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ABSTRACT

Selected results from a study of compensatory reading programs sponsored by Title I and by other sources are presented and discussed. Various phases of the study included a questionnaire survey of a nationally representative sample of elementary schools, pre- and posttesting of students in grades two, four, and six of a subsample of the original group plus additional schools with unusual reading programs, an examination of summer programs in a subsample from the second phase, and visits by teams of observers to a selected group of schools that displayed a range of effectiveness. This summary is organized around a series of questions and draws on the results of each phase, as appropriate. General characteristics of compensatory programs are described, attributes and performance of compensatory and noncompensatory students are compared, reading-test gains are analyzed, unusually effective programs and summer programs are described, and results are compared with those from other studies. (AA)

# A STUDY OF COMPENSATORY READING PROGRAMS

## TECHNICAL SUMMARY

ELEMENTARY AND SECONDARY PROGRAMS DIVISION

OFFICE OF PLANNING, BUDGETING AND EVALUATION

U.S. OFFICE OF EDUCATION

WASHINGTON, D.C. 20202

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## Appendices

Contained in this summary* are selected results from a large scale study of compensatory reading programs funded primarily by Title I of the Elementary and Secondary Education Act. The study was initiated by the Office of Planning, Budgeting and Evaluation (OPBE) of the U.S. Office of Education and was conducted by the Educational Testing Service and RMC Research Corporation.

The study had three major objectives:

- To obtain a detailed description of compensatory reading practices throughout the nation in grades 2, 4 and 6;
- To determine the possible relationships of such practices with student reading skill acquisition and their relative costs;
- To obtain a detailed description of those practices that were found to be associated with unusual effectiveness.

To accomplish these objectives the study was designed to be carried out in phases. The first phase involved a questionnaire survey of a nationally representative sample of U.S. public elementary schools to obtain information on their regular and compensatory reading practices. The second phase involved pre and post-testing of all students in grades 2, 4 and 6 of a

* Prepared by the U.S. Office of Education.

subsample of the original group of schools plus an additional set of schools with noteworthy (unusual) reading programs.* A third phase of the study examined summer programs in a subsample of schools from the second phase. A fourth phase of the study entailed a series of visits by teams of observers to a selected group of schools that displayed a range of effectiveness to verify ongoing practices, suggest reasons for program effectiveness and obtain detailed information on those found to be unusually effective. The following summary is organized around a series of questions and answers drawing on the results from each phase as appropriate.

One of the first issues to be addressed in the study was that of delineating what was meant by "compensatory" reading instruction. A very basic definition was adopted: "any reading instruction provided to students because they are reading below their grade level." When combined with other information about the schools and their students, the definition could be narrowed in a number of alternative ways for analysis purposes.

The purpose of the first phase of the study was to obtain a nationally representative description of compensatory reading practices in the elementary grades and to select schools for more intensive study during the subsequent academic year. Using the above definition of compensatory reading a nationally representative sample of 731 elementary schools were selected on the basis of their socio-economic characteristics (community income, percent minority and Title I eligibility), number of students, and geographic locales (regional and rural-urban location). The principals and the teachers in grades 2, 4 and 6 of these schools were asked to provide detailed information on their reading practices, training and experience, school characteristics and programs.

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* The second phase was carried out during the 1972-73 school year.

From the 543 schools responding to the survey* the following results were obtained:

- 90% had some kind of compensatory reading instruction and 70% received Title I funds;
- The dominant instructional approach was linguistic-phonetic used by: 66, 54 and 33 percent of second, fourth and sixth grade teachers, respectively;
  - Only 5% of teachers did not use basal readers;
- 20% of teachers reported that they had free choice of instructional materials;
- 25% reported that they had no choice at all.
- However, almost all supplemented with materials they devised themselves;
- Compensatory reading was most often conducted during regular reading instruction times;
  - Next most frequent was before or after school hours or during the summer;
- Compensatory reading practices changed more during the school year than did non-compensatory practices;
- The different approaches to compensatory reading could be reduced to five basic descriptors along which they (viz. the approaches) differed to different degrees. They were:

* Twenty-one schools were no longer in existence and there was a slightly greater incidence of large city schools not responding. Seventy-six percent of the schools that could respond actually did so. See Rubin, et al., 1973 and Trismen, et al., 1975b for details on the results from the first phase.

- Emphasis on basic reading activities
- Emphasis on use of audio-visual materials
- Emphasis on supplementary reading activities
- Emphasis on instructional flexibility
- Emphasis on instruction during time released from other school subjects.

. By grouping the programs by their similarity on these five descriptors 11 distinctly different types of approaches could be readily identified.

. There were greater differences among schools in these approaches than there were differences among teachers within a school, suggesting that the school (and its teachers) is the basic unit for understanding differences among compensatory programs.

