuable assets. The School Board of Sumter County, Florida, encourages constructive participation of groups and individuals in local schools under the direction and supervision of professional personnel.

Volunteers serve a minimum of two hours a week in a defined position that has a recommended set of tasks. Every effort is made to utilize volunteer resources in a manner which will assure maximum contribution to the welfare and educational growth of pupils.

Administrative Regulations:

1. Individuals and groups who currently work with teachers and pupils in the schools and offices of the Sumter County Public Schools and are not employees of the School Board shall be formally registered at the respective schools and in the county office.

2. Applications from prospective volunteers and all special requests for volunteer assistance may be made directly to the county office. Volunteers may also be recruited by school personnel. It is essential, however, that all volunteers be registered in the school before beginning work in the school.

3. The school principal or his designee define and assign responsibilities and tasks to be performed by volunteers in the school.

4. When volunteers work directly with students, the volunteers' activities shall be under the supervision of a teacher, administrator or other professional member.

5. Both volunteers who wish to serve regularly in the schools and the teachers who request volunteers are encouraged to participate in appropriate orientation and/or training sessions. Regular assignments should be delayed until initial orientation has been completed.

6. Volunteer applicants shall be screened and individually interviewed by the school level volunteer program leaders who are appointed by the principal. Final approval is given by the principal.

7. In the event that a school staff person recommends that a volunteer be dismissed from service, the principal shall make the final decision based on a careful review of the situation.

8. Principals are encouraged not to place parent volunteers in their child's classroom in order to protect the best interest of all concerned.

For the purposes of this experiment the committee decided to limit the number of volunteer roles. Since reading instruction is the priority during these times of basic skills emphasis, it was the consensus of committee opinion that the role for this study should be that of the Language Arts/Reading Tutor. Specific task assignments for this role may be seen in the job description in Appendix B.

Design and Assumptions

The design for generating data for this study may be schematized in this way:

	May 1976		March 1977
Experimental	X_1	0	X_2
Control	X_1		X_2

where X_1 = pretest, X_2 = posttest, and 0 = treatment.

The pretests were designated to be used a covariates during the statistical analysis. Analysis of variance using pretest scores as covariates permits statistical control for the covariates, removing their influence from the comparison of treatment effects of experimentals and controls. In other words, the adjustment

for the covariate may lead to reduction in the error term, allowing for a more sensitive analysis and increasing the precision and power of the test.

When using the analysis of variance procedure, it is necessary to make certain assumptions:

(1) Randomization is the foundational assumption on which most of the succeeding assumptions are based.

(2) Additivity must be assumed -- namely that the treatment effects and the environmental effects are additive rather than multiplicative, with each score a sum of the mean, treatment, and error components. In other words, the random errors do not multiply treatment effects; they simply add to them. The linear model is denoted

$$X_{ij} = \mu + \alpha_j + \varepsilon_{ij}$$

where μ is the grand mean, α is the treatment effect, and ε is the error component.

(3) A normal distribution of error components is also assumed. Skewness and kurtosis scores available through the condescriptive procedures of SPSS may be used to check this assumption.

(4) A statistical independence among the error components is also assumed; that is, knowing about the error component for one score tells us nothing about the error component for another score.

(5) Another assumption is the homogeneity of variance; that is, the error variance has the same value for all populations. Cochran's C Test may be used to test for homogeneity of variance where the assumption is in doubt.

(6) An assumption of the SPSS program ANOVA is the Fixed Effects Model, rather than the Random Effects Model or the Mixed Model.

Training of Key Personnel

The identified Resource Persons and Chairpersons went to Miami for three days of training in September of 1976. Discussions were held with School Volunteer Development Project personnel to clarify duties and responsibilities, plan major activities, identify resources, and establish a time line of events. Participants in this workshop returned to Sumter County with a total plan for setting up a volunteer tutoring program in five elementary schools.

Orientation of Faculties

Workshops were held in each school by the District School Volunteer Coordinator. The purposes of these two-session workshops were to introduce the benefits that accrue from volunteer tutors, to present information on the particular model selected for implementation, and to train teachers in

ways to use volunteers effectively in the classroom. These workshops took place in the latter part of September and the early part of October.

Recruitment of Volunteers

In accordance with the plan devised during the Miami workshop, a variety of recruiting activities was conducted, including take-home handouts from schools, letters to social clubs and civic organizations, PTA telephone communication networks, spot announcements on the radio, and signs and posters in public places. Guidelines on the selection criteria were sent to each school where screening of the candidates for tutor position was to take place. No candidate was refused during this initial screening, although one volunteer was asked not to continue after the program had been in operation for a few weeks.

Orientation of Volunteers

A district-wide meeting of all volunteer tutors was held in October for the purpose of welcoming the volunteers to the "teaching team" and to give them information concerning school and district policies that affect their performance in schools.

The following items were discussed:

The need for professional attitudes
The need for promptness and reliability
Procedures for calling in "late" or "sick"
Sign-in procedures
Dress code
Appropriate behaviors among children
Disciplining children
Checking out procedures for audio-visuals, etc.
Use of teachers' lounge
Use of custodial services
Use of school telephone
Use of rewards and gifts with children
Placement of tutor in classroom
Liability insurance coverage
Releasing children to adults
Access to cumulative records

Role playing was used as a technique for helping volunteers understand their rights and responsibilities as team members in the educational effort.

Placement of Volunteers

The volunteers who had received orientation and training were matched with teachers' requests and classroom needs. From this point on, inservice training for the tutor in relationship to working effectively with the volunteer was the responsibility of the School Volunteer Program Resource Person in the local school. Placement of the volunteer was reviewed periodically with changes of assignment occurring occasionally.

Selecting Students for This Study

As soon as volunteers were placed in classrooms, students for the experimental group were selected from lists of pupils who, in the teachers' judgement, would benefit from tutor attention. The selection process consisted of numbering the pupils' names, then using Kerlinger's (1973) list of computer-generated random numbers to select out certain numbers and consequently certain children. From the same list of children, using the same selection procedure, students were assigned to membership in the control group.

