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ABSTRACT

The project evaluated here, funded under Title I of the 1965 Elementary Secondary Education Act, operates in a framework which utilizes the services of a reading consultant in target schools. It serves children who have been identified by their classroom teachers and school principals as experiencing difficulty in mastering reading. It provides master teachers and educational aides who furnish individual and small group instruction on a daily basis. Program procedures also utilize certain key components which include: wide range of alternative instructional techniques, variety of reading materials, feedback to classroom teacher, and, parental involvement. Key findings indicate that the services of the program during 1972-73 produced a significant improvement in the reading performance of children who participated in the program. Children receiving consultant services in grades 1, 2, and 3 reflected higher scores on vocabulary and comprehension tests than their controls. Such differences were not statistically significant, however. Greatest impact was observed at grade 3 where experimental pupils achieved an advantage over control pupils in word and analysis, oral reading, use of comprehension skills, and acceptance of the reading task responsibility. (Author/JM)

READING IMPROVEMENT PROJECT

TITLE I EVALUATION
1972-1973

Fund 58 - Component 4

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CLEVELAND PUBLIC SCHOOLS

READING IMPROVEMENT

I. INTRODUCTION

A. Needs and Rationale

Schools serving areas where unemployment figures are highest see greater concentrations of disadvantaged children from homes where illiteracy levels and economic deprivation exist. The prime challenge for these schools is to implement instructional strategies which will enhance learning opportunities of these children in the communicative processes. Population transiency occurring throughout large urban cities is reflected in the increased number of adjustment pressures which faces the pupil at a time when needed skills for success in school are being developed. The Reading Improvement Project represents an attempt to provide specialized reading instruction and support for disadvantaged pupils at a time deemed critical in their school experience -- the primary grades.

The project operates in a framework which utilizes the services of a reading consultant in target schools. It serves children who have been identified by their classroom teachers and school principals as experiencing difficulty in mastering reading. It provides master teachers and educational aides to furnish individual and small group instruction on a daily basis. The philosophy of the project emanates from the belief that the ability

to read is the key to educational and vocational opportunity, which is the right of every child.

Program procedures utilize certain key components which include:

1. diagnosis of pupil reading needs
2. individual and small group instruction on a daily basis
3. wide range of alternative instructional techniques
4. variety of reading materials
5. feedback to classroom teacher
6. parental involvement
7. services of a master reading teacher
8. services of an educational assistant

B. Historical Background

The project was funded initially under an Office of Economic Opportunity grant in 1965 which provided part-time services to 65 eligible schools. Evaluation of program services indicated greater concentration rather than dispersion of services was required if an impact on reading performance were to be achieved.

With the transfer to Title I funding in February, 1967, services were focused at 20 public and five non-public schools with the highest concentrations of disadvantaged

pupils. At this time, an important redirection in services involved the transfer of certain inservice components such as demonstration teaching and consultation for classroom teachers to other funding sources which provided projects tandam to the Reading Instruction Project. In keeping with the spirit of Title I legislation; activities centered primarily on services to disadvantaged children.

C. Summary of Operations

Project services during the 1972-73 school year were provided to a total of 1,991 pupils in grades one, two and three, in 31 public and 10 non-public schools identified as eligible for Title I services, based on the January 1st census. Total staff needs for the program included 36 full time consultants and 29 educational assistants in addition to administrative and clerical staff. Through efforts of the staff, program enrollees demonstrated greater average reading gains than did their controls.

Total expenditures for the project were $743,847 excluding custodial costs. Cost data indicate a per pupil cost of approximately $373.60 for the project during the school year 1972-73 based on a service rate of 1,991 pupils. During that current operation period, per pupil expenditure for instruction in the elementary grades of the Cleveland Public Schools totaled $518.69*. Approximately thirty-six per cent of total instruction time is devoted to reading instruction. Cost of the instructional time allocated to

*General Fund - Per Pupil Educational Expenditures

reading was approximately $186.73 per child in these grades.

Per pupil cost of the project (less custodial costs) was approximately $373.60 for the 1972-73 year.

Data show that control children made an average gain of .7 units in vocabulary and .5 grade equivalent units in comprehension for an operating fund expenditure of $186.73.

This project increased progress of experimental pupils by an average of 1.3 units in vocabulary and 1.0 units in comprehension. Consequently, the additional increment of .6 and .5 grade equivalent units in each area cost $373.60. This finding suggests that for each unit of increment in comprehension, cost will be approximately $74.72 and for vocabulary $62.26.

The program closed with service to 41 public and non-public schools.

D. Questions To Be Answered By Evaluation

This evaluation focuses on the services of the Reading Instruction Project provided during the school year 1972-73. It draws substantially on information from the 1969-73 reports to provide study of the longitudinal effect of the project.

The evaluation considered the following questions related to the assessment of the effectiveness of services provided by this project:

1. Does the reading performance of children receiving consultant service differ from children not receiving consultant service in terms of standardized test results, teacher rating of various aspects of classroom reading performance, final mark in reading and attendance?

2. How many pupils improved their reading skill so that they could be considered to be performing at an appropriate level?

3. What were teachers' perceptions of pupils progress?

4. What were parents' perceptions of pupils progress?

5. How does the current progress of pupils who received service in 1969-72 compare with those who did not receive service?

6. How did teachers view the project at its present stage of operation?

II. HIGHLIGHTS OF FINDINGS

A. Summary Of Key Findings

Findings indicate that the services of the Reading Improvement Program during 1972-73 produced a significant improvement in the reading performance of children who participated in the program. Cost data for the project revealed a per pupil expenditure of $373.60 during the school term 1972-73. The results from two designs were used in the analysis of data.

1. Children receiving consultant services in grades one, two and three reflected higher scores on vocabulary and comprehension tests than their controls. Such differences were not statistically significant, however:

TABLE I
Gates MacGinitie Reading Tests
Primary A, Form 1
Primary B and C, Form 2

Comparison of Posttest Scores for Experimental and Control Children in Grades 1, 2 and 3

Grade	Experimental	Control
VOCABULARY		
1	1.8	1.6
2	2.9	2.5
3	3.4	3.0
COMPREHENSION		
1	1.8	1.6
2	2.6	2.4
3	3.1	2.7

(Raw scores were converted to grade equivalent units for the purpose of this table.)

2. Average gains determined in design two revealed that experimental pupils' progress had exceeded that of controls in grades two and three based upon pre and post test measures. Experimental pupils demonstrated an average gain of one and one-fourth months in vocabulary for one month of instruction and slightly better than one month in comprehension. Controls reflected slightly less than one month of gain for one month of instruction in vocabulary and slightly better than two-thirds of a month in comprehension for the same period of instruction.

TABLE II

Gain Scores
Experimental - Control
Gates MacGinitie Reading Tests
Primary B and C, Form 2

Grade	Vocabulary Experimental	Control	Grade	Comprehension Experimental	Control
2	1.30	1.00	2	1.00	.80
3	1.20	.70	3	.90	.50
Group Ave.	1.25	.80	Group Ave.	.95	.65

3. Greatest impact was observed at grade three where experimental pupils achieved an advantage over control pupils in word analysis, oral reading, use of comprehension skills and acceptance of the reading task responsibility. This represented a significant program effect.

4. Approximately 73 per cent of second grade pupils and 34 per cent of third grade pupils had placed within a half year of their reading expectancies after one year of treatment. (1971-72 results reflected 48 per cent of experimental pupils having up-graded their reading performance so that they placed within a half year of their reading expectancies and 38 per cent of third grade pupils in the experimental group having achieved this status. The 1970-71 study revealed 49 and 50 per cent standing at the appropriate level. 1969-70 results reflected 49 per cent and 38 per cent rate of improvement in these grades.)

5. Teachers viewed the strengths of the program as including individualized attention to the child's specific reading needs, improved willingness on the part of pupils to participate in the reading group and increased confidence in reading.

6. Approximately 68 per cent of the parents rated the program as helping their child "very much".

7. Parents valued the interest their children showed in reading. They reported appreciation of the opportunity to share in the child's reading. Parents in this year's survey reported noting an increased interest in their own reading. This, they indicated was due to the child's reading of newspapers and magazines at home and participating with them in discussions of things read. Project records show a total of 1,279 parents involved in the program through group meetings, individual conferences, classroom visits and home visitations.

8. The longitudinal study of third grade pupils who had participated in the project and were in the sixth grade in 1973 revealed the experimental group performing significantly higher than control pupils in comprehension. The difference was statistically significant.

   Samples of third grade pupils (prior participants, 1971-72) who participated in the fourth grade administration of the Comprehensive Tests of Basic Skills and fifth graders (prior participants) who participated in the Stanford Diagnostic Reading Tests reflected the regression phenomena. No significant differences were observable between the performances of experimental and control pupils in the two samples.

B. Implications and Recommendations

The Reading Improvement Program has been efficiently implemented and appears to be accomplishing its stated objectives.

Evaluation findings from test data reflected no significant differences between experimental and control groups at either of the primary grade levels in comprehension. This finding suggests a need for more information on the kinds of treatment controls are given and intensive communication between teachers and consultants in the identification of pupils who require the services of this project.

At the third grade level boys appeared to perform better in those areas within the reading process which teachers may subjectively consider indicators of pupil progress in reading. This pattern may suggest a break-through in the project's history, should it continue. Within the overall population, the larger percentages of participants at any given grade level have been boys. In prior years' evaluations, boys lagged in the specific areas of the reading process as observed by classroom teachers. The project implemented in-service to teachers in an attempt to foster greater understanding of the differences in rate of developmental growth between boys and girls. Exploration of and introduction of materials oriented equally to boys and girls was an integral part of the plan. In-service to staff in those aspects of child development deemed appropriate to reading needs of pupils was fostered.

Parents, teachers and principals have recommended

that the successful reading experiences of the primary children be extended to their off-spring in the elementary grades. It has been demonstrated that one out of two pupils in grades two and three who placed at an appropriate reading level, tend to remain below average in reading performances of pupils in these groups. As they progress through the later grades without structured reading remediation efforts, growth effects in reading dissipate. Current and prior year reports from principals, parents and teachers in schools where the program has operated indicate feelings that services to pupils in grades four, five and six should be provided.

It is recommended that the services of the Reading Improvement Program be continued to pupils in the Cleveland schools. It is suggested, based upon evaluation findings, parental opinions, and interviews of school personnel that the project might wish to explore;

- a review of the selection process for all participants at the school level.
- greater emphasis on reading comprehension
- improved communication with teachers of pupils participating in the program to accomplish greater understanding of the program, its methods of pupil selection and feedback.

It is further recommended that the Reading Instruction Program consider utilization of the experiential learnings gleaned from the Reading Improvement Primary program as a base for the development of a program of services for fourth grade pupils.