On the basis of the returns to this survey, the following types of schools were studied intensively during the subsequent academic year (called the second phase of the study):

126 schools with compensatory reading programs funded by Title I

80 schools with compensatory reading programs not funded by Title I (called non-Title I schools).

26 schools with no compensatory reading programs (called non-compensatory schools).

34 schools with noteworthy (unusual) compensatory reading programs (representing a variety of funding sources but selected purposively; 26 of these schools were Title I funded).

266 Total*

* A slightly greater proportion of non-Title I schools that were requested to participate in Phase II actually did so (some 83%) compared with schools with Title I programs or without any compensatory reading program (some 73% each) (see Trismen, et al., 1975a, p. 37).

All students in grades 2, 4 and 6 of these schools were administered a set of standardized reading skill measures in the early Fall and again in the late Spring of the regular school year.* (Two versions of such tests were given in order to encompass a range of skill development.) Included also was a specially developed instrument assessing a student's liking for reading and positive feelings about himself as a reader. During the school year information was collected on: each student's daily attendance in reading instruction; details on each teacher's instructional practices in reading as well as the nature and extent of their training and experience; individual student biographical information such as their prior exposure to compensatory instruction, ethnic background, participation in the free lunch program, etc.; the resources utilized by the different instructional approaches and the standard costs of such resources. In addition the principal provided detailed information on the schools' policies and practices.

The amount of resultant information encompasses some fifty-five thousand students, almost three thousand of their teachers and the principals of the 266 schools located in almost that many school districts. Analyses of such a voluminous amount of information can yield lengthy and complex results. For these the reader is referred to the technical reports listed in the last pages of this summary. Selected results will be organized, in what follows, around a basic set of questions pertaining to who gets compensatory services and how they might benefit from such assistance.

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* The tests were administered by personnel especially hired and trained for these purposes. Test scores collected especially for this study were not available in the early Fall to use as a basis for assigning students to compensatory or non-compensatory groups.

The first question asks:

1. In schools that offer compensatory assistance in reading, what proportion of the students at grades 2, 4 and 6 receive such assistance and how do these proportions vary by source of funds?

About 45, 40 and 37 percent of the students at grades 2, 4 and 6 respectively, in such schools receive some form of special assistance in reading to compensate for their below grade level performance.* Comparable percentages by source of funds are:

| | % Receiving Compensatory Assistance In Reading | | | |
|---|---|---|---|---|
| Funding Source** GRADE LEVEL: | 2 | 4 | 6 | Average |
| Schools receiving Title I funds | 48 | 44 | 44 | 45 |
| Schools receiving funds other than from Title I (Non-Title I) | 41 | 33 | 30 | 35 |

.. These results show that large proportions of students in these schools receive some form of compensatory assistance in reading with the proportion served being greatest at the lower grades and greatest in schools that receive Title I funds.

The second question asks:

2. How do students who receive compensatory assistance in reading differ from other students with regard to: their fall test performance; their liking for reading; their attributes and experiences; and, how do such results differ by the source of funds?

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* See Table 16B of Trismen, et al., 1975a.

** These percentages are taken from Revised Tables 17A-C of Trismen, et. al., 1976c.

(a) Student's fall test performance compared to national test norms

The percentile rank for the typical student who received compensatory assistance in reading was 22 for each of grades 2, 4 and 6*. The percentile rank of the typical student who did not receive such assistance was 46, 48 and 53 for grades 2, 4 and 6, respectively. Hence, their unassisted peers were near the national average in their level of reading skill development.

There were some noteworthy differences among schools with funds from different sources as can be seen from the following:

* Obtained by converting the average MAT Total values for grades 2 and 4 and STEP II total values for grade 6 in Table 23A (Trismen, et al., 1975a) to their percentile equivalents using the individual norms tables. Averages will tend to be closer to the national mean on individual norms than they would on a distribution of group averages.

Fall Percentile Ranks for Students Who Do and Do Not Receive Compensatory Assistance in Reading*

| | Compensatory Students | | | Non-Compensatory Students | | |
|---|---|---|---|---|---|---|
| GRADE LEVEL: | 2 | 4 | 6 | 2 | 4 | 6 |
| Funding Source | | | | | | |
| Schools that receive Title I funds | 20 | 20 | 22 | 42 | 46 | 50 |
| Schools receiving funds from sources other than Title I (Non-Title I) | 24 | 24 | 24 | 48 | 54 | 56 |
| Non-Compensatory Schools | - | - | - | 42 | 40 | 50 |

These figures show that compensatory students are about the same distance behind the national norm (viz. the 50th percentile) at the different grade levels whereas the relative position of unassisted students (viz. non-compensatory students) varies in a progressively increasing manner with the grade level (the only exception being non-compensatory schools at the fourth grade). Students in non-Title I schools rank uniformly higher than do students in Title I schools. The fact that these differences (viz. the difference between the compensatory and non-compensatory students' ranks) are smaller for students in Title I schools than for students in non-Title I schools is a manifestation of the greater concentration of low scoring students in Title I schools.