Tutors understood that they were to work with experimental students as directed by the teacher. The controls were not to be "shunned," but no attempt would be made to engage in tutoring activities with them. Other students in the classroom could receive tutoring assistance if they were not identified as controls. Each experimental student was to receive a minimum of two hours of tutor attention each week, although the contact could be one-to-one or through small groups.

An informal check of the sampling process was done by comparing pretest scores in total reading, available from the preceding May's standardized testing program. The experimental group's mean score was 204 while the control

group's mean score was 198. A test of statistical significance ($p < .001$) suggests that both samples are drawn from the same population pool, with only one chance in a thousand that the two means could be this close simply by chance, given the size of the samples and the range of scores under consideration.

In examining the sexual and racial composition of the respective groups, both experimental and control groups show a preponderance of males over females and whites over blacks -- the same pattern that occurs in the total school population of Sumter County Schools. A Chi-Square Goodness-of-Fit Test (X^2 for E = -0.62 and X^2 for C = 0.23) does not reject the null hypothesis concerning the probability of frequencies for each cell.

TABLE 4

NUMBER AND TYPE OF STUDENTS IN THIS STUDY

	Male	Female	
White	30	23	53
Black	17	6	23
	47	29	76

Experimental

	Male	Female	
White	25	17	42
Black	15	14	29
	40	31	71

Control

Monitoring Program Progress

The main responsibility for monitoring the school volunteer program in each school fell upon the School Volunteer Program Resource Person. However, from time to time the District School Volunteer Coordinator would visit the school to see first-hand the program in operation. Soon after the start of the program, several situations or events occurred that seemed to call into question to some degree the control of variables in the experiment. For example, after a strong start, the holding power of the program began to wane as the Christmas season approached. Volunteers began "dropping out." In most cases, new volunteers were found to replace "truants" in those classroom where the study was already underway. In a few classrooms, a rapid succession of volunteers occurred. Because of the turnover in volunteers and because volunteers as persons are difficult to program or control, plans for standardization of instructional approach had to be abandonned. As time went on, each teacher working with a volunteer felt freer to make her own suggestions and write her own prescriptions for volunteers to follow. The integrity of the sampling was maintained, however, even though the proposed uniformity of instruction was weakened.

The school fire at Coleman destroyed the pretests for the Coopersmith Self-Esteem Inventory, causing a shift in the design with regard to the self-concept component.

Two potential problems gave cause for concern to school officials. Some children in the experimental group confused the volunteer tutors with Title I remedial reading tutors. As a result of thinking that they were remedial students, they began to express concern to their teachers about their grades and academic progress. Other children may have had similar anxieties without articulating them verbally. Also, the issue of racism, conscious or unconscious, should be addressed. All of the tutors were white. Approximately one third of the target children were black. Many white adults felt uncomfortable in relating to black children as tutors, according to their comments during and after the fact. More training is needed to sensitize tutors to the special needs of minority students.

Evaluating Student Progress

The Comprehensive Tests of Basic Skills were administered in March of 1977. Scores were collected in the areas of vocabulary, reading comprehension, and language expression, since these were the three areas that were emphasized during the tutoring sessions. The total reading scores were also noted. In order to test for a "halo effect," scores were gathered in the areas of math computation and math application and concepts. Many teachers affirm that testing mathematics depends upon reading skills, and improving reading skills will automatically raise math scores. The Coopersmith Self-Esteem Inventory was administered one week after the CTBS administration.

The data were analyzed using the Statistical Package for the Social Sciences (SPSS) at the computer center of the University of Florida. Sample size, means and standard deviations were provided by the BREAKDOWN procedure of SPSS. Analyses of variance were performed using ANOVA, a step-wise multiple regression procedure assuming Fixed Effects or linear hypothesis model. SPSS creates the necessary dummy variables and can cope with unequal cell sizes and even empty cells. ANOVA provides, as default option, the "classic experimental" regression approach, which is appropriate as in this case when the factors (here being treatment, sex, and race) have no known causal order but the main effects are assumed to be of a higher priority than the interaction effects. The program PEARSON CORR was used to rate the correlation of the posttest scores to all the factors and the covariate.

Presentation and analysis of the data await the reader in the next chapter. Conclusions and implications for further study are then found in Chapter VI.

CHAPTER V

DATA ANALYSIS

Summary of the Experiment

This study compared the basic skills achievement and self-esteem of 147 primary students, 76 of whom had received volunteer tutor intervention and 71 of whom had received no such treatment. Five, later four, of Sumter County's elementary schools participated in this project. The School Volunteer Development Project of Dade County was the model for program organization and volunteer training.

In a pretest/posttest experimental and control group design (Campbell and Stanley, 1963), the Comprehensive Tests of Basic Skills (CTBS) was administered in May of 1976 and again in March of 1977. The Coopersmith Self-Esteem Inventory -- P. K. Yonge version 1972 was given in March of 1977. Students were assigned to experimental and control groups by use of computer-generated random number tables. Experimental students received a minimum of two hours per week of volunteer tutor attention as individuals or in small groups. Language arts activities in general and

reading activities in particular were the media through which the tutors intervened in the pupils' educational program.

A three-way analysis of variance was performed on the adjusted posttest means for scale (extended standard) scores. The pretest scale scores were used as covariates. The level of significance selected for this experiment was .05. Data presented in this chapter are summarized in tables, accompanied by interpretive statements. Results are presented for seven null hypotheses.

Hypotheses

	No difference exists between the adjusted posttest means for scale scores of learners in the experimental and control groups. . .
H_1	for total reading as measured by CTBS
H_2	for vocabulary as measured by CTBS
H_3	for comprehension as measured by CTBS
H_4	for language expression as measured by CTBS
H_5	for math computation as measured by CTBS
H_6	for math concepts and application as measured by CTBS
H_7	No difference exists between the means for scores of learners in the experimental and control groups for self-esteem as measured by the Coopersmith Self-Esteem Inventory -- P. K. Yonge Version 1972.