III. PROJECT DESCRIPTION

A. Participant Characteristics

Enrollment data for the project indicated that a total of 1,991 pupils participated in the program. Pupils were distributed across the following grade levels:

TABLE III

DISTRIBUTION OF PUPILS BY GRADES*
READING IMPROVEMENT PROGRAM
1972-1973

	Public					Non-Public				
Grade	Boys	%	Girls	%	Total	Boys	%	Girls	%	Total
1	265	59%	178	40%	443	25	74%	9	27%	34
2	369	58%	265	42%	634	50	57%	38	43%	88
3	403	56%	312	44%	715	39	51%	38	49%	77
Total	1037	58%	755	43%	1792	114	57%	85	43%	199

*Experimental Pupils

Approximately 58 per cent of the total pupil enrollment were boys. Enrollment was distributed between three grade levels, with approximately 22 per cent being third graders, 15 per cent first graders, and 21 per cent second graders. Boys accounted for 58 per cent of project enrollment in the public schools and 57 per cent in the non-public schools. Girls represented 42 per cent of the total pupil count in public and 43 per cent in non-public schools.

Average scholastic aptitude scores for the pupil groups, which were obtained from the Lorge-Thorndike Intelligence Scale, placed the groups in the below average range. Average P.L.R. scores included:

TABLE IV

RESULTS OF SCHOLASTIC APTITUDE TESTS
1972-1973
Cognitive Abilities Test
Level 1, Form 1 - Grade 1
Primary II, Form 1 - Grade 2
Lorge-Thorndike Intelligence Tests
Level 2, Primary Battery, Form A

Group	Boys		Girls		Summary	
	Exp.	Con.	Exp.	Con.	Exp.	Con.
Grade 1	84.32	78.75	77.55	73.48	80.94	76.11
Grade 2	82.27	80.40	80.07	79.19	81.17	79.80
Grade 3	89.68	90.28	87.10	89.30	88.39	89.79

Median ages for the respective grades exceeded typical median ages by 6 to 16 months. Chronological age distributions for each grade were:

TABLE V

Median Chronological Ages by Grade
1972-1973

Group	Range of Ages*		Median Age	
	Experimental	Control	Experimental	Control
Grade 1	6- 8 - 9- 7	6- 6- 9- 8	7-6	7-7
Grade 2	6-11 - 9- 9	7-0 - 9- 8	8-0	8-3
Grade 3	7-10 - 10- 3	7-11- 10- 3	9-1	9-0

*years and months as of September, 1972

Project records were checked to determine the pattern of criteria used by principals and teachers for identification of pupils for referral to the program. The major criterion used either singly or in combination with other criteria appeared to be judgment of teacher and principal after observation of classroom performance. The incidence of referral is summarized as follows:

TABLE VI

REASON FOR REFERRAL

Referral Reason*	Grade 1	Grade 2	Grade 3	Total
Grade Retardation	111	210	248	569
Performance, below expectations on standardized tests	135	167	201	503
Cumulative record of poor school achievement	86	249	380	715
Below average performance on a standardized scholastic aptitude test	58	67	110	235
Judgment of teacher & principal after observation of classroom performance	272	360	445	1,077

*Duplicated counts

B. Project Operations

The project began its 1972-73 operation at 39 elementary schools. During the year, two additional schools entered the program. At the end of the school year, the project was rendering service to pupils in 31 public and 10 non-public elementary schools utilizing a staff of 66 persons. Guided by the educational program manager, staff included an assistant, 36 consultants and 29 educational assistants.

Pupils were identified on the basis of program criteria by teachers and principals of eligible target city schools. Project administrative staff aided by the Division of Research randomly assigned pupils to service groups from the referral lists. The numbers of children identified necessitated an assignment procedure which provided all pupils with an equal opportunity for service. In addition, random assignment established control of extraneous variables other than reading instruction which might account for changes in reading performance of the children. Children not randomly selected, but recommended, were placed on a waiting list for future assignment as more staff became available to the project. Staff shortages necessitated a waiting list of pupils who became the project's controls and moved into the experimental group as experimental pupils transferred or withdrew to other cities. Random selection procedures provided a fair means of allocating services inasmuch as more children were identified for services than could have been served with program resources.

Enrollment records for the program show that 1,991 pupils had been served as of June 1, 1973. The larger enrollee increases occurred in October (two per cent). In addition, 322 pupils who were referred by their teachers and processed for service in September remained on the waiting list in June, 1973, as additional staff was not available during the year. In accordance with the design of this program, pupils remaining on the waiting list are the project's controls.

TABLE VII

Participant Entries by Month 1972-1973

	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Total
Grade 1	433	20	9	9	8	2	3	1	477
Grade 2	648	10	13	6	10	12	9	4	722
Grade 3	727	15	5	10	11	10	9	5	792
Totals	1808	45	27	25	29	24	21	10	1991

Pupils placed in the program were scheduled in cadres of six to ten for 50 minutes of daily instruction. Pupils received an average of four and one-half hours of instruction each week. Appendix I contains a summary of target schools involved and number of pupils on the service list ending June, 1973. Of the 1,991 pupils served during the school year, 137 were enrolled in non-public schools. Reading consultants met a total of pupils ranging from 36 to 50 each day.

Consultants attempted to gear daily instruction to needs of pupils in the particular group. The general plan

followed by consultants usually involved four types of pupil activity:

1. warm up sessions reinforcing previously taught skills
2. skill presentation sessions
3. oral and silent reading opportunities
4. individual development sessions providing one-to-one tutoring

In addition, conference time for motivation and feedback of progress to pupil was a part of the daily schedule.

Consultants varied activities to keep pupil interest high, provided individualized and small group instruction with different approaches to stimulate reading growth. Materials of high interest level were used. Consultants designed reading games, charts, worksheets, illustrative materials in addition to utilizing the latest commercial materials and media.

Each consultant attempted to employ instructional strategies which would provide children successful experiences. On-going feedback to children was utilized to make them aware of progress. Generally, instruction sought to improve vocabulary, skill in following directions, mastery of sight words, grasp of vocabulary skills, and techniques in selecting main ideas augmented with emphasis on critical thinking.

In all target elementary schools served, sessions were scheduled in a room assigned to the consultant. The room was made available as an in-service resource center for primary grade teachers. Educational aides assisted consultants in record keeping, clerical tasks, and tutorial activities as well as supervising the arrival and dismissal of pupils in the reading resource center.

Records of 1,991 pupils receiving service as of June 1973 show 1,042 parental classroom visits, 1,159 individual conferences and an attendance of 712 parents at group meetings. In addition, a total of 33 home visits was made by consultants. Estimated total unduplicated involvement of parents was 2,044 in these activities. Consultants discussed pupil strengths and weaknesses with parents and recommended procedures which might be adapted for home use in reinforcement of the reading program and encouragement of pupil progress. Meetings featured demonstrations of reading techniques with children in which parents could observe their own children. Consultants shared suggestions for reading activities with parents and outlined the availability of library materials in the school and community.

The staff spent 1,934 hours in in-service activities ranging from local workshops to national conventions and reading institutes. A total of 62 staff members completed 122 hours involving teacher and teacher aide training while 918 hours

were utilized in workshops. The remaining hours of in-service included programs by local administrations and participation in national conventions and reading conferences.

IV. EVALUATION

A. Basic Design

The evaluation plan attempted to assess change in the reading performance of pupils receiving program services and to compare this change with that of control pupils.

An analysis was designed involving measurement of changes in reading performance of experimental and control pupils. Design for the analysis followed a 2 x 3 x 2 model involving factors of sex, grade and teatment. Multivariate analysis of covariance was applied to data.

The sample numbers (a total of 678) involved in the analysis at the three grade levels is summarized below:

TABLE VIII

Sample Population By Grade

Grade	Group	Experimental	Control	Total
1	Boys	59	40	99
	Girls	29	21	50
2	Boys	67	75	142
	Girls	61	52	113
3	Boys	78	88	166
	Girls	61	47	108
	Total	355	323	678

Data for the multivariate analysis included scores on standardized tests of word meaning

and paragraph meaning with covariates of P.L.R. scores, chronological and attendance.

Data used for the multivariate analysis included:

- covariates: P.L.R. scores
  attendance
  chronological age
- dependent variables:

  vocabulary test score
  comprehension test score
  rating on use of classroom reading materials
  rank in class in terms of overall reading performance
  final mark in reading

Multivariate analysis of covariance was considered appropriate for this evaluation where measurements of several variables were obtained from the same pupil groups in disproportionate subclass numbers. This approach takes into account dependencies existing between these variables.

It deals with correlations between variables, uses a single probability statement applicable to all variables jointly, and is based upon a known exact sampling distribution from which the required probabilities can be obtained. Differences between treatment effects can be inspected to determine the direction and relative size effect on each dependent variable. After test of main effects of the variables is accomplished, step-down tests allow for investigation of dependent variables in an

ordering chosen by the investigator to determine effects of more critical variables. Univariate procedures would not deal with the correlations between variables nor produce statistically independent tests.

An effort was made to obtain observation of pupil reading performance from the standpoint of the pupils' classroom teachers. Classroom performance information in the form of reading marks, use of classroom reading materials, and rank in classroom was obtained for 354 experimental and control pupils.

A second phase of the evaluation of changes in pupil reading performance involved an individual - vs - self comparison whereby pupil gain was measured against pupil's reading expectancy. An objective dimension was introduced in the form of a reading expectancy, as computed by the Bond-Tinker formula, to determine pupil progress toward a reading performance level relevant to the pupil's scholastic strength.

A third phase of the evaluation centered on the progress of previously served pupils as described by reading test scores obtained through the city-wide testing program.

Parents were requested to complete questionnaires which were returned to the Division of Research and Development by mail. A total of 222 replies was received. This represented a response from 32 per cent of parents of pupils in the evaluation sample.

B. Main Findings

As established by the intent of the project, change in reading performance was compared for pupils who had received services of the reading consultants and those pupils who had been identified for service but not selected by random assignment procedures employed in the program (control).

> Does the reading performance of children receiving consultant service differ from children not receiving consultant service in terms of standardized test results, teacher rating of classroom performance, and final reading mark?

Certain comparisons were considered essential to determining successful attainment of program goals. Multivariate analysis facilitated comparison of performance of experimental and control groups in terms of these contrasts:

1. experimental versus control
2. boys versus girls
3. grade level
4. interactions between factors

Results in which significant differences were noted are discussed below. Significant results were obtained in four of the twelve contrasts attempted.

In line with recent trends in research, the five per cent level of probability ($p. < .05$) was selected for

statistical tests of significance (t tests) for this evaluation to give reasonable assurances that the null hypothesis would not be rejected unless it really should be.[1]

a. Experimental vs. Control Performance

A significant difference between the performances of experimental and control pupils appeared in oral reading, a teacher rating item. Near-significant levels were apparent in confidence in reading; use of classroom materials and independent reading.