* Obtained by converting the average raw scores in Revised Table 23A to their percentile equivalents using the individual norms tables (Trismen, et al., 1976c). The MAT TOTAL was used for grades 2 and 4 and the STEP II Reading for grade 6.

- Comparative analyses of schools with high and low concentrations of poverty level students showed that about 25% more of the students in high poverty schools would have qualified for compensatory services had they attended low poverty schools. This tended to be so for schools within each source of funds at each grade level.*

(b) Their liking for reading and positive feelings about themselves as readers in the fall

At the second grade, students who received compensatory assistance had slightly less favorable feelings about themselves as readers and their liking for reading than did students who did not receive such assistance. At the fourth and sixth grades compensatory students had slightly more favorable attitudes than did non-compensatory students. (These slightly more favorable attitudes could not be attributed to the compensatory assistance they received in prior years**).

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* See Table 24 of Trismen, et al., 1975a. These results are based upon an early classification of schools before those with an "unknown" funding source were clarified and reclassified. For these latter see Trismen, et al., 1976c.

** See: Table 22 and Table 29 of Trismen, et al., 1975a.

. Students in Title I and in non-Title I schools were about equal in the positiveness of their feelings [viz. there were no appreciable differences (three percent or more of the variance accounted for) for students in Title I versus non-Title I schools].

(c) Student's attributes and experiences*

. About 56% of the recipients were boys

. Compensatory assisted students were about 2 months older than non-compensatory students.

. On the average 62 percent of the participants were white.

.. By source of funds and grade level the results were:

| | % White of Compensatory Assisted Students | | | |
|---|---|---|---|---|
| GRADE LEVEL: | 2 | 4 | 6 | Average |
| Source of Funds | | | | |
| Schools that receive Title I funds | 61 | 59 | 59 | 60 |
| Schools that receive Non-Title I funds | 72 | 70 | 65 | 69 |

. There tended to be a greater incidence of non-whites in separate instructional groupings and this incidence was greater than would be expected solely on the basis of depressed reading scores. [(However, non-whites may have additional kinds of educational disadvantagement which warrant such separate groupings (e.g. limited English-speaking ability.)]

* The following statements will be qualified only when they do not hold for the different grade levels and funding sources. The figures cited were obtained from: sex, Table 14B; age, Table 20; ethnic background Tables 18A-C, 20A-F; compensatory assistance and free lunch, 16A-C and 17A-C; grade level status and compensatory assistance, Table 42; prior exposure, Table 31, of Trismen, et al., 1975a. Results for funding source comparisons can be found in the corresponding numbered revised tables of Trismen, et al., 1976c.

- Of those students who received compensatory assistance in reading over one-half also participated in the free lunch program (54, 60 and 56% for grades 2, 4 and 6 respectively).
  ..These results varied by source of funds as follows:

| | % OF COMPENSATORY READING STUDENTS WHO PARTICIPATE IN FREE LUNCH PROGRAM | | | |
|---|---|---|---|---|
| SOURCE OF FUNDS | 2 | 4 | 6 | Average |
| Title I funded schools | 60 | 66 | 63 | 64 |
| Non-Title I funded schools | 39 | 43 | 43 | 42 |

In summary these results show that among students who receive compensatory assistance in reading there are more: boys; older students; whites; and, free lunch participants. In schools that receive Title I funds greater proportions of non-whites and free lunch participants are provided assistance than is so in schools that do not receive Title I funds.

- Slightly less than half of the students at each grade level (46% for grades 2 and 6, 48% for grade 4) participated in the free lunch program.
  .. Of the free lunch participants, over one-half received compensatory assistance in reading.
  .. These results varied by source of funds and their grade level differences were:

| SOURCE OF FUNDS | % of FREE LUNCH PARTICIPANTS WHO RECEIVE COMPENSATORY ASSISTANCE IN READING | | | |
|---|---|---|---|---|
| | 2 | 4 | 6 | Average |
| Title I funded schools | 57 | 53 | 55 | 55 |
| Non-Title I funded schools | 43 | 39 | 32 | 38 |

The preceding results show that a large proportion (about one-half) of students from poverty backgrounds (viz. those who qualify for the free lunch program) receive compensatory assistance in reading and that this proportion tends to be greatest in schools that receive Title I funds.