Effects related to variation by sex and race will also be investigated. As the term is used in analysis of variance or covariance, "effects" refers simply to differences among population means (Hays, 1973).

Analysis of Data -- Total Reading

The sample size, posttest means, and standard deviations for the total reading scores are presented in Table 5. Analysis of the significance of the differences is found in Table 6.

Comparing the posttest means of the various experimental subgroups to the various control subgroups, the experimentals in all cases have higher posttest means than do the controls. However, data from Table 6 indicate that the only source of significant differences was the expected variation between the pretest and the adjusted posttest means. Analysis of treatment, sex, and racial groups does not demonstrate significant differences at the .05 level of confidence. Hypothesis 1 is not rejected.

Although the differences for total reading were not significant, it is appropriate to examine the data in search of trends. In this context, volunteer tutoring seemed to be more helpful for girls than for boys, and more helpful for blacks than for whites. This observation arises out of a

TABLE 5 SAMPLE SIZE, POSTTEST MEANS, AND STANDARD DEVIATIONS FOR TOTAL READING

	N	Means	SD
Total Experimental	76	270.58	63.13
Total Control	71	255.15	70.53
Experimental Boys	47	262.13	62.92
Control Boys	40	248.75	72.47
Experimental Girls	29	284.28	62.11
Control Girls	31	263.42	68.22
Experimental Whites	53	277.79	68.66
Control Whites	42	270.57	71.98
Experimental Blacks	23	253.96	65.04
Control Blacks	29	232.83	63.08

TABLE 6 ANALYSIS OF VARIANCE FOR TOTAL READING FOR TREATMENT, SEX, AND RACE CONTROLLED FOR PRETEST

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Covariate (Pretest)	439802.94	1	439802.94	292.89*
Main Effects	8093.87	3	2697.96	1.78
Treatment	4774.69	1	4774.69	3.18
Sex	3615.26	1	3615.26	2.41
Race	455.23	1	455.23	0.30
2-way Interaction	761.18	3	253.73	0.17
Treatment X Sex	8.99	1	8.99	0.01
Treatment X Race	650.22	1	650.22	0.43
Sex X Race	38.57	1	38.57	0.03
3-way Interaction	13.00	1	13.00	0.01
Residual	207214.88	138	1501.56	

*Significant at the .05 level of confidence

comparison of the differences of means for these subgroups as found in Table 5.

An examination of the means and standard deviations for the sex groupings and race groupings reveals the heterogeneity of the school population in terms of achievement. The mean score of the control group of girls fell at the same level of achievement as that of the experimental group of boys, suggesting perhaps that boys approach the beginning reading tasks in primary grades with a natural or cultural handicap and need special tutorial attention just to keep pace with girls. Hedges (1976), in his review of research on sex as a criterion for delaying early entry into first grade, concludes that boys are less likely than girls to be ready for the traditional tasks associated with learning to read.

Even more divergent that the differences of means between boys and girls are those between whites and blacks. Many primary grade educators in Sumter County have had experience with "educationally disadvantaged" black children as they arrive for the first time at the schoolhouse door. Differences between these children and the professional educators who shape the children's new environment are evident in areas of language usage and subcultural expectations. Prereading and reading tasks are initiated by the teacher in "standard" English, a dialect

foreign to some black children who up until now may have had little or no contact with whites. Comparison of the span between pretest and posttest means for blacks vis a vis whites suggests that volunteer tutoring, perhaps through a modeling process, causes achievement gains in total reading for black pupils.

A useful statistic to be reported in this study is the indicator R^2, which tells the magnitude of relationship rather than its direction. It is a measure of the proportion of variance in one variable explained by the others (Nie, 1975). In this situation, $R^2 = .68$, which means that 68% of the variance in the posttest scores for total reading is accounted for by treatment, sex, and race in combination.

Vocabulary

The sample size, posttest means, and standard deviations for the vocabulary scores are presented in Table 7, followed by an analysis of the significance of the differences in Table 8.

The experimentals in all subgroups have higher posttest means than do the controls. In addition, Table 8 indicates a significant difference in main effects in general and in treatment in particular. Hypothesis 2 is rejected.

TABLE 7 SAMPLE SIZE, POSTTEST MEANS, AND STANDARD DEVIATIONS FOR VOCABULARY

	N	Means	SD
Total Experimental	76	252.57	60.01
Total Control	71	240.48	62.78
Experimental Boys	47	251.70	62.28
Control Boys	40	236.23	67.84
Experimental Girls	29	256.59	57.08
Control Girls	31	245.97	56.19
Experimental Whites	53	258.51	67.56
Control Whites	42	249.86	67.11
Experimental Blacks	23	242.17	55.93
Control Blacks	29	226.89	54.16

TABLE 8 ANALYSIS OF VARIANCE FOR VOCABULARY FOR TREATMENT, SEX, AND RACE, CONTROLLED FOR PRETEST

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Covariate (Pretest)	441281.44	1	441281.44	665.74*
Main Effects	12653.31	3	4217.77	6.36*
Treatment	9550.32	1	9550.32	14.41*
Sex	1481.19	1	1481.19	2.24
Race	1036.57	1	1036.57	1.56
2-way Interaction	5777.88	3	1925.96	2.91*
Treatment X Sex	11.04	1	11.04	0.02
Treatment X Race	3686.38	1	3686.38	5.56*
Sex X Race	1307.59	1	1307.59	0.16
3-way Interaction	1006.75	1	1006.75	0.22
Residual	91471.81	138	662.84	

*Significant at the .05 level of confidence

In an analysis of variance, the main effects and its constituent parts, rather than the interactions, are of most interest to the researcher. The researcher wants to know if the treatment in and of itself is effective across conditions of other variables. While not significant as a main effect, race in combination with treatment may here be exerting an inordinate amount of influence on posttest scores. The indicator $R^2 = .82$ suggests that 82% of the variance in the posttest scores is accounted for by treatment, sex, and race in combination.