A multivariate F-ratio of 1.9079 comparing experimental pupils with controls indicated a statistically significant difference at the .0132 level of probability. In the presence of this significant multivariate F-ratios and probability levels relative to experimental and control performances may be observed in the appendices.

Inspection of the "least squares estimates", which are statistical indicators representing differences between groups, reflected higher performances by experimental groups in oral reading and teacher marks. Controls exceeded in reading confidence, independence and use of classroom materials.

b. Contrast of Performance of Boys vs. Girls

(1) Within the total population, teachers assigned higher marks to girls. Teachers reported greater participation in reading, confidence in reading and independence observed on the part of girls.

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[1]Edward W. Minium. Statistical Reasoning in Psychology and Education. New York. John Wiley and Sons, Inc. 1970. P. 259.

(2) Boys impressed their teachers with application of techniques of word analysis and facility in responsibility to the reading task. Higher ratings were assigned to boys than girls whether experimental or control. These ratings approached near-significance.

In this contrast the multivariate F-ratio of 4.4595, comparing the performances of boys and girls, indicated statistically significant differences at the .0001 level of probability. The "least squares estimates of effects" documentated the group which evidenced the superior performances. These superior performances appeared in the areas of teacher opinion and reported in teacher ratings.

c. Comparison of Performance Grade One vs. Grade Three

Grade three pupils performed better in word analysis, knowledge of sight words, oral reading and use of comprehension skills according to classroom teachers.

Grade comparisons in this evaluation relate to teacher ratings of observed pupil reading performances on the teacher rating scale.

"Least squares estimates of effects" documented the higher ratings assigned these pupils by teachers. The summary of this contrast may be viewed in the appendices.

It might be interpreted that these are "expected" differences influenced by maturation. It must be kept in mind that the sample was composed of pupils whose range of talent was restricted and whose history showed them to have

exhibited low reading function through the grades prior to referral for treatment.

d. Comparison of Pupils in Grade Two vs. Grade Three

Pupils in grade two made better use of classroom materials and received better teacher marks than did their third grade counterparts. Second grade pupils exhibited better attitudes toward reading reflected in the ratings teachers gave on completion of reading assignments.

A multivariate F-ratio of 36.4551 for 18 and 644 degrees of freedom signified a statistically significant difference at the .0001 level of probability.

"Least squares estimates" confirmed these differences in favor of second grade pupils.

e. Interaction Between Sex, Grade and Treatment

A statistically significant advantage appeared in the interaction of sex, grades 1 - 3 and experimental versus control pupils. Observation of the "least squares estimates of effects" revealed this advantage to be in favor of grade three boys.

A multivariate F-ratio of 1.4590, probability level of .0985, was considered indicative of the presence of a statistically significant interaction within this hypothesis.

Inspection of the "least squares estimates" reflected the favorable image boys of grade three gave to their classroom teachers. Teacher ratings of pupil performances showed boys of the experimental group demonstrating higher levels of reading process than girls in word anaylsis, acquisition of sight words, oral reading, use of comprehension skills

and acceptances of the reading task responsibility. This represented an emerging direction not observable in prior years' evaluations.

The correlation matrix was examined to observe the relation between use of classroom materials and final marks assigned pupils in reading. A correlation ratio of .460 existed. It may be interpreted that a strong relationship existed between teacher marks in reading and teacher observations of the use of classroom materials by pupils in this sample. It would appear those items used by teachers to rank pupils in the classes and those used to rate the improvement of pupils in reading were predictors of the marks pupils received.

Further study of the correlation matrix reflected moderate correlations between teacher ratings of pupil improvement and attained raw scores from vocabulary and comprehension tests, .188 to .248, (ratings vs. vocabulary) and .185 to .255 (ratings vs. comprehension raw scores). Negative correlations existed between rank in class vs. vocabulary and comprehension raw scores. It may be interpreted than an expectancy bias was operative in this comparison. The combined mean of assigned teacher mark, 3.700 for experimental pupils and 3.967 for controls, fell within average range in teacher marks assigned pupils at the end of the year.

Data obtained in the 1969 evaluation indicated that

that while teacher ratings generally were correlated (a range of .135 to .587 was observed between ratings) they were inversely related to results on standardized tests of vocabulary and comprehension. The strongest negative correlations in the data were observed between final achievement mark and scores on these tests (-.47 and -.41 respectively). The 1970 data indicated a dramatic change between vocabulary and comprehension test scores and reading mark, rating of the use of reading materials in the classroom and classroom rank in reading. The range correlations were .389 to .468. The 1971-1972 study strongly reflected use of classroom materials in teacher assessm nt of pupil performances in vocabulary and comprehension. The finding was substantiated by the correlation of .4450 between teacher marks and use of classroom materials. The 1972-73 study revealed a strong correlation between teacher marks and the use of classroom materials of .4596. The range of correlations between teacher marks and use of classroom materials in relation to the attained raw scores in vocabulary and comprehension tests was from .2412 to .3206. The correlation matrix is presented in Appendix VIII.

Comparison of results from 1968-69, 1969-70, 1970-71, 1971-72 indicates a similar superiority of experimental pupils in the three samples in terms of performance on vocabulary and comprehension tests. Boys obtained higher reading marks in the 1968 analysis, while girls received higher marks in the 1969 and 1970 study. No significant differences were observed in the area of teacher marks in the 1970-71 and 1971-72 studies. Experimental girls attained higher rank in class in the 1970-71 study while there were no significant differences in the 1971-72 study.

The 1972-73 evaluation continues the pattern of superior performance on vocabulary and comprehension tests for experimental pupils. Girls received higher marks.

Appendix IV summarizes F-ratios and probability levels.

Patterns of final reading marks assigned by classroom teachers indicate relatively few differences between the groups. Within experimental and control groups teachers assigned the highest percentage of grades as "satisfactory" (S).

Grade equivalent data were drawn from norms published in manuals of the Gates MacGinitie Reading Test Series.

Comparison of the performance status of experimental and control pupils revealed:

1. Grade Three

   Greatest difference was observed in favor of experimental girls where the level of performance was .7 grade equivalent units higher than the control group (3.6 vs. 2.9) in vocabulary.

   In comprehension, a .5 grade equivalent advantage was observed in favor of experimental girls (3.3 vs. 2.8).

   Experimental boys reflected a two month grade equivalent advantage in vocabulary and comprehension when compared with their peers in the control groups (3.2 vs. 3.0, vocabulary, and 2.8 vs. 2.6, comprehension).

2. Grade Two

   Experimental girls demonstrated a four month grade equivalent advantage beyond that of control girls in vocabulary and one month in comprehension.

Experimental boys in this sample achieved a three month advantage in vocabulary grade equivalent mean scores and two months in comprehension compared with controls.

3. Grade One

Boys of grade one exceeded their controls in vocabulary performance.

The advantage in achieved grade equivalent units was two months beyond the achieved grade equivalent level achieved by control boys, (1.8 vs. 1.6). Experimental girls held a one month advantage over control girls (1.7 vs. 1.6) in vocabulary.

Boys and girls in the experimental group reflected a two month advantage in comprehension over control pupils. Contrasts were 1.8 vs. 1.6 (boys and girls, experimental and control).

It may have been noted in the project description section of this evaluation, Table IV, that the mean scholastic aptitude of experimental boys in the first grade exceeded that of control boys. The difference was significantly different at p. $\leq$ .05 level of probability. It would be interpreted that in one out of twenty cases the difference would have been due to chance. It must also be recognized that scholastic aptitude was one of the covariates in the multivariate analysis applied to sample data for this evaluation. Multivariate procedures made the necessary weighting adjustments and statistically eliminated the effect of this covariate upon any of the measures being tested. Results of the statistical test applied to the data may be viewed in the appendices.

Table IX mirrors the average final grade equivalent sco. s obtained by experimental and control groups in grades one, two and three.

TABLE IX

Average Grade Equivalent of Posttest Scores
Gates MacGinitie Reading Tests
Primary A, Form 1
Primary B and C, Form 2
Grades 1, 2, and 3
1972-1973

Grade	Sex	Vocabulary		Comprehension	
		Experimental	Control	Experimental	Control
1	Boys	1.8	1.6	1.8	1.6
2		2.8	2.5	2.5	2.3
3		3.2	3.0	2.8	2.6
1	Girls	1.7	1.6	1.8	1.6
2		2.9	2.5	2.6	2.5
3		3.6	2.9	3.3	2.8

Table X presents the means of raw scores with interpreted grade equivalent scores drawn from vocabulary and comprehension norms of the appropriate Gates MacGinitie Tests.

TABLE XI

Reading Improvement Program
1972-1973
Means and Grade Equivalents of Posttest Raw Scores
Gates MacGinitie Reading Tests
Primary A, B and C, Form A-1, B-2, C-2

			Vocabulary		Comprehension	
Grade	Sex	Treatment	Mean*	Grade Equivalent	Mean*	Grade Equivalent
1	Boys	E	33.47	1.8	20.25	1.8
		C	25.60	1.6	15.75	1.6
	Girls	E	30.93	1.7	19.59	1.8
		C	27.57	1.6	14.62	1.6
2	Boys	E	32.94	2.8	19.82	2.5
		C	27.49	2.5	17.00	2.3
	Girls	E	33.97	2.9	21.34	2.6
		C	29.15	2.5	18.75	2.5
3	Boys	E	29.22	3.2	21.31	2.8
		C	26.81	3.0	19.15	2.6
	Girls	E	32.77	3.6	26.00	3.3
		C	25.79	2.9	21.43	2.8

*Posttest Raw Score Means

TABLE XII

Reading Improvement
Group Means and Grade Equivalents of Raw Scores
Gates MacGinitie Reading Tests
Primary A, B and C, Form A-1, B-2, C-2
Posttest Scores 1972-1973

		Vocabulary		Comprehension	
Grade	Treatment	Mean*	Grade Equivalent	Mean*	Grade Equivalent
1	Experimental	32.20	1.8	19.92	1.8
	Control	26.59	1.6	15.18	1.6
2	Experimental	33.45	2.9	20.58	2.6
	Control	28.32	2.5	17.88	2.4
3	Experimental	30.99	3.4	23.66	3.1
	Control	26.30	2.0	20.29	2.7

TABLE XIII-A

Reading Improvement
Pre-Posttest Grade Equivalent Scores
Based On Mean Raw Scores
Gates MacGinitie Reading Tests
Primary B, Forms 1 and 2 Grade 2
Primary C, Forms 1 and 2 Grade 3
1972-1973