- Of those students who were one or more years below grade level (one-half at grade six, two-fifths at grade four and none at grade two*) 57% received compensatory assistance in reading at grade 6 and 68% at grade 4.

  .. By funding source the results were:

| SOURCE OF FUNDS | GRADE: | A: % ONE OR MORE YEARS BELOW GRADE LEVEL | | | B: % OF A RECEIVING COMPENSATORY ASSISTANCE | | |
|---|---|---|---|---|---|---|---|
| | | 4 | 6 | Average | 4 | 6 | Average |
| Title I funded schools | | 45 | 56 | 51 | 68 | 61 | 64 |
| Non-Title I funded schools | | 29 | 44 | 37 | 68 | 51 | 60 |

* In the fall of the second grade a student cannot be more than one year below grade level. (However, he can be very far behind his peers and very much in need of assistance).

These results show that a large proportion (almost two-thirds)of the students who are one or more years below grade level in reading receive compensatory assistance. The concentration of students below this level is greatest in schools that receive Title I funds. The proportion of students below this level who receive such services is greater in Title I schools at the sixth grade.

- At grade six, 28% of the students were both one or more years below grade level and free lunch participants; about sixty-one percent of them received compensatory assistance in reading (comparable figures for the 4th grade are 24 and 70% respectively).

  .. By source of funds the figures are:

| | A | | | B | | |
|---|---|---|---|---|---|---|
| | % BOTH ONE OR MORE YEARS BELOW GRADE LEVEL AND FREE LUNCH PARTICIPANTS | | | % OF A RECEIVING COMPENSATORY ASSISTANCE | | |
| SOURCE OF FUNDS GRADES: | 4 | 6 | Average | 4 | 6 | Average |
| Title I funded schools | 31 | 34 | 33 | 70 | 68 | 69 |
| Non-Title I funded schools | 13 | 21 | 17 | 70 | 49 | 60 |

These results show that large proportions of students who are both from poverty backgrounds and are one or more years below grade level receive compensatory assistance in reading. The concentration of such students is much greater in Title I schools and there is a tendency for proportionately more of them to be served at the sixth grade.

In the fall, students who were receiving compensatory assistance in reading had varying degrees of exposure to compensatory assistance in prior years as follows:

| | % BY GRADE LEVEL | | |
|---|---|---|---|
| | 2 | 4 | 6 |
| .. No prior compensatory assistance | 44 | 31 | 32 |
| .. One year or less of compensatory assistance in prior years | 50 | 26 | 22 |
| .. More than one year of prior compensatory assistance | 6 | 43 | 46 |

These results varied by funding source and grade level as follows*:

| | % BY SOURCE OF FUNDS | |
|---|---|---|
| GRADE TWO | TITLE I | NON-TITLE I |
| No prior assistance | 43 | 46 |
| One year or less | 50 | 49 |
| More than one year | 7 | 5 |
| GRADE FOUR | TITLE I | NON-TITLE I |
| No prior assistance | 32 | 29 |
| One year or less | 28 | 22 |
| More than one year | 40 | 49 |
| GRADE SIX | TITLE I | NON-TITLE I |
| No prior assistance | 36 | 26 |
| One year or less | 22 | 22 |
| More than one year | 42 | 52 |

* See Revised Table 31 of Trismen, et al., 1976c.

These results show that as one ascends the grade levels, proportionately more of the students being served have had prior assistance and proportionately fewer have had little (one year or less) or no prior assistance. This trend is more pronounced in non-Title I than in Title I schools. This difference may be due to the greater concentration of low scoring students in Title I schools and the Title I requirement to serve the most needy students each year (i.e. as children progress through Title I schools there may be a tendency to replace compensatory reading students who have achieved limited success by others who are more needy).

Our third question asks:

3. How do the services that compensatory students receive differ from those received by other students with regard to: the amount of reading instruction; and, the cost and nature of those services received?*

(a) The student's exposure to reading instruction during the school year**.

- Overall, students who received compensatory assistance in reading received exposure to reading instruction on a greater number of days than did other students. However, these results differed by classroom grouping practices and grade level as follows:

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* As before, the following statements will not be qualified with regard to source of funds unless differences were found.

** See Tables 25A and B and 26A and B for exposure rates and Table 35 for student movement, of Trismen, et al., 1975a.

.. Students who received compensatory assistance in classrooms in which there were also students who were not receiving compensatory assistance were exposed to reading instruction on a greater number of days (21, 20 and 8 more days at grades 2, 4 and 6 respectively) than were other students in the classroom.

.. Students who received their compensatory instruction in classrooms with only other compensatory students were exposed to such instruction on a slightly fewer number of days than were non-compensatory students in other classrooms (1, 9 and 7 fewer days for grades 2, 4 and 6, respectively).