While the same pattern holds here as for total reading when the means for boys is compared to those for girls, and the means for whites is compared to those for blacks, the variation is not so extreme. The mean for experimental blacks still falls below that for control whites.

With vocabulary scores as the measure of the effectiveness of volunteer tutoring, the tutoring program seemed more effective for boys than for girls, and more effective for blacks than for whites, based on a comparison of the differences of means for these subgroups as found in Table 7. Admittedly, a simple regression effect towards the means may be operative in this instance.

Reading Comprehension

The sample size, posttest means, and standard deviations for the reading comprehension scores are presented in Table 9, followed by an analysis of the significance of the differences in Table 10.

The experimentals in all subgroups have higher posttest means than do controls. In addition, Table 10 indicates a significant difference in treatment, uncomplicated by any interaction effect. Low, insignificant F-ratios for the interaction suggest that the treatment works regardless of race or sex. Hypothesis 3 is rejected.

In this case, boys seemed to benefit from volunteer tutoring more than girls, and blacks more than whites. Since R^2 was .77, 77% of the variance in the posttest scores may be accounted for by treatment, sex, and race in combination.

TABLE 9 SAMPLE SIZE, POSTTEST MEANS, AND STANDARD DEVIATIONS FOR READING COMPREHENSION

	N	Means	SD
Total Experiment	76	242.46	51.78
Total Control	71	232.27	49.70
Experimental Boys	47	240.77	53.95
Control Boys	40	224.48	49.58
Experimental Girls	29	247.83	48.68
Control Girls	31	242.32	48.83
Experimental Whites	53	277.79	68.66
Control Whites	42	270.57	71.98
Experimental Blacks	23	252.96	55.04
Control Blacks	29	232.83	63.08

TABLE 10 ANALYSIS OF VARIANCE FOR READING COMPREHENSION FOR TREATMENT, SEX, AND RACE, CONTROLLED FOR PRETEST

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F-Ratio
Covariate (Pretest)	278511.94	1	278511.94	447.56*
Main Effects	12702.00	3	4234.00	6.80*
Treatment	9812.96	1	9812.96	15.77*
Sex	1936.57	1	1936.57	3.11
Race	598.66	1	598.66	0.37
2-way Interaction	1529.69	3	509.89	0.81
Treatment X Sex	479.63	1	479.63	0.77
Treatment X Race	719.86	1	719.86	1.16
Sex X Race	228.66	1	228.66	0.37
3-way Interaction	12.75	1	12.75	0.02
Residual	85875.31	138	622.29	

*Significant at the .05 level of confidence

Language Expression

The sample size, posttest means, and standard deviations for language expression scores are presented in Table 11, followed by an analysis of the significance of the differences in Table 12.

The experimentals in all subgroups have higher posttest means than do the controls. In addition, Table 12 indicated a significant difference in treatment effect. Hypothesis 4 is rejected.

In this situation, girls seemed to benefit from volunteer tutoring more than boys, and blacks more than whites. Since R^2 was .74, 74% of the variance in the posttest scores may be accounted for by treatment, sex, and race in combination.

TABLE 11 SAMPLE SIZE, POSTTEST MEANS, AND STANDARD DEVIATIONS FOR LANGUAGE EXPRESSION

	N	Means	SD
Total Experimental	76	304.05	74.43
Total Control	71	284.01	75.53
Experimental Boys	47	296.91	69.98
Control Boys	40	278.38	85.67
Experimental Girls	29	315.62	81.06
Control Girls	31	291.29	60.59
Experimental Whites	53	310.83	81.74
Control Whites	42	302.09	76.63
Experimental Blacks	23	288.43	52.23
Control Blacks	29	257.83	66.79

TABLE 12 ANALYSIS OF VARIANCE FOR LANGUAGE EXPRESSION FOR TREATMENT, SEX, AND RACE, CONTROLLED FOR PRETEST

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Covariate (Pretest)	590774.56	1	590774.56	388.20*
Main Effects	22668.44	3	7556.15	4.97*
Treatment	14882.71	1	14882.71	9.78*
Sex	272.32	1	272.32	0.18
Race	5312.57	1	5312.57	3.49
2-way Interaction	4512.19	3	1504.06	0.99
Treatment X Sex	1588.26	1	1588.26	1.04
Treatment X Race	3111.03	1	3111.03	2.04
Sex X Race	568.28	1	568.28	0.37
3-way Interaction	1578.50	1	1578.50	1.04
Residual	210012.19	138	5681.82	

*Significant at the .05 level of confidence

Math Computation

While volunteer tutors focused on the language arts/reading areas of the curriculum, there was a desire on the part of the school administration to see if tutoring in one area of the curriculum would have a "ripple effect" on another area of the curriculum. Could tutoring in reading be shown to be positively correlated with gains in mathematics achievement? Two subtests of the Comprehensive Tests of Basic Skills were selected for data display and analysis: math computation, which tests problems using numerals only; and math concepts and application, which uses word problems.

Table 13 states the sample size, posttest means, and standard deviations for the math computation scores. Table 14 displays an analysis of the significance of the differences.

As can be noted in Table 13, experimental boys and experimental whites have higher posttest means than do the control boys and control whites, but the experimental girls and experimental blacks have lower posttest means than do the control girls and control blacks. Table 14 indicates that the differences for the main effects (treatment, sex, race) are not statistically significant. Hypothesis 5 is not rejected.