Boys Vs. Girls

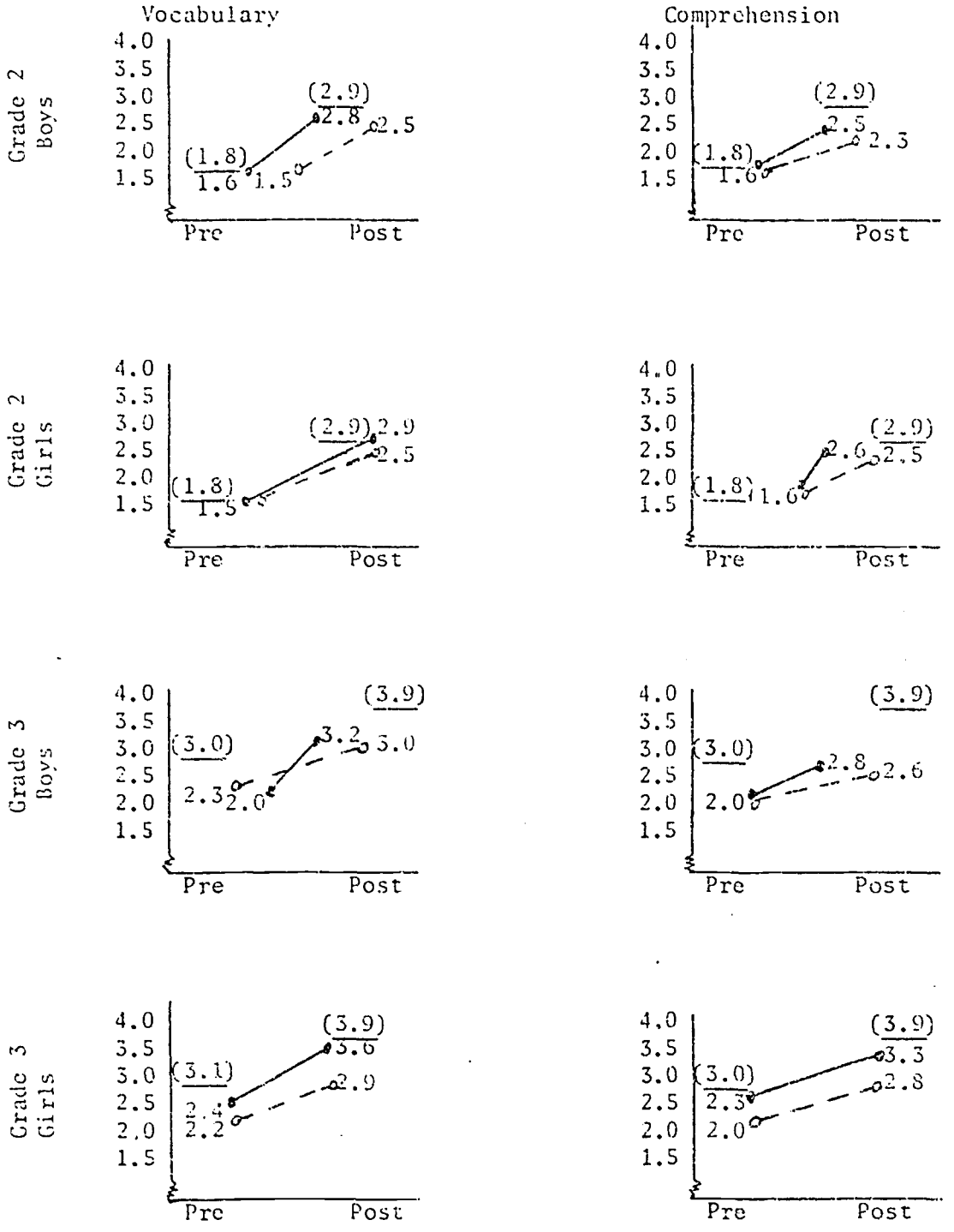
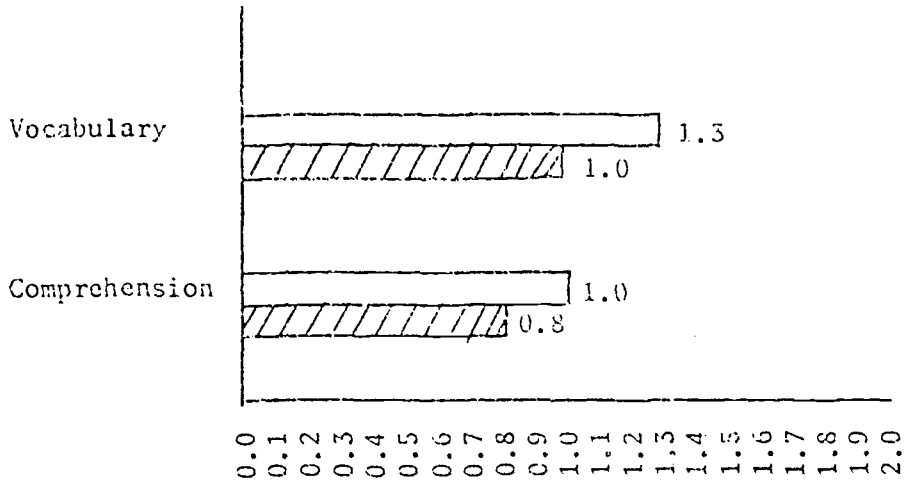


TABLE XIII-B

Comparison of Grade Equivalent
Gain Units
Grades 2 and 3
Gates MacGinitie Reading Tests
Primary B and C
Form 1 (Pre Test) Form 2 (Post Test)
1972-1973

Grade 2



Grade 3

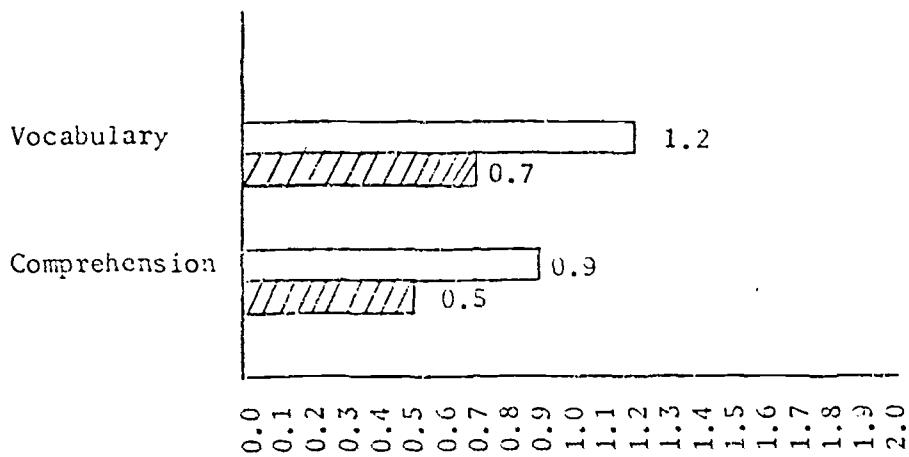


TABLE XIII-C

READING IMPROVEMENT
Pretest - Posttest Grade Equivalent Gains
Grades 2 and 3
Primary B and C
Pretest, Form I, Posttest, Form 2

	VOCABULARY						COMPREHENSION					
	EXPERIMENTAL			CONTROL			EXPERIMENTAL			CONTROL		
Grade	Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain
2	1.6	2.9	1.3	1.5	2.5	1.0	1.6	2.6	1.0	1.6	2.4	.8
3	2.2	3.4	1.2	2.3	3.0	.7	2.2	3.1	.9	2.2	2.7	.5

Reading Expectancy Comparison

The second question of interest was:

> How many pupils improved their reading skill so that they could be considered to be performing at an appropriate level?

Reading expectancies were determined for experimental pupils by the Bond-Tinker formula on a before and after service basis. The observed reading level for pupils was reported in the form of a grade equivalent score for the Comprehension sub-test of the Gates MacGinitie Reading Test. The criterion for assessment was set as the appropriate level of functioning which was considered to be within a half-year in terms of a grade placement score of the pupils' reading expectancies.

Comparison of grade equivalent scores in comprehension with reading expectancies indicated that 73 per cent of second grade pupils served in the program during the 1972-1973 school year placed within a half-year of their reading expectancies. At least 34 per cent of third grade pupils achieved this level of reading function. This information may be related to results obtained in evaluations from prior years which reflected percentages of gain as shown in Tables XIV-A and XIV-B. These tables illustrate percentage changes from pre-program to post-program differences between performance levels in comprehension and reading expectancies for 1968-1973 samples.

TABLE XIV-A

Percentage of Pupils - Various Performance Levels Compared With Reading Expectancies
1969, 1970, 1971, 1972, 1973
Comprehension