... However, the instruction received in this latter arrangement may be more intensive (viz. lower pupil-teacher ratio, greater use of equipment and materials, etc.) for compensatory students when it is offered.

... Sixth grade students in non-Title I schools received about 11 hours more instruction in reading than did students in Title I schools (this refers to both compensatory and non-compensatory students in such schools)*.

* See Revised Table 26A of Trismen, et al., 1976c.

- Once it is decided that a student is to receive compensatory assistance in reading, he continues to receive such assistance throughout the regular school year (viz. only one percent of all changes in status were from compensatory to non-compensatory during this time period)*.
- Once it is decided that a student is to receive (or is not to receive) compensatory assistance in reading, the amount of reading instruction he receives does not vary with his test score (viz. within each of the compensatory and non-compensatory categories there was virtually no relationship between a student's Fall reading test scores and his/her amount of instruction)**.

(b) The cost of services received***.

(i) Total Standard Per Student Costs for Reading Associated With Different Instructional Arrangements.

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* See Trismen, et al., 1976c.

** See pp. 115-118 of Trismen, et al., 1975a.

*** These cost figures are not the usual kind of per-pupil expenditure and consequently do not reflect all of the differences normally found in such ratios. They were derived by obtaining detailed information on the resources utilized in both regular and compensatory instruction and then applying standard cost figures to these (e.g. a manufacturer's cost figure would be used for a teaching machine and a standard salary rate for a teacher of a given level of training and experience). For details see Dienemann, et al., 1974 and Tables 16-18 of Flynn, et al., 1976. For the appropriate analyses see Trismen, et al., 1976c unless indicated otherwise.

| Compensatory Students Who Received Their Reading Instruction: | Average Number of Students Per Class | Percent of All Students in Schools With Compensatory Programs | Total Cost Per Student in Dollars |
|---|---|---|---|
| In classrooms that also contain non-compensatory students* | 27 | 52 ++ | $152 |
| In classrooms with only other compensatory students | 26 | 23 | $199 |
| In small, special reading groups with only other compensatory students** | 8 | 2 | $664 |
| In small, special reading groups that also contain non-compensatory students**+ | 12 | 2 | $580 |
| **Non-Compensatory Students Who Received Their Reading Instruction:** | | | |
| In classrooms comprised only of other non-compensatory students | 28 | 21 | $140 |
| In classrooms of schools that don't offer compensatory programs | 27 | - | $148 |

* The cost model was not sensitive enough to pick up differences between compensatory and non-compensatory students in the same classrooms. To do so detailed observations of resource utilization patterns within each classroom would have been required. Therefore, the cost figure is an average for all the children in the classroom.

** This small group instruction is in addition to their regular classroom instruction.

\+ Non-compensatory students may be found in such classes because they attained this designation in the early Fall but may have manifested a need for special assistance during the course of the school year.

++ About 39 percent of the students in this category received compensatory assistance in reading.

The above figures do not represent differences within a single school district for there were almost as many districts as there were schools represented in the study (viz. nearly one school per district). They show that:

- The average number of students enrolled in the different instructional groupings are very similar except for the small, special reading groups which have almost two-thirds fewer students than the others.
- In schools that offer compensatory reading programs almost half of the students (some 52 percent) obtain their reading instruction in classrooms of mixed compensatory and non-compensatory students and of these students somewhat more than one-third (39%) receive some form of compensatory assistance in reading.
  - Slightly less than one-fourth (some 23 percent) of the students obtained their reading instruction in classes with only other compensatory students while another twenty-one percent received their instruction in classes comprised only of other non-compensatory students.
  - About four percent of the students received their reading instruction in small, special reading groups. This instruction was in addition to their regular classroom instruction.

- Costs of regular reading programs (non-compensatory) in schools that do and don't offer compensatory programs are very similar ($140 versus $148).
  - Each category of compensatory student receives 3%*, 34%, 349% and 292% respectively, more resources than do students in schools that don't offer compensatory programs.
    - Students in <u>combined</u> classes receive about 3 percent** more resources than do students in schools that don't offer compensatory programs ($152 vs. $148).
    - Compensatory students in <u>separated</u> classes receive about 42 percent more resources than their non-compensatory counterparts ($199 vs. $140).
    - Students in small, special reading groups of <u>mixed</u> compensatory and non-compensatory students receive 282% more resources than their compensatory counterparts in combined classes ($580 vs. $152).

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* This is an underestimate since the resource-cost model did not differentiate between compensatory and non-compensatory students in the same classroom-rather a single dollar figure was used to represent the services for both categories of students.

** Note the prior limitation on the total cost figure for mixed classes of compensatory and non-compensatory students.

... Students in small, special reading groups of only other compensatory students receive 234% more resources than their compensatory counterparts in larger separate classes ($664 vs. $199).