TABLE 13 SAMPLE SIZE, POSTTEST MEANS, AND STANDARD DEVIATIONS FOR MATH COMPUTATION

	N	Means	SD
Total Experimental	76	269.38	43.19
Total Control	71	266.11	51.72
Experimental Boys	47	267.83	44.12
Control Boys	40	255.25	43.09
Experimental Girls	29	271.89	42.30
Control Girls	31	280.13	58.88
Experimental Whites	53	275.06	46.52
Control Whites	42	271.90	51.34
Experimental Blacks	23	256.30	31.46
Control Blacks	29	257.72	52.00

TABLE 14 ANALYSIS OF VARIANCE FOR MATH COMPUTATION FOR TREATMENT, SEX, AND RACE, CONTROLLED FOR PRETEST

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Covariate (Pretest)	204089.63	1	204089.63	242.75*
Main Effects	2469.94	3	823.31	0.98
Treatment	1698.25	1	1698.25	2.02
Sex	132.66	1	132.66	0.16
Race	434.13	1	434.13	0.52
2-way Interaction	4381.19	3	1460.39	1.74
Treatment X Sex	3648.42	1	3648.42	4.34*
Treatment X Race	271.73	1	271.73	0.32
Sex X Race	591.63	1	591.63	0.70
3-way Interaction	620.88	1	620.88	0.74
Residual	116023.88	138	840.75	

*Significant at the .05 level of significance

Math Concepts and Application

Table 15 provides information on sample size, posttest means, and standard deviations for the math concepts and application scores. Table 16 renders an analysis of the significance of the differences.

As is evident in Table 15, experimental boys and experimental blacks show higher posttest means than do control boys and control blacks, but the experimental girls and experimental whites have virtually the same posttest means as do the control girls and control whites. All scores are depressed. School officials have noted this phenomenon and have evaluated the math curriculum in terms of the role it gives to word problems. This subtest is the only one in which the mean for blacks is as high as that for whites. Since all mean scores are at the extreme lower end of the scale, the level of their validity may be questionable.

Table 16 reveals a significant difference for treatment, but since the total main effects do not have a significant reading, the treatment significance should be affirmed only with extreme caution. In view of this hesitancy to accept the significance indicator as totally reliable, prudence would suggest that Hypothesis 6 be rejected "with reservations."

TABLE 15 SAMPLE SIZE, POSTTEST MEANS, AND STANDARD DEVIATIONS FOR MATH CONCEPTS AND APPLICATION

	N	Means	SD
Total Experimentals	76	236.87	35.99
Total Control	71	232.77	42.07
Experimental Boys	47	234.91	38.43
Control Boys	40	226.93	48.09
Experimental Girls	29	240.03	32.05
Control Girls	31	240.32	36.69
Experimental Whites	53	236.75	37.02
Control Whites	42	236.31	38.81
Experimental Blacks	23	237.13	34.32
Control Blacks	29	227.66	46.95

TABLE 16 ANALYSIS OF VARIANCE FOR MATH CONCEPTS AND APPLICATION FOR TREATMENT, SEX, AND RACE, CONTROLLED FOR PRETEST

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Covariate (Pretest)	173288.13	1	173288.13	225.19*
Main Effects	5375.63	3	1791.88	2.33
Treatment	5029.19	1	5029.19	6.53*
Sex	7.83	1	7.73	0.01
Race	685.06	1	685.06	0.89
2-way Interaction	2035.69	3	678.56	0.88
Treatment X Sex	303.93	1	303.93	0.39
Treatment X Race	1251.44	1	1251.44	1.63
Sex X Race	449.48	1	449.48	0.58
3-way Interaction	669.06	1	669.06	0.87
Residual	106194.00	138	769.52	

*Significant at the .05 level of confidence

Self-Esteem

Table 17 lists sample size, means, and standard deviations for the Coopersmith Self-Esteem Inventory -- P. K. Yonge Version 1972. Table 18 provides an analysis of the significance of the differences.

An examination of these data raises questions about their validity. The R^2 indicator, set at .04, suggests that only 4% of the variance in the self-esteem scores can confidently be accounted for by treatment, sex, and race in combination. Race is noted as statistically significant, but total main effects are not, and neither is treatment nor sex. It is evident that whites scores higher on this instrument than do blacks. For this reason, Hypothesis 7 is not rejected.

Coopersmith gives as his norms for preadolescents 17.53 for girls and 18.05 for boys (1967). Note that the experimental girls had a mean score of 13.66 and control girls had a mean score of 12.77, well under the norms. Did the instrument lack the appropriate sensitivity for measuring the self-esteem components of the particular children in this study? Or, more likely, did "history" intervene to invalidate these data? No pretests were available to adjust the posttest means because of the school fire in November.

TABLE 17 SAMPLE SIZE, MEANS, AND STANDARD DEVIATIONS FOR SELF-ESTEEM SCORES

	N	Means	SD
Total Experimental	76	13.86	3.66
Total Control	71	13.28	4.41
Experimental Boys	47	13.97	3.66
Control Boys	40	13.67	3.89
Experimental Girls	29	13.66	3.71
Control Girls	31	12.77	5.00
Experimental Whites	53	14.23	3.64
Control Whites	42	14.00	4.71
Experimental Blacks	23	13.00	3.64
Control Blacks	29	12.24	3.76

TABLE 18 ANALYSIS OF VARIANCE FOR SELF-ESTEEM FOR TREATMENT, SEX, AND RACE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
Main Effects	102.79	3	34.27	2.15
Treatment	5.07	1	5.07	0.31
Sex	15.89	1	15.89	0.99
Race	77.62	1	77.62	4.87*
2-way Interaction	16.39	3	5.46	0.34
Treatment X Sex	1.88	1	1.88	0.12
Treatment X Race	2.72	1	2.72	0.17
Sex X Race	14.76	1	14.76	0.93
3-way Interaction	37.07	1	37.07	2.32
Residual	2217.58	138	15.95	

*Significant at the .05 level of confidence

The self-esteem inventories were administered in March, the week after the achievement tests. Perhaps the children were rebelling against further testing. Or perhaps the children in Sumter County do in fact suffer from lower-than-average self-esteem. Research is needed to discover precisely where and why they children score as they do on self-esteem instruments. No noticeable variation occurs between the scores of any of the subgroups.