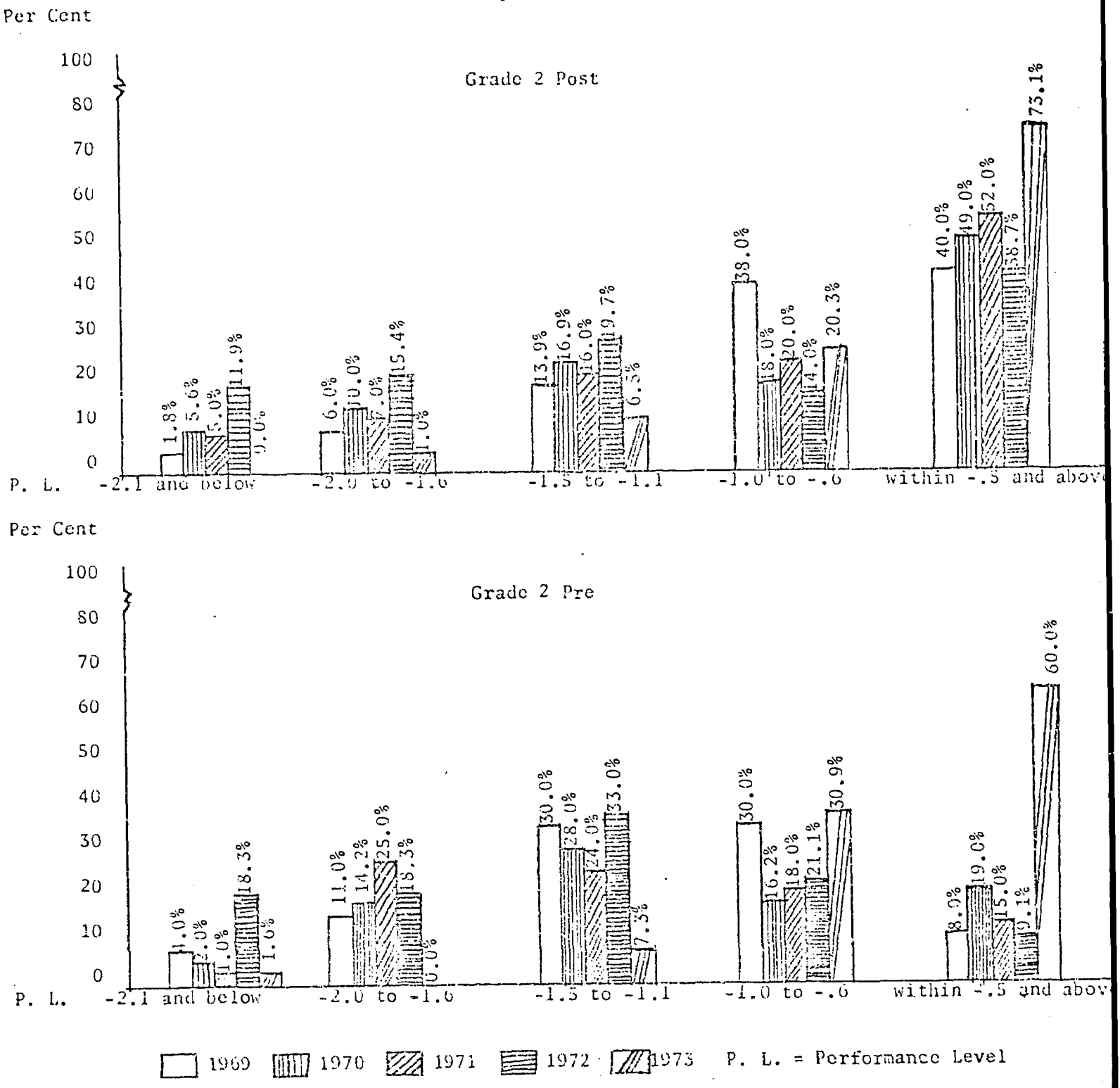
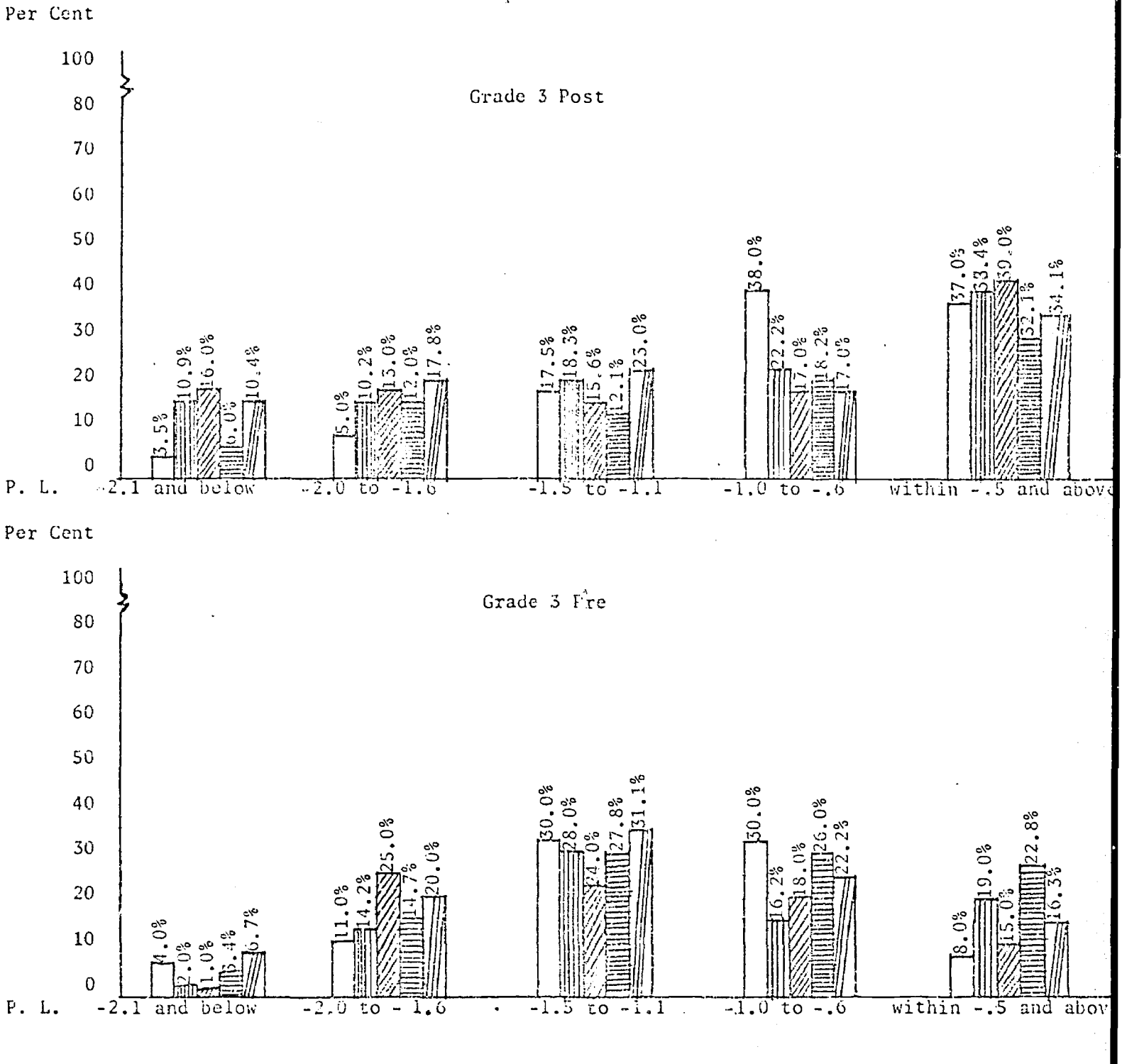


TABLE XIV-B

Percentage Of Pupils - Various Performance Levels Compared With Reading Expectancies 1969, 1970, 1971, 1972, 1973 Comprehension



It has been determined that reading expectancies calculated in the Bond-Tinker method provide estimates that are very close to observed reading averages for various levels of scholastic aptitude. It was considered that children approaching tolerable differences (in these cases .5 grade equivalent score units) between performance levels and expectancies can be described as having made appropriate improvement.[2]

Examination of individual school records in narrowing the discrepancies between performance levels and reading expectancies indicates that 22 schools showed a substantial increase in the number of pupils reaching an appropriate performance level in reading. Four schools reflected a decrease in the number of pupils performing at the appropriate reading level. No change was observed in 15 schools in this reading expectancy comparison. The combined decrease and no change patterns observed in the 19 schools may indicate that consideration should be given to a spring in-service session for teachers on selection of participants for the project. It was apparent that the major reason used by schools for referral of participants was principal and teacher judgment. Inasmuch as this reason is dependent upon more subjective than objective elements related to staff judgement, some consideration should be given to whether or not pupils are performing at their

[2]Guy L. Bond and Miles A. Tinker. Reading Difficulties: Their Diagnosis and Correction. New York: Appleton-Century-Crofts, 1967.

anticipated reading expectancy levels when assignment to the referral list is made. In addition, staff changes and grade assignment changes are a necessary part of a city school operation. A spring in-service session on proper selection of students might serve as a refresher for some, acquaint others and clarify questions for those whose experiences with some pupils throughout the year have created an air of uncertainty regarding the expected pupil reading performances.

It should also be recognized that reading expectancy is influenced by weak performance on the scholastic aptitude instrument used in the formula. The Bond-Tinker formula, however, has been demonstrated as "overpredicting" performance for pupils at the lower end of the scholastic aptitude spectrum. Further study should be made of the relationship of the formula and performance in terms of various reading skills in the classroom. The formula provides another objective dimension to be used with staff judgement in identifying pupils for service. Appendices II and III summarize the pre and post program status of pupils receiving service in terms of the comparison of reading performance and reading expectancy.

Teachers' Perceptions of Progress

Another question of interest in the assessment of pupil progress involved the question:

What were teachers perceptions of pupil progress?

Teacher ratings were returned for 355 experimental pupils and 323 control pupils in the sample. Observations about the functioning level in reading were considered important to assessing progress. Teachers were requested to rank pupils in relation to other children in their classes using a five-point continuum in answer to the guideline:

> From your knowledge of this pupil's work in your classroom, how would you rank this child's over-all reading performance in relation to the other children in your class? (Visualize your class as being divided into fifths.)

Results indicate slight differences between the over-all ratings of each group. Largest differences occurred at the lowest fifth ranking in building sight words and acquisition of comprehension skills.

Item		Lowest Fifth	Second Lowest Fifth	Middle Fifth	Second Highest Fifth	Top Fifth
Word Analysis	E	10.7%	27.0%	42.8%	13.0%	6.5%
	C	15.5%	24.1%	39.9%	13.6%	6.8%
Sight Words	E	8.5%	22.5%	44.8%	16.9%	7.3%
	C	17.3%	18.3%	37.2%	19.5%	7.7%
Oral Reading	E	14.9%	22.8%	41.7%	14.6%	5.9%
	C	17.6%	20.6%	38.1%	15.5%	6.2%
Comprehension Skills	E	30.1%	18.0%	38.0%	10.1%	3.7%
	C	6.5%	33.1%	41.7%	13.6%	4.9%
Participation	E	23.1%	23.1%	30.1%	16.3%	7.3%
	C	31.0%	18.0%	21.7%	19.8%	9.6%

Teachers were also requested to answer the question:

In your opinion, can this child handle the usual reading materials used in his grade?

A difference between the categories assigned on a five point continuum was evident at the category "sometimes". Teachers reported more purposeful use of classroom materials by 40.6 per cent. of experimental pupils as opposed to 31.9 per cent of control pupils. Summaries of each groups rating included the following:

Group	Always	Most of the time	Sometimes	Rarely	Not at All
Experimental	2.5%	10.4%	40.6%	41.7%	9.9%
Control	1.9%	10.5%	31.9%	43.0%	12.7%

A copy of the Pupil Rating Scale for experimental and control pupils is contained in Appendix IV. Teachers viewed the strength of the program as providing additional approaches to the reading process and an increase in creating pupil interest in reading.

Parents Perceptions of Progress

The Reading Improvement Program sought to improve parental support of children's efforts to read. Questionnaires were distributed to 355 parents of experimental pupils participating in the program. A total of 222 was received of which 136 concerned boys and 92 concerned girls as program participants.

Approximately 50 parents of first graders, 82 parents of second graders and 51 parents of third grade participants responded to the questionnaire. Approximately 68 per cent of the respondents viewed the program as helping their child "very much". Percentages of response to the question: Has the program helped your child were distributed as follows:

Very Much	Some	Very Little	Not At All
68.0%	24.77%	.45%	.90%

N = 222

Parents viewed the program as productive of a "better reader" but emphasized benefits to parents in that parents have become interested in reading. This is indicative that the impact of the help pupils have received has permeated the home environment. Suggestions from this year's survey reinforce prior years' suggestions. Suggestions include:

- expansion of the program beyond the first through third grade
- more reading teachers
- more reading time in school

Approximately 80 per cent of the parent sample reported that they observed their children reading more books at home. Questionnaire data indicated that 66 per cent of parents stated

that they observed their child in reading activities at school. Compared with a 75 per cent positive response on the 1968 questionnaire and 78 per cent in 1970, this represents a substantial number of parents who observed their child in reading activities at school as documentation of parent conferences reveal 27 parents participated in teacher - child - parent conferences, nine attended five and one parent six such conferences. The increased length of instructional periods for program participants during the school day eliminated home visitations within the school day.