Other analyses* showed that:

- Differences in costs of compensatory programs across grade levels aren't appreciable whereas those for regular programs are (with costs for the latter being greater at the lower grades).
- For both compensatory and regular programs, cost differences between schools were greater than differences among classrooms within schools.

(ii) Per Student Reading Costs by Source of Funds** and Nature of Services Received.

Figures comparable to the preceding are given below for schools with compensatory reading programs funded by Title I and for schools with compensatory reading programs funded by sources other than Title I.

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* See Dienemann, et al., 1974.

** See Trismen, et al., 1976c for these analyses.

| Compensatory Students Who Received Their Reading Instruction: | Average Number of Students Per Class | | Percent of All Students* | | Total Cost Per Student in Dollars | |
|---|---|---|---|---|---|---|
| | Title I Schools | Non-Title I Schools | Title I Schools | Non-Title I Schools | Title I Schools | Non-Title I Schools |
| In classrooms that also contain non-compensatory students | 27 | 27 | 52 | 53 | $158 | $143 |
| In classrooms with only other compensatory students | 27 | 26 | 27 | 17 | $201 | $195 |
| In small, special reading groups with only other compensatory students | 8 | 7 | 3 | 1 | $646 | $767 |
| In small, special reading groups that contain non-compensatory students | 12 | 10 | 3 | 1 | $582 | $575 |
| **Non-Compensatory Students Who Received Their Reading Instruction:** | | | | | | |
| In classrooms comprised only of other non-compensatory students | 28 | 29 | 16 | 29 | $145 | $135 |

* Columns do not sum to 100 due to rounding.

These figures show that:

- The size of the instructional groups (viz. average number of students per class) are nearly identical for Title I and for non-Title I schools except for small, special reading groups which are very slightly larger for Title I schools.
- The percent of students served in the mixed classroom settings (viz. classrooms that contain both compensatory and non-compensatory students) is very similar for the two categories of schools but the percent served by the remaining instructional groupings differs as follows:
  - Title I schools serve proportionately more of their students in separate classrooms (viz. in classrooms with only other compensatory students) and in small special reading groups than do non-Title I schools (6% versus 2% for the latter).
  - Non-Title I schools serve proportionately more of their students in classrooms comprised only of other non-compensatory students than do Title I schools.
- Other analyses showed that of all the students in the study whose school had a compensatory reading program 62% were in Title I funded schools and 38% were in non-Title I schools*.
- The total student costs do not differ substantially among the two categories of schools with:

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* See Trismen, et al., 1976c.

.. Title I funded schools spending slightly more in absolute amounts (except for one category of small special reading groups) than non-Title I funded schools.

.. Non-Title I schools tending to spend proportionately more on their different categories of compensatory students than do Title I funded schools (viz. relative to the dollar amount each spends on classrooms comprised only of other non-compensatory students).

. These Title I non-Title I cost values were not consistent in the direction of their differences across the grade levels, however, the extent to which one exceeded the other was never very large*.

Other analyses showed that:

. Proportionately more Title I schools had programs which could be readily and meaningfully described than did non-Title I schools**.

. More programs in non-Title I schools tended to deemphasize basic reading activities and put more emphasis on the use of audio-visual equipment and materials and indicated less instructional flexibility than did programs in Title I schools.***

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* See Trismen, et al., 1976c.

** Viz. More of them could be categorized in the typology of programs that was developed. See Cluster 11 of Revised Table 40 of Trismen, et al., 1976c.

*** See Clusters 2a and 4a of Revised Table 40 of Trismen, et al., 1976c.

These results show that there was very little difference in class size for the different instructional groupings and funding sources except for the small special reading groups which were almost two-thirds smaller than the other groupings. Compensatory assisted students received a greater level of resources tahn did non-compensatory students with this difference being most pronounced for small, special reading groups. Title I funded schools served more of their students in such small, special reading groups than did non-Title I schools (6% versus 2%). Overall, Title I funded schools tended to spend slightly more in absolute amounts on their compensatory students than did non-Title I funded schools. However, non-Title I schools tended to spend proportionately more on their compensatory students relative to their non-compensatory students than did Title I funded schools. Finally, proportionately more Title I programs could be readily and meaningfully described than could non-Title I programs.

Our fourth question asks:

4. How do students who receive compensatory assistance in reading benefit from these services when compared to other students with regard to: their test performance; their liking for reading; and, the cost of such services and their source of funds?

To gauge how students who received compensatory assistance in reading might have benefitted from their experiences, their reading test performance can be compared with other students in the study who were not so assisted and with national norms. Each of these comparisons is discussed in turn.