Interrelation of Achievement, Self-Esteem, and Main Effects

Interrelationship of achievement, self-esteem, and main effects were investigated utilizing Pearson product-moment correlations. These measures tell the extent to which the pairs of sets of ordered pairs vary concommitantly (Kerlinger, 1973). In effect, they reveal the magnitude and direction of the relation. For the present study, a significance level of .05 was selected.

There was a significant positive correlation between the Coopersmith Self-Esteem Inventory and total reading, vocabulary, reading comprehension, and language expression ($r = .17$, .18, .22, and .24, respectively). Also, Coopersmith and the factor of race showed a significant positive correlation ($r = .18$).

A significant positive correlation exists between race and total reading ($r = .23$), vocabulary ($r = .16$), language expression ($r = .23$), and math computation ($r = .17$).

A significant negative correlation exists between sex and math computation ($r = -.15$).

Summary

Hypotheses 1, 5, and 7, relating to total reading, math computation, and self-esteem were not rejected. There is no statistically significant differences between the adjusted posttest means for scale scores of learners in the experimental and control groups for total reading, math computation, and self-esteem.

Hypotheses 2, 3, and 4, relating to vocabulary, reading comprehension, and language expression were rejected, suggesting that a statistically significant difference between the adjusted posttest means for scale scores of learners in the experimental and control groups does in fact exist for vocabulary, reading comprehension, and language expression. Hypothesis 6, relating to math concepts and application, was rejected with reservations.

Volunteer tutoring in the area of language arts/reading is associated with significant gains in vocabulary, reading comprehension, language expression, and possibly math concepts and application. It has no significant effects, however, on total reading, math computation, and self-esteem.

Is there variation in the relative effectiveness of volunteer tutoring as implemented in this project as it relates to factors of sex and race? Trends in the data suggest the following:

	Volunteer tutoring in Sumter County schools seemed to be more helpful to. . .	
	Sex	Race
Total Reading	Girls	Blacks
Vocabulary*	Boys	Blacks
Comprehension*	Boys	Blacks
Language Expression*	Girls	Blacks
Math Computation	Boys	Whites
Math Concepts and Application	Boys	Blacks
Self-Esteem	No difference	No difference

*Treatment effect significant

This chart suggests that blacks in general makes more gains through association with the tutoring program than do whites, and boys seem to gain more than girls.

Some tentative conclusions and recommendations for further study are discussed in Chapter VI.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER STUDY

The purpose of this experiment was to discover what effects, if any, volunteer tutors might have on primary pupils in basic skills and self-esteem. This question translates into a practical concern for school administrators about the advisability of using school district resources to organize a volunteer tutoring program. Does the investment of time, finances, and manpower pay appropriate dividends in terms of pupil growth in basic skills and self-esteem?

Two-hundred students in grades one through three in Sumter County's elementary schools participated in this study during the school year 1976-77. The findings presented in Chapter V relate to 147 of the learners for whom complete data sets were available. The statistical procedure used was a three-way analysis of variance using the pretest means as covariates.

Hypothesis 1 — No difference exists between the adjusted posttest mean for scale scores of learners in the experimental and control groups for total reading.

A significant F-ratio was not found for the difference of means between the experimental and control groups of learners. Consequently, the hypothesis for total reading was not rejected. While not statistically significant, the experimental group displayed an adjusted posttest mean higher than that of the control group by 15.43 points on the extended standard score of CTBS. Smaller ranges of mean scores will prove to be significant for later hypotheses, causing one to note carefully the standard deviations as well as the means. The larger the standard deviation scores, the more likelihood there is of being associated with statistical significance.

Hypothesis 2 — No difference exists between the adjusted posttest mean for scale scores of learners in the experimental and control groups for vocabulary.

One rejects the null hypothesis when the mean square between groups is much larger than the mean square within groups. Variation between groups may be a function of the treatment effect, while variation within groups is not. A significant F-ratio was found for the variation between treatment groups in the area of the vocabulary subtest of CTBS. As a result, Hypothesis 2 was rejected. The span of the difference of means between experimental and control groups was 13.09 points on the scale score of CTBS, in this instance a statistically significant spread.

Hypothesis 3 — No difference exists between the adjusted posttest mean for scale scores of learners in the experimental and control groups for reading comprehension.

A significant F-ratio was found with regard to treatment effect. Therefore, Hypothesis 3 was rejected. There is indeed a difference between the performance of the experimental and control groups on the reading comprehension subtest. A statistically significant difference of 11.19 points on the scale score separates the two groups.

Hypothesis 4

No difference exists between the adjusted posttest mean for scale scores of learners in the experimental and control groups for language expression.

The spread of 20.04 points between experimental and control group means renders a statistically significant F-ratio. Therefore, Hypothesis 4 is rejected, affirming instead that a difference does in fact exist between the experimental and control groups in terms of their adjusted posttest means.

Hypothesis 5

No difference exists between the adjusted posttest mean for scale scores of learners in the experimental and control groups for math computations.

The spread of 3.27 points between experimental and control group means suggests that receiving tutor attention in language arts and reading has little or no effect on math computation scores. With a statistically insignificant F-ratio, it is necessary not to reject the null hypothesis in this case.

Hypothesis 6 — No difference exists between the adjusted posttest mean for scale scores of learners in the experimental and control groups for math concepts and application.

A small spread of 4.10 when comparing means of experimental and control groups is able to draw a statistically significant F-ratio for treatment, but not for overall main effects. If one rejects the null hypothesis, it must be with reservations. One should exercise caution in stating definitive conclusions under these circumstances.

Hypothesis 7 — No difference exists between the mean for scores of learners in the experimental and control groups for self-esteem as measured by the Coopersmith Self-Esteem Inventory -- P. K. Yonge Version 1972.

Because of insignificant F-ratios, Hypothesis 7 was not rejected. This result is interesting in light of recent research attempting to correlate achievement and self-esteem.