The same pattern for informing parents that their children were being served in the program emerged in the 1973 questionnaire. Parents of 120 pupils indicated that they first learned about the Reading Improvement Program from their child; 78 stated that they received a letter informing them of their child's participation in the program. Consultants notified 48 parents by telephone. These data compared proportionately with totals of 58, 50 and 39 in the 1971-72 survey.

The program promoted a massive program of parental contact during the 1972-73 school year to intensify its efforts at gaining support for the child's reading. The success of these efforts may be measured by project records showing a total of 1,042 parents conferences and attendance of 712 parents at project parent meetings held within individual schools (duplicated count for this sample of parents).

Follow - Up of Experimental and Control Pupils

The final question of interest to the evaluation involved:

> How does the current progress of pupils who received service from the program from 1969-72 compare with those who did not receive service (controls)?

The following groups were involved in the longitudinal follow-up study.

1. 1971-72 experimental and control third graders enrolled in grade 4 as of September, 1972.
2. 1969-70 experimental and control second graders enrolled in grade 5 as of September, 1972.
3. 1970-71 experimental and control third graders enrolled in grade 6 as of September, 1972.

Scores from a sample of 99 experimental and 82 control pupils were located who were served in grade 3 (experimental) and those not served (control) during the 1971-72 school year. The performance standings of these pupils from sub-test scores of the Stanford Diagnostic Reading Test (Level 1) administered in September, 1972 were observed:

STANFORD DIAGNOSTIC AVERAGE RAW SCORES

Level 1 Grade 4
Administered 1973

Sub-Tests	Exp.	G.E.	Control	G.E.	t-ratio	Decision
Comprehension	29.38	2.6	26.26	2.3	2.7692	s.
Vocabulary	17.36	2.1	16.84	2.1	.6553	n. s.
Auditory Discrimination	26.68		25.74		.6258	n. s.
Syllabication	10.65		10.28		.5946	n. s.
Beginning And Ending Sounds	25.10		22.86		2.5111	s.
Blending	21.32		19.55		1.4066	n. s.
Sound Recognition	16.27		12.57		3.2948	s.

s = significant n.s. = not significant

$\alpha = p \leq .05 = 1.960$ d.f. = 179

Post score standings of this sample of pupils in the Gates MacGinitie Reading Tests in June, 1972, reflected superior reading performance for experimental pupils. The t-ratio of 5.9228 was significant at $p \leq .05$ (1.960).

In September, 1972, the standings of experimental pupils mirrored a significant advantage over control pupils in comprehension based upon a statistical significant finding between scores attained in the comprehension sub-test of the Stanford Diagnostic Test. Experimental pupils held a statistically

significant position in beginning and ending sounds in addition to sound recognition. The directions of weaknesses of both experimental and control groups lay in vocabulary, auditory discrimination, syllabication and blending.

Scores for experimental and control third graders who had participated in the 1969-70 program and were in grade six as of September, 1972, were obtained. High mobility rates throughout the schools reduced the population of experimental and control groups remaining in their home schools to 154. Gates MacGinitie scores for a sample of 108 pupils from this group were drawn from prior project records. Statistical measures were applied. It was determined that no significant difference was apparent between the groups at 106 degrees of freedom, $p \not< .05$, (2.000). Examination of the mean scores for each group showed a grade equivalent average in comprehension of 2.2 vs. 2.0, experimental-control, stanine, 2. Performance levels from the Comprehensive Tests of Basic Skills, Level 2, administered in February, 1973, revealed a statistically higher performance level in reading on the part of experimental pupils at sixth grade level. Grade equivalent averages were 3.1 vs. 2.7, stanine, 2. At the p .05 level of significance utilizing the t test, the significally higher judgment was based on a t of 2.2333 at 106 degrees of freedom (2.000). In 1971 the overall general population was one year and nine months below the norms as established by the Gates MacGinitie Reading Tests, Primary C. Pupil performance

standings at sixth grade level (1973) placed this sample group at stanine 2 on the Comprehensive Tests of Basic Skills, comprehension subtest. This standing was 3.1 and 3.5 grade equivalent units below the mid-year norm of 6.2, which was the point in time of administration of the Comprehensive Tests of Basic Skills. The observedly slight difference between the means of the two sample groups, 13.6829 and 11.4615, might be considered support that the two groups were similar in characteristics as had been established by the criteria by which they had been selected in 1969. It may also be interpreted that this sample of pupils will continue to progress with difficulty through the higher grades without some form of reading support.

The summary of results is shown as follows:

Year	Test	Grade	Avg. Raw Score Mean	Avg. Grade Eq.	Avg. Sta.	t-ratio	Decision
1969-1970	Gates MacGinitie Reading Test Primary C	3	14.45 E	2.2	2	.2009	n.s.
			14.22 C	2.0	2		
1972-1973	Comprehensive Test of Basic Skills, Level 2	6	13.68 E	3.1	2	2.2333	s.
			11.46 C	2.7	2		

N = 108 p .05 $\geq$ 2.000 df = 106

s = significant n.s. = not significant E=Experimental C = Control

Further observation of the table reflects the superior performance of the experimental group. This finding may subjectively suggest that residual effects of project treatment were operative to a degree.

Evidence of the impact of the need for continued support for pupils was revealed in a study of second grade participants in 1971-72 Reading Improvement Program who participated in the administration of the Comprehensive Test of Basic Skills administered in April, 1973. These pupils were third graders in the 1972-73 school year and were identified for the services of the reading consultant in their schools. The sample included 55 experimental and 43 controls. The t-ratio based upon scores from the Gates MacGinitie Primary B testing reflected a statistically significant difference between the reading performances of experimental and control pupils at the end of the second grade (1971-72). Results from the Comprehensive Test of Basic Skills, Level 1, administered at third grade level, April, 1973 for this sample group showed control pupils achieving an advantage over experimentals without achieving significance of difference on this instrument. Experimental groups placed in stanine four while control groups placed in the fifth stanine which may be interpreted as average performance. Score data included:

Test	Grade		Avg. Raw Score Mean	Avg. Grade Equiv.	Stanine	t-ratio	Decision*
Gates MacGinitie Reading Test, Primary B	2	E	19.98	2.7	5	2.2867	s.
		C	16.76	2.4	4		
Comprehensive Test of Basic Skills	3	E	22.16	3.0	4	1.4032	n.s.
		C	24.56	3.2	5		
N = 98	α p. $\leq$ .05 = 2.000						df = 96

*s = significant n.s. = not significant E=Experimental C=Control

Examination of the findings reveal average test scores for experimental pupils in this sample were in stanine five on the second grade Primary B, Gates MacGinitie and stanine five after administration of the third grade Comprehensive Test of Basic Skills. Control pupils of this sample who placed in stanine four increased their standings on the Comprehensive Test of Basic Skills to stanine five.

The third longitudinal study was concerned with the diagnosed reading strengths and weaknesses of 1970-71 third grade pupils who were in the fifth grades of their home schools in 1972-1973. The sample included 67 experimental pupils and 18 controls. In June, 1971, scores from the Gates MacGinitie pupils in this sample showed a .6 grade equivalent advantage for experimental pupils over their controls in vocabulary and a .5 grade equivalent advantage in comprehension. Results from the Stanford Diagnostic Test, Level II, administered in September,

1972, to fifth grade pupils reflected no significant differences between the groups in vocabulary or comprehension. It was noted that the experimental pupils demonstrated a performance advantage in vocabulary, on sound discrimination and reading rate on this test.

Results are recorded for observation.

STANFORD DIAGNOSTIC AVERAGE RAW SCORES

Level II
Grade 5 1972

Subtests	Exp.	Stanine	Con.	Stanine	t-ratio	Decision
Comprehension	15.94	2	14.94	2	.5819	n.s.
Vocabulary	17.85	3	16.44	3	1.0391	n.s.
Syllabication	11.60	3	10.77	3	.7794	n.s.
Sound Discrimination	14.93	3	12.44	3	1.6087	n.s.
Blending	8.45	3	10.44	3	1.2588	n.s.
Reading Rate	15.48	4	11.28	3	1.6978	n.s.

N = 85 p. $\leq$. = 2.000 df = 83

s = significant n.s. = not significant E=Experimental C=Control

Examination of the differences between means reflects the advantage held by experimental groups over controls in vocabulary, sound discrimination and reading rate. Controls held the advantage in blending. Overall population means reflect the similarity of group characteristics apparent at the time of their selection for program participation in the 1970-1971 school year.

Correct interpretation of significant difference which appeared in reading rate requires comparison of the reading rate stanine with stanine placements in other sub-tests. A group median stanine difference of one-half stanine between rate and any sub-test result is generally considered significant.[3]

Examination of the charts shows a significant difference between reading rate and comprehension for experimental pupils in the fifth grade sample and minor differences in sub-tests of syllabication, sound discrimination and blending. Major significant differences were illustrated for control pupils between reading rate and all sub-tests according to the formula outlined in the rate interpretation section of the Stanford Achievement manual. It may be interpreted that:

- the trend of regressive direction of reading deficiencies was evident at third and fifth grade levels for experimental and control pupils who were identified as in need of remediation procedures in the earlier grades
- reading needs of identified control pupils who did not receive the assistance from the project were more severe

[3]Stanford Diagnostic Reading Test, Level II. Manual for Administering and Interpreting. Harcourt Brace & World, Inc. 1966, pg. 19.

A more in-depth assessment of progress made during the 1972-1973 service period could be found through charting average grade equivalent scores from pre and post program tests administered to pupils in this sample. Table XIII-C presents data pertinent to these findings.

The gain in grade equivalent units from pre to post-test period was determined to average 1.3 in vocabulary and 1.0 in comprehension for second grade experimental pupils. Third graders of the experimental group achieved 1.2 in vocabulary and .9 in comprehension. Control pupils netted gains of 1.0 in vocabulary and .8 in comprehension (second grade level). Third grade controls demonstrated gains of .7 in vocabulary and .5 in comprehension. Tables XIII-A and XIII-B present the comparison of gains.

V. CONCLUSIONS AND RECOMMENDATIONS

A. Discussion of Results

Evaluation of this project involved a randomly selected sample of 678 pupils (355 experimental and 323 controls). The nature of program design necessitated identification of a total population of primary pupils with reading needs. Random selection of pupils for consultant groups within each primary grade permitted each pupil an equal opportunity to be chosen for service. Pupils not so selected were placed on a waiting list and entered the program as replacements for transferees who withdrew from the school system.