Before discussing the results of these comparisons, however, it might be well to dwell on what they might be expected to show. One important source of information about the performance of disadvantaged (minority) students comes from the Equal Educational Opportunities Survey. Conducted in 1965 at about the time of enactment of Title I of ESEA but before the impact of funds resulting from it could begin to be felt, this national study showed that disadvantaged (minority) students fell increasingly further behind their more advantaged (non-minority) peers in their performance on measures of reading and mathematics at the higher grade levels (Coleman, et al., 1966)*. In the absence of Title I similar results might be anticipated--one may ask therefore of the extent to which compensatory programs have, in the aggregate, arrested this decline.

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* These disparities were even more pronounced when students were separated into different categories of economic background (Okada, et al., 1969). Although the use of grade level equivalent scores made this decline appear worse than it actually was, a decline was also evident in a more acceptable metric (Mayeske, et.al; 1973a, page 115; 1975, page 48). (Such results were attenuated somewhat at the lower grade levels due to problems associated with identifying young children's economic and ethnic backgrounds.) More recent evidence of a percentile decline comes from the Emergency School Aid Act Evaluation which showed that children in grades 3, 4 and 5 of a nationally representative sample of minority isolated schools (50% or more non-white) performed at the 23rd, 18th and 19th percentiles respectively, on national test norms for reading achievement in the Spring of 1973 (Ozenne, D. G., et al., 1974).

Insert to Footnote, Page 26 of the Technical Summary

Finally, examination of trends for non-Follow Through students (those students who were selected for comparison purposes in order to gauge the growth of students receiving the Follow Through models) showed that they manifested a percentile decline and this decline was most pronounced for poor, central city, minority students. (Kaskowitz and Norwood, 1976).

Ref: Kaskowitz, D. and C. Norwood, 1976, A Study of the Norm Referenced Procedure as Applied to the Evaluation of Project Information Packages Menlo Park, Calif: Stanford Research Institute.

(a) The test performance of compensatory reading students compared with other students in the study. Our first comparison focuses on the relative improvement of different categories of students in terms of the percent of items completed correctly on all the reading skill tests used in the Fall and again in the Spring.* To illustrate trends in the data and to simplify the presentation, we shall express the number of items that compensatory students complete successfully as a percent of the items that were successfully completed by students who did not receive such assistance. For example, when we cite a figure of 71 for second graders in the Fall, we mean that 71 percent of the items successfully completed by non-compensatory second graders were also successfully completed by compensatory second graders.** A corresponding figure of 85 for the Spring results means that the performance of compensatory assisted students has moved closer to that of students not so assisted in terms of the number of items they can successfully complete. If the resultant figure were 100 it would indicate that the average number of items correctly completed were the same for both groups.***

* For reasons that are abundantly illustrated in Appendix A of this Summary, grade level equivalent scores systematically distort test results in ways that are detrimental to the judgment of student growth and project success. They should never be used in any kind of evaluation.

** These ratios are obtained by dividing the average number of items correct for compensatory students by the average number correct for non-compensatory students (see Revised Tables 23A, and B of Trismen, et al., 1976c). Leading decimal points have been omitted.

*** It should be noted that during this time period all students showed considerable growth in terms of the number of reading skill items they could successfully complete. For example, at the second grade in the Fall the average student could complete about 49 items correctly and in the Spring 65 items (see Mat Total in Table 12 of Trismen, et al., 1975a). All "percent correct rates" are computed on the Total score for the Metropolitan Achievement Test. These "percent correct rates" were merely computed for summary purposes using the Metropolitan results since the Metropolitan results allowed for a comparison across the different analytic techniques (e.g. percentiles versus percent correct rates, etc.). The actual statistical analyses were based on raw and standard test scores. For these see Tables: 23A and B; and Appendix C, of Trismen, et al., 1975a.

- These "percent correct rates" for compensatory students relative to students in schools without compensatory programs were:

| GRADES | FALL | SPRING | SHIFT |
|---|---|---|---|
| 2 | 76 | 88 | +12 |
| 4 | 70 | 75 | + 5 |
| 6 | 78 | 83 | + 5 |

- "Percent correct rates" for compensatory students relative to non-compensatory students in all schools with compensatory programs were:

| GRADES | FALL | SPRING | SHIFT |
|---|---|---|---|
| 2 | 71 | 85 | +14 |
| 4 | 65 | 71 | + 6 |
| 6 | 76 | 81 | + 5 |

- These latter results varied by source of funds as follows:*

| Schools That Receive Funds From: | GRADES 2 FALL | 2 SPRING | 2 SHIFT | 4 FALL | 4 SPRING | 4 SHIFT | 6 FALL | 6 SPRING | 6 SHIFT |
|---|---|---|---|---|---|---|---|---|---|
| Title I | 71 | 85 | 14 | 65 | 71 | 6 | 75 | 80 | 5 |
| Non-Title I | 69 | 85 | 16 | 64 | 72 | 8 | 77 | 81 | 4 |

These results show that compensatory students are further behind non-compensatory students (in either their own schools or in schools that do not have such programs) in the Fall than in the Spring. The extent of this "catch-up" is most pronounced at the second grade. Non-Title I

* See the MAT Totals for Revised Tables 23A and B of Trismen, et al., 1976c.

schools show a slightly greater shift than do Title I schools, except at the sixth grade (it may be recalled that students in Title I schools ranked lower on the test in the Fall than did students in non-Title I schools). However, these increments are not appreciably different (viz. they do not account for three percent or more of the variance) for the different funding categories (see Trismen, et al., 1976c, Table A).

- Among students who were receiving compensatory assistance
  - Those who had such assistance in prior years tended to rank lower on their fall reading test scores than students who did not have such prior assistance and to gain an amount equal to or slightly less than those who had never had such prior assistance.*

The reader should be apprised of the fact that these results (viz. compensatory students being closer to non-compensatory students in the Spring than in the Fall) tend to be dependent upon the analytic method employed.

Six different analytic techniques were employed. They were:

1. Raw Scores: for all students in the study these comparisons involved the absolute number of test items attained correctly in the Fall and in the Spring. When the absolute numbers are examined, as in Appendix A of this Summary, or their ratio's are taken, as they are here, the comparisons show that compensatory students tend to be closer to non-compensatory students in the Spring than in the Fall.

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* See Table 30 of Trismen, et al., 1975a.

2. Deviation Scores: in these comparisons the average number of items correct for compensatory students is subtracted from that of non-compensatory students and this difference is divided by the total variability of all students in the study at that point in time (i.e. the standard deviation). When such deviation scores are computed for the Fall and Spring test scores, as they are in Appendix B of this Summary, they show that compensatory students are about as close or slightly closer to non-compensatory students in the Spring than in the Fall.

3. Encoding of Compensatory-Non-Compensatory Status: in these comparisons student compensatory-non-compensatory status is encoded as a quantitative variable which is then correlated with test scores in the Fall and again in the Spring. When such a correlation diminishes in magnitude from Fall to Spring it quantitatively expresses the extent to which the groups have moved closer together. These kinds of analyses showed that compensatory-non-compensatory student test score differences tended to either stay the same or diminish somewhat from Fall to Spring depending on the sub-test involved (see Appendix C of Trismen, et al., 1975a).

4. National Norms Deviation Scores: in the preceding analyses the magnitude of average differences between categories of students in the study were compared to each other. In the current analyses, the average performance of different categories of students in the study are compared to that of the national average student as described in test publishers norms. In these analyses the difference between each category of student (e.g. compensatory or non-compensatory) and the national average is divided by the total student

dispersion (viz. standard deviation). Both Fall and Spring norms were available only at the fourth grade. The results of these analyses, given in Appendix C of this Summary, showed that compensatory students tended to be closer to the national average in the Spring than in the Fall with the extent of this "catch-up" depending on the subtest involved.

5. Raw Gains Analyses: in these analyses the algebraic difference between a student's test score in the Spring and in the Fall is used as a variable which is related to other variables (e.g. compensatory versus non-compensatory status) to see if they help to explain why some differences are larger than others.

For these analyses the preponderance of the comparisons for the different tests and subtests either showed no differences of practical significance between compensatory and non-compensatory students (viz. the group differences accounted for less than three percent of the variation) or showed differences favoring the gains of compensatory students (73% favoring compensatory versus 27% for non-compensatory, see Table A of Appendix C of Trismen, et al., 1975a*).

6. Residual Gains Analyses: in residual gains analyses an expected Spring test score is obtained for each instructional group based upon it's Fall

*These percentages were computed from the following three comparisons in Table A: (1) All CR versus NCR in NCR schools; (2) CR combined versus NCR combined both in CR schools; and, (3) CR separate versus NCR separate both in CR schools. Most of the differences of practical significance favoring the "gains" of compensatory students came from the second comparison (11 of 14).

test score and then, the extent to which an instructional group's actual Spring test score exceeds this expected score is obtained. This residual gain score (expected Spring score minus actual Spring score) is then related to other variables, such as compensatory-non-compensatory status, to see if they help to explain the magnitude of the residual gains. There were three kinds of comparisions of particular importance.* They were a comparison of the residual gain of: (1) all compensatory students with all non-compensatory students; (2) all compensatory students versus all students in schools that did not offer compensatory programs**; and, (3) all compensatory students versus all non-compensatory students in their same schools. Results for