In an early project by Coopersmith (1967), using the original form of the Coopersmith Self-Esteem Inventory, 102 intermediate students demonstrated a correlation of .36 between positive self-concept and school achievement. Two additional studies on the relationship of achievement and self-esteem report findings of positive relationship between the two factors (Caplin, 1966; Campbell, 1967). Several studies focus on low self-esteem and affirm that if a child has low self-esteem his academic program will be hindered (Brookover, Erickson, and Joiner, 1967; Wattenberg and Clifford, 1964; Long, Henderson, and Zieler, 1967; Hill and Sarason, 1966; Jones and Strowig, 1968; Purkey, 1970; Epstein and Komorita, 1971). Fink (1962) provides the additional information that this correlation is stronger with boys than with girls. Most studies involving self-esteem have used upper elementary or middle school children. Less is known about the effects of self-esteem on primary children.

Gowan (1960) gathered and grouped studies examining the factors of achievement and nonachievement. Nineteen of them gave primacy to the role of high self-esteem in achievement. Morse (1963) reported self-esteem indicators to be better predictors of classroom achievement than I.Q.

Most of these studies investigate the relationship of self-esteem and achievement among subjects who have possessed positive self-esteem or who have been achievers over a lengthy period of time. None concern themselves with possible effects on self-esteem of a sudden improvement in achievement, such as seemingly occurred through volunteer tutoring. This present study does not add additional insight into this question since a "no effect" result has been registered. This researcher suspects that the results of this section of the experiment have been invalidated by the historical circumstances in which the self-esteem testing took place. An experimental study is designed to maximize systematic variance, minimize error variance, and control extraneous variance among the factors involved in the experiment. With the shift in design to accommodate the unfortunate facts of history, it is likely that the systematic variance has been minimized, error variance has been maximized, and extraneous variance is out of control altogether. In future experiments similar to this one, it would be well to use more than one self-esteem indicator to verify the results. The Florida Key Inferred Learner Self-Concept Test and the Ohio Social Acceptance Scale are two such instruments that would reinforce the same types of concerns that Coopersmith expressed in his inventory.

Conclusions

Volunteer tutoring in basic skills, such as took place during this study, affects achievement scores positively in those areas of curriculum addressed directly by the tutoring effort. Where language arts/reading is tutored, language arts/reading scores show significant gains. There is apparently no "ripple effect" into mathematics. Perhaps this result will allay the fear of a "Hawthorne effect," which would suggest that all measured scores might go up as a result of special attention alone. For school administrators and others who are interested in the practical consequences of implementing a volunteer program, it can be noted that a modest expenditure of funds may bring to pass significant gains in vocabulary, reading comprehension, and language expression. Of course, it is not known what the long-range impact of such a program might be.

Beyond the gains in achievement, certain side effects were noted in the schools in which this study took place. While it is not possible to generalize these specific occurrences to other times and other settings, it does indicate that some of the most telling reasons for establishing a volunteer program lie outside the domain of achievement tests. Here are some effects that seem to have come about as a result of implementing the volunteer tutoring program:

(1) Parent-Teacher Organizations were strengthened. Volunteer workers took an active role in the P.T.O.'s. Focus of the money-raising projects shifted from general activities such as buying new curtains for the auditorium to purchasing more and better materials for basic skills instruction.

(2) The need for parenting classes was expressed by several volunteers, particularly in the area of how to help one's own child at home do the activities assigned in school. As a result, Title I and Migrant Education personnel will work with supervisors of regular programs to develop a curriculum for parent education.

(3) One volunteer mother suggested that each school have a check-out procedure for various types of media that can be loaned to parents for use with their children in the home. A committee of media specialists will work out details on procedures for this kind of lending library.

(4) As a result of seeing first-hand the needs in the schools, a contingent of parents journeyed to Tallahassee during the session of the legislature to lobby for additional funding for education.

(5) Handicapped citizens found a constructive outlet for their talents in the volunteer tutoring program. One volunteer was legally blind, another had light cerebral palsy, and another had only one hand.

(6) A dormant School Advisory Committee at one school site was reactivated because of the interest in the school generated by school volunteers.

(7) The need for Basic Skill Aides to help on a more regular basis than some volunteers can provide was brought into focus by having volunteer tutors in the classrooms. Ways will be sought by the school system to use a combination of approaches (local funds, Title I funds, VISTA, SETA personnel) to expand the types of assistance made available to teachers of basic skills.

(8) Contact was made with the Coordinator of Volunteer Programs in the State Department of Education to ascertain what technical assistance is available to the school district from the state level. As a result, a series of volunteer-training and teacher-training workshops by state consultants is being planned.

Early in the study the spectre of unconscious racism was raised by apprehensive school administrators who worried about what might happen when prejudiced whites would be assigned to tutor black children. No incidents were reported in any school, although some administrators suspect that possibly some of those volunteers who "dropped out" did so for reasons of not

being able to cope with an uncomfortable situation. However, black children, particularly black boys, seem to have benefited greatly from volunteer tutoring in terms of achievement gains. The fears were apparently unjustified.

In summary, volunteer tutoring made a positive impact upon students' achievement in vocabulary, reading comprehension, and language expression. It seems to have provided a modeling effect for black children in language skills and it may have helped boys catch up a little to girls in some visual/auditory sensitivities associated with reading prowess.

Limitations

1. The question of the Hawthorne effect must be taken seriously. A "treatment-no treatment" design lends itself to the criticism that getting so many hours of special attention is bound to get results. Controls should get as many hours of special attention, otherwise the Hawthorne effect could possibly contaminate the experiment's results. In this situation, it is questionable whether the treatment is the tutoring activities or the special attention or a

combination of the two. In any event, the practical consequence is the same -- a gain in language arts/reading scores. The fact that gains did not appear in mathematics or self-esteem suggests that the gains were related to instructional activities, which were all related to language arts/reading, rather than to special attention by itself. Nonetheless, this point of a possible Hawthorne effect cannot be totally dismissed when the results of this experiment are considered.

2. Record keeping on the tutors' time in the classroom was not maintained as planned. There is no way, therefore, to consider pupil gains in light of exact tutoring time. Principals certified that the minimum time had been expended -- two hours per week -- but some children may have received much more attention than the minimum.

3. This study investigated only some subtests of language arts, reading, and mathematics on the Comprehensive Tests of Basic Skills. Results cannot be generalized to other subtest areas such as spelling, language mechanics, social studies, and science.

Implications for Further Study

This present study contributes to the body of information currently available concerning the effectiveness of volunteer programs. Its deficiencies and faults may serve to point out to later researchers some of the pitfalls to avoid. Future research will need to concern itself with longitudinal aspects of volunteer-induced gains in student achievement. Will the current gains in vocabulary, reading comprehension, and language expression be evident one year from now or five years from now? Studies are needed to determine how long and for what reasons the positive effects take root.

Future researchers will perhaps want to avoid the "treatment -- no treatment" design utilized in this study and in the majority of research studies reported in Chapter II. In this way, challenges involving the Hawthorne effect will be reduced.

Further research is needed to explore the relationship of the following factors to gains brought about by volunteer tutoring: time, size of tutorial group, intensity of the instruction, format of presentation, and personality of the child and of the tutor. How does each of these factors affect the tutoring process? How do they interact with one another in producing gains or no gains?

If present trends continue, there may be over ten million volunteers in the nation's schools by 1985. A mammoth resource of this nature should not be allowed to develop haphazzardly. Continuing research is one avenue to a more conscientious attempt to utilize wisely this vast resource of volunteer talents.

APPENDICES

APPENDIX A

SELF-ESTEEM INVENTORY

BY STANLEY COOPERSMITH (University of California)
--Revised P. K. Yonge 1972

Name_____ Teacher_____

Please mark each statement in the following way:

If the statement describes how you usually feel, put a check in the column "LIKE ME"
If the statement does not describe how you usually feel, put a check in the column "UNLIKE ME"
There are no right or wrong answers.

	LIKE ME	UNLIKE ME
1. I often wish I were someone else.		
2. I find it very hard to talk in front of the class.		
3. There are lots of things about me I wish I could change.		
4. I can make up my mind easily.		
5. People think it's fun to be with me.		
6. I get upset easily at home.		
7. It takes me a long time to get used to anything new.		
8. Kids my own age like me.		
9. My parents usually consider my feelings.		
10. I give in very easily.		
11. My parents expect too much of me.		
12. It's pretty tough to be me.		
13. I have lots of worries.		
14. Kids usually follow my ideas.		
15. I don't think I'm very good.		
16. There are many times I'm very unhappy at home.		
17. I often feel upset at school.		
18. I'm not as nice looking as most people.		
19. If I have something to say, I usually say it.		
20. My parents understand me.		
21. People like others better than they like me.		
22. My parents usually try to make me do things.		
23. I often get discouraged in school.		
24. Things usually don't bother me.		
25. People can't depend on me.		

APPENDIX B

JOB DESCRIPTION FOR LANGUAGE ARTS/READING TUTOR

BACKGROUND	Even though students have varying language needs, all need to extend the language skills of listening, speaking, reading, and writing. A volunteer working with the language arts program can assist the teacher in providing experiences to meet the needs of pupils.
DURATION OF JOB	Minimum of two hours per week for one school year, during regularly established school hours.
DUTIES	Work under the direction and in cooperation with the classroom teacher or special reading teacher. Generally, the assignment will include the following tasks:

1. Obtaining books and materials on requested topics
2. Reading stories to individuals or small groups and guiding students to be involved in free reading
3. Constructing reading booklets and experience charts
4. Giving individual help to pupils or small groups of pupils as prescribed by the teacher
5. Operating audio-visual equipment
6. Assisting in arranging the classroom setting and duplicating materials for planned activities
7. Filing written work in student's folder

VOLUNTEER QUALIFICATIONS	Sincere interest in people, particularly children; some knowledge and abilities in the area of language arts; ability to follow written directions; patience and dependability

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BIOGRAPHICAL SKETCH

WAYNE HAM

Wayne Ham was born in 1938 in Toronto, Canada, the son of Albert and Edna Ham. After completing his secondary education at Humberside Collegiate Institute in Toronto, he attended Graceland College in Lamoni, Iowa, where he received a B.A. degree in liberal arts in 1959. Two years later Wayne received an M.A. degree in Hebrew and Philosophy from Brigham Young University at Provo, Utah. At this time he married Marliene Margaret Miller. During the school year 1961-62, Wayne taught Spanish, Latin, and German at Dunsmuir High School, Dunsmuir, California. During the following year he was Assistant Professor of English at the University of Valle in Cali, Colombia.

In 1963 Wayne began a seven-year period of service as a denominational executive for the Reorganized Church of Jesus Christ of Latter Day Saints at its headquarters in Independence, Missouri. His responsibilities included writing, editing, and leadership development, especially as it related to religious education. During this period Wayne completed an M. Div. degree at St. Paul School of Theology Methodist at Kansas City, Missouri, and public school certification in Secondary English at Central Missouri State University at Warrensburg, Missouri.

In 1970 Wayne began work with Sumter County, Florida, School System, teaching reading to sixth graders at Wildwood Middle School. After two year as curriculum coordinator at Wildwood Middle School, he became an instructional supervisor with responsibilities in the areas of elementary education, basic skills instruction, environmental education, and comprehensive planning. During this period Wayne became a candidate for the PhD degree at the University of Florida in the area of Curriculum and Instruction (Early Childhood Education).

Wayne and Marliene have two sons, Terry and Brian. Family activities include backpacking and canoeing.

Wayne is the author of several books, all of which have been published by Herald House, Independence, Missouri.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Dr. William D. Hedges

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Dr. Athol B. Packer

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Dr. Arthur Newman

This dissertation was submitted to the Graduate Faculty of the Department of Childhood Education in the College of Education and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

August 1977

Dean, Graduate School