Analysis of the data yielded these findings:

1. Statistically significant differences were observed among the rankings of pupils in terms of progress in reading skills between experimental and control pupils. The advantage was in favor of experimental groups. Teacher ratings of items from the scale which were pertinent to observed reading behaviors were in favor of control pupils.

Experimental pupils ranked above control pupils to the degree in which they had upgraded their reading skills resulting in the ranking of the majority of these pupils in the "middle fifth" of their classes. Control pupils reflected more confidence and independence in classroom reading. This group was rated as exhibiting a more positive attitude toward reading.

2. Grade one pupils performed significantly better than third graders in vocabulary and comprehension. They made better use of classroom materials and received higher teacher marks.

The influence of maturation combined with a history of unsuccessful progress through the grades due to low levels of reading performance could contribute to consideration of these findings as "expected". It must be noted that a proliferation of services available within first grade classrooms has provided additional support for the reading efforts of first graders.

The higher performances of third grade boys which were observed in word analysis, oral reading, use of comprehension skills and acceptance of reading task responsibility, reflected an emerging direction not seen in prior evaluations.

3. Comparison of grade equivalent scores in comprehension with individual pupil reading expectancies revealed 73 per cent of second grade pupils and 54 per cent of third grade pupils had placed within a half-year of their reading expectancies after treatment.

Examination of the percentages of pupils who had achieved the "tolerable difference" level (within .5 grade equivalent score units) prior to treatment was 60 per cent at second grade level and 16.3 per cent at third grade level. It must be considered that among those who achieved appropriate improvement may not have been the same children who had achieved this level prior to treatment. The finding does

suggest that closer scrutiny must be exercised by those who refer pupils to the program. The major reason for referral proved to be teacher and principal judgment of classroom performance. It becomes imperative that the screening process at time of referral should be refined to make certain that reading need is documented prior to referral to the program.

4. Teachers ranked the majority of experimental pupils within the middle fifth of their classes in word analysis, sight words, oral reading, comprehension skills and participation.

   The range was 42.8, 44.8, 41.7, 38.0 and 30.1 on these sequences respectively.

5. Parents reported seeing their children reading more books at home.

Interests shown by pupils apparently have generated an interest in reading on the part of parents. At least 60 per cent of parents stated that they had observed their child in reading activities at school.

The results of the longitudinal study of prior program participants in grades four, five and six during the 1972-73 school year were analyzed to determine the reading status of those pupils remaining in their home schools. It was determined that the experimental pupils (prior program participants) now in the sixth grade, held a superior advantage over control pupils in comprehension as demonstrated by achieved scores from the Comprehensive Tests of Basic Skills.

An example of early regression effect may be examined in the portion of the study which concerned itself with a sample of 1971-72 second grade participants and their standings in the 1972-73 Comprehensive Tests of Basic Skills. The need for continued support in reading for identified pupils was evident.

B. Recommendations

Recommendations based upon evaluation data findings, parent opinions, and teacher interviews are presented. The recommendations suggest:

- continuation of the Reading Improvement Project
- review of criteria for selection of referrals to the program within schools
- extension of the program concept into the fourth grade
- continued emphasis on reading comprehension
- increased communication between the project and teachers of pupils being served
- continued efforts to involve parents in support of their children's efforts at improving reading
- implementation of program geared toward the reading needs of fourth grade pupils utilizing the experiental learnings and skills derived from the Reading Improvement Program for primary pupils.

A key finding in this year's evaluation suggests a critical need for individual and grade level conferences between consultants and teachers in the home schools to clarify questions regarding reading behaviors of specific pupils prior to referral for the next year's program.

APPENDIX

APPENDIX I

READING IMPROVEMENT PROGRAM

Initial Enrollment By Referral
September, 1972

	School	Grades			Total
		1	2	3	
1.	Bolton	14	37	16	67
2.	Captain Roth	0	32	44	76
3.	Chesterfield	25	41	20	86
4.	Columbia	27	21	27	75
5.	D. E. Morgan	36	33	40	109
6.	Dunham	44	30	12	86
7.	East Madison	28	41	9	78
8.	Giddings	14	33	26	73
9.	Gordon	14	30	28	72
10.	Hazeldell	20	30	29	79
11.	Hough	23	29	32	84
12.	John Burroughs	14	15	13	42
13.	John D. Rockefeller	28	15	28	71
14.	John W. Raper	42	15	28	85
15.	Joseph Landis	13	25	26	64
16.	Mt. Auburn	14	15	46	75
17.	Oliver Wendell Holmes	0	36	44	80
18.	Longwood	16	30	31	77
19.	Louis Pasteur	13	31	29	73
20.	Margaret Ireland	21	21	43	85

Reading Improvement Program
September, 1972

	School	Grades 1	2	3	Total
21.	Mary B. Martin	4	34	22	60
22.	Miles Standish	0	37	34	71
23.	Rosedale	14	16	46	76
24.	Parkwood	15	22	38	75
25.	Sowinski	15	23	45	83
26.	Quincy	21	15	16	52
27.	Stanard	16	16	15	47
28.	Tremont	31	25	18	74
29.	Wade Park	16	41	23	80
30.	Washington Irving	27	29	13	69
31.	Woodland Hills	0	16	55	71
	Non - Public				
32.	Mt. Carmel	8	8	7	23
33.	St. Margaret	0	6	6	12
34.	St. Vitus	15	16	13	44
35.	Urban Community	14	0	0	14
36.	Our Lady of Peace	0	9	6	15
37.	St. Joseph	0	9	6	15
38.	St. Catherine	0	11	9	20
39.	St. Coleman	11	8	0	19
40.	St. Hyacinth	0	8	6	14
41.	Our Lady of Lourdes	0	5	4	9
		613	914	953	2,480

APPENDIX II

Pupils at Various Performance Levels Compared with Reading Expectancies*

Grade 2

Comprehension

School		-2.1 & Below	-2.0-1.6	-1.5-1.1	-1.0 - .6	-.5 -.1 ±0	+.1 - .5	+.6 - 1.0	+1.1 -1.5	+1.6-2.0	Per Cent at Criterion Level Pre/Post	
1	PRE			1	2	2	2				57%	71%
	POST			1	1	1	2		2			
2	PRE			1	1	2 1					60%	60%
	POST		1		1	1 1	1					
3	PRE				1	3		1			80%	80%
	POST				1	1 1	1	1				
4	PRE					2 1					100%	662/3%
	POST				1		1	1				
5	PRE			1		4					80%	100%
	POST											
6	PRE					5					100%	80%
	POST			1		1			1	2		
7	PRE				1	1					50%	100%
	POST						1	1				
8	PRE					1 1					100%	50%
	POST				1					1		
9	PRE			1		2					66 2/3%	66 2/3%
	POST											
10	PRE			1	1	1					33 1/3%	100%
	POST					1	1					
11	PRE					2					100%	100%
	POST						1	1				
12	PRE				1	1					100%	100%
	POST				1		1					
13	PRE				1	1	1				66 2/3%	33 1/3%
	POST											

*Relates to pupils in Grade 2 Sample

APPENDIX II (Cont'd)

Pupils at Various Performance Levels Compared With Reading Expectancies*

Grade

School		-2.1 & Below	-2.0-1.6	-1.5-1.1	-1.0 -.6	-.5 -.1 ±0	+.1 - .5	+.6 - 1.0	+1.1 -1.5	+1.6-2.0	Per Cent at Criterion Level Pre/Post	
14	PRE				1	2	1				75%	75%
	POST				1		1		1	1		
15	PRE				1	3					75%	100%
	POST					3	1					
16	PRE			1	1	3					60%	60%
	POST			1	1	1	1			1		
17	PRE					6	1				100%	86%
	POST				1	4	1	1				
18	PRE	1	1	1	4						57%	43%
	POST		4	1			1		1			
19	PRE	1	1			1					33 1/3%	100%
	POST						2		1			
20	PRE				4	1					20%	80%
	POST				1	4						
21	PRE				1		1	1			66 2/3%	100%
	POST					1	1	1				
22	PRE				1	1					50%	50%
	POST				1			1				
23	PRE			1		1					50%	50%
	POST				1	1						
24	PRE				3						0% 33 1/3%	
	POST				2	1						
25	PRE				2						0%	50%
	POST					1		1				
26	PRE				2	1	1				50%	50%
	POST					1	1					

*Relates to pupils in Grade 2 Sample

APPENDIX II (Cont'd)

Pupils at Various Performance Levels Compared With Reading Expectancies*

Grade 2

Comprehension

School		-2.1 & Below	-2.0-1.6	-1.5-1.1	-1.0 -.6	-.5 -.1	±0	+.1 - .5	+.6 - 1.0	+1.1 -1.5	+1.6-2.0	Per Cent at Criterion Level Pre/Post	
27	PRE				1	4						80%	60%
	POST				2	2		1					
28	PRE				3			1				25%	75%
	POST				1	2					1		
29	PRE					1						50%	0%
	POST			1									
30	PRE				1	1						50%	100%
	POST					1	1						
31	PRE							2				100%	100%
	POST									2			
32	PRE					2						100%	100%
	POST					1			1				
33	PRE				2							0%	50%
	POST				1	1							
34	PRE				2	2						50%	100%
	POST					2		1	1				
35	PRE					1						100%	100%
	POST								1				
36	PRE			1	1							0%	100%
	POST				1	1							
37	PRE				2	1						33 1/3%	33 1/3%
	POST				2	1							
	PRE												
	POST												
	PRE												
	POST												

*Relates to pupils in Grade 2 Sample

Total Average 60.0% 73.1%

APPENDIX III

Pupils at Various Performance Levels Compared with Reading Expectancies*

Grade 3

Comprehension

School		-2.1 & Below	-2.0-1.6	-1.5-1.1	-1.0 - .6	-.5 -.1	±0	+.1 - .5	+.6 - 1.0	+1.1 -1.5	+1.6-2.0	Per Cent at Criterion Level Pre/Post	
1	PRE	2					1					33⅓%	33⅓%
	POST	1		1					1				
2	PRE			2	2	1						0%	20%
	POST			2	1	1	1						
3	PRE		1					1				50%	50%
	POST	1											
4	PRE	1	1	2	1							20%	60%
	POST	1	1	1	1				1		1		
5	PRE				4							0%	0%
	POST	1	2	1									
6	PRE		1									0%	100%
	POST									1			
7	PRE			1	1							0%	50%
	POST			1		1							
8	PRE			2		3						0%	60%
	POST			1	1	2			1				
9	PRE	1		1		2						50%	0%
	POST	1	1	1	1								
10	PRE	1	1	2		1						0%	0%
	POST	2	3										
11	PRE	1	2	1								0%	60%
	POST		1	1	1	1		1					
12	PRE		1		2							0%	0%
	POST			1	2								
13	PRE		1	4								0%	20%
	POST		2	1	1	1							

*Relates to pupils in Grade 3 Sample

APPENDIX III (Cont'd)

Pupils at Various Performance Levels Compared With Reading Expectancies*

Grade 3

Comprehension

School		-2.1 & Below	-2.0-1.6	-1.5-1.1	-1.0 -.6	-.5 -.1	±0	+.1 - .5	+.6 - 1.0	+1.1 -1.5	+1.6-2.0	Per Cent at Criterion Level Pre/Post	
14	PRE			3	1							0%	75%
	POST			2		2		1					
15	PRE			1	2							0%	0%
	POST	1			2								
16	PRE	1		1			1					33 1/3%	662/3%
	POST		1						1	1			
17	PRE		2	1	1							0%	100%
	POST					1	1	1		1			
18	PRE		3		1							0%	25%
	POST		3								1		
19	PRE		1	1		1		1				50%	25%
	POST		1	2				1					
20	PRE			2	1		1	1				40%	40%
	POST		1	1	1	1		1					
21	PRE		3		2	2						28%	28%
	POST	1	1	3	1			1					
22	PRE	1	2	1		1		1				40%	40%
	POST	1	2	1						1	1		
23	PRE		2		1	2						14%	14%
	POST		1	2					1	1			
24	PRE		1	4	1			1				25%	50%
	POST		2	3	1	1							
25	PRE		2	1	1							0%	0%
	POST	1	1		2								
26	PRE		1	1								0%	0%
	POST			1	1								

*Relates to pupils in Grade 3 Sample

APPENDIX III (Cont'd)

Pupils at Various Performance Levels Compared With Reading Expectancies*

Grade 3

Comprehension

School		-2.1 & Below	-2.0-1.6	-1.5-1.1	-1.0 -.6	-.5 -.1	±0	+.1 - .5	+.6 - 1.0	+1.1 -1.5	+1.6-2.0	Per Cent at Criterion Level Pre/Post	
27	PRE	1	1									0%	0%
	POST		1	1									
28	PRE		2									0%	50%
	POST		1		1								
29	PRE		1	3									
	POST	1	2	1									
30	PRE	1	2	4	2	1		1				20%	10%
	POST	3	2	4	1					1			
31	PRE			1								0%	0%
	POST				1								
32	PRE			1	1							0%	50%
	POST				1	1							
33	PRE							1		1		100%	100%
	POST									1	1		
34	PRE			1								0%	0%
	POST				1								
35	PRE		1									0%	0%
	POST				1								
36	PRE					1			1	1		100%	331/3%
	POST				2					1			
37	PRE				1							0%	100%
	POST							1					
	PRE												
	POST												
	PRE												
	POST												
										Total Average		16.3%	34.1%

*Relates to pupils in Grade 3 Sample

School _____

Check One:

Experimental ☐

Control ☐

Project Reach ☐

Reading Improvement ☐

Talking Typewriter ☐

Pupil Rating Sheet
Reading Instruction Program - 1973

_____ has been receiving services of the Reading Instruction Program. We are interested in securing from you, his classroom teacher, ratings and pertinent information about his reading performance. Please complete, check and return the completed form in the enclosed envelope sealed to the consultant in your building. All sealed envelopes are to be returned to the Division of Research and Development, attention Juanita Logan, Room 603, no later than June 10, 1974.

1. Indicate latest scholastic aptitude test result.

*MR_____ PLR_____ IQ_____

Test_____

2. Child's birthdate _____ Age _____
Month Day Year 6/74

3. Present grade level _____ In September _____.

4. Child's annual attendance (add both semesters)._____

5. Reading mark assigned_____.

*Metropolitan Reading Readiness Test - Letter Rating

6. Use child's reading card:

   How many reading steps did the child complete in 1971-72?____

   How many steps did the child complete in 1972-73?____

7. In your opinion can this child handle the usual reading material for his grade level? (Disregard numbers. Check the box only.)

   ☐ Always 5 ☐ Most of the time 4 ☐ Sometimes 3

   ☐ Rarely 2 ☐ Not at all 1

8. In general, have you noted any degree of improvement in:

	Not At All	Some	Very Much	Doesn't Apply
a. Pupil participation in group work				
b. Completion of reading assignments				
c. Pupil confidence in his ability to read				
d. Pupil independence in reading study skills				
e. Pupil's general attitude toward school				

9. From your knowledge of this pupil's work in your classroom, how would you rank this chold's reading performance as described below in relation to the other children in your class. (Visualize your class as being divided into fifths.)

Number of pupils in class [ ]

(Please Check)	Rank in Class				
	Lowest 1/5	Second Lowest 1/5	Middle 1/5	Second Highest 1/5	Top 1/5
a. recognizing consonant sounds					
b. recognizing vowel sounds					
c. identifying sight words for grade level					
d. pronouncing words at grade level					
e. reading orally without undue frustration					
f. finding main ideas					
g. following sequence					
h. getting meaning of words from context					
i. recognizing directly stated details					
j. drawing conclusions from facts or statements					
k. participating in reading group					
l. completing written assignments					

APPENDIX V
CLEVELAND PUBLIC SCHOOLS
Reading Improvement Program

Dear Parent:

We are contacting parents who have youngsters who have been participating in the Reading Improvement Program here at _____School.

Would you please help us by telling us what you think about this program?

1. Do you have a son or daughter in this program?___Son ___Daughter
2. In what grade is your youngster?
3. Has the program helped your child?

   ___Not at All ___Very Little ___Some ___Very Much
4. What does your child say about the program?

5. Have you noticed that your child reads more books at home?___Yes ___No
6. Have you noticed that your child takes more books from the library?

   ___Yes ___No
7. How did you find out your child was in this program?

   ___Letter ___Child Said ___Teacher Called ___Other
8. What's the best thing about the program?
9. Has the program helped you to help your child in reading? ___Yes ___No

   If yes, how?
10. Do you feel the program should be continued? ____ ____ ____
11. What changes should be made in the program?

12. Have you visited the school? ____ ____

Please return this form in the sealed envelop to your child's teacher who will return it to Mrs. Juanita Logan, Room 610, Division of Research and Development.

Thank you,

Pauline S. Davis
Educational Program Manager
Reading Instruction Program

APPENDIX VI

SUMMARY OF COMPARISONS

Experimental -- Control

Variable	Least Squares Estimates	F-ratio	Probability Level
Word Analysis	.17927	.5283	.4676
Sight Words	.27388	.7943	.3732
Oral Reading	.62354	9.4114	.0023
Comprehension Skills	.31861	.0064	.9365
Task Responsibility	.53263	.8024	.3707
Classroom Materials	.54382	2.9414	.0869
Teacher Mark	.26809	3.5014	.8920
Participation	.28853	.0185	.3907
Assignments Completed	.48910	.7380	.0213
Confidence in Reading	.07884	5.3335	.3541
Independence	.15210	.8602	.3635
Attitude	.43011	.8269	.8860

F-ratio for Multivariate Test of Analysis of Covariance = 1.9070
D.F. = 18 and 644 p less than .0132

APPENDIX VI (Cont'd)

SUMMARY OF COMPARISONS

Boys -- Girls

Variable	Least Squares Estimates	F-ratio	Probability Level
Word Analysis	.26767	11.3425	.0009
Sight Words	.26892	1.4088	.2357
Oral Reading	.28241	.0717	.7889
Comprehension Skills	.20573	.6598	.4170
Task Responsibility	.36324	4.6974	.0306
Classroom Materials	-.25639	1.8479	.1745
Teacher Mark	-.13676	.0347	.8523
Participation	-.18752	.1637	.6860
Assignment Completion	-.34166	1.6519	.1992
Confidence in Reading	-.18795	.9023	.3426
Indpenedence	-.26544	.6988	.4035
Attitude	1.18729	1.9565	.1624

F-ratio for Multivariate Test of Analysis of Covariance = 4.4595
D.F. = 18 and 644 p less than .0001

APPENDIX VI (Cont'd)

SUMMARY OF COMPARISONS

Grade 1 - Grade 3
Grade 2 - Grade 3

Variable	Least Squares Estimates		F-ratios		Probability Level	
	Gr. 1-3	Gr. 2-3	Gr. 1-3	Gr. 2-3	Gr. 1-3	Gr. 2-3
Word Analysis	-1.26751	-.40058	7.4408	3.2870	.0066	.0703
Sight Words	-1.46859	-.47260	5.7703	.7281	.0166	.3939
Oral Reading	-1.46112	-.37257	2.7186	.3512	.0997	.5537
Comprehension Skills	-1.38794	-.47718	2.6752	3.9464	.1025	.0474
Task Responsibility	-1.33608	-.49823	.4475	2.1399	.5038	.1446
Classroom Materials	1.88159	.47284	.0376	5.1269	.8464	.0239
Teacher Mark	.90320	.29759	.2735	.4625	.6012	.4968
Participation	1.07618	.45439	.4417	1.6532	.5066	.1990
Assignments Completed	1.17525	.56941	.3506	2.9607	.5540	.0858
Confidence in Reading	1.04827	.33152	.3171	7.4520	.5736	.0066
Independence	1.07391	.40520	.0558	.5945	.8135	.4410
Attitude	1.18729	.56202	2.7638	5.9584	.0969	.0150

F-ratio for Multivariate Test of Analysis of Covariance = 118.7995
D.F. = 18 and 644 p less than .0001

APPENDIX VII

MEAN SCHOLASTIC APTITUDE
Levels of Significance
Grades 1, 2 And 3
Experimental Vs. Control
1972-1973 Sample

Grade	Group Sex	N	Mean	Degrees Of Freedom	t	Decision
1	E B	59	84.32			
	C	40	78.75	97	2.4280	s.
	E G	29	77.55			
	C	21	73.47	48	1.3486	n.s.
2	E B	67	82.26			
	C	75	80.40	140	1.1588	n.s.
	E G	61	80.06			
	C	52	79.19	111	.3932	n.s.
3	E B	78	89.67			
	C	88	90.28	164	.3631	n.s.
	E G	61	87.09			
	C	67	89.29	106	1.0803	n.s.

p. ≠ .05, d.f. 97 = 2.000; d.f. 48 = 2.021; d.f. 140 = 1.980
d.f. 111 = 2.000; d.f. 164 = 1.980; d.f. 106 = 2.000

E - Experimental C - Control s - Significant n.s.-not significant

APPENDIX VIII

PARTIAL MATRIX OF CORRELATIONS
WITH COVARIATES ELIMINATED

Variable	Classroom Material	Teacher Mark
Classroom Materials	1.000000	
Teacher Mark	.459613	1.000000
Participation	.510287	.297564
Assignment Completion	.540464	.352831
Confidence in Reading	.610753	.378243
Independence	.613045	.392358
Attitude	.433207	.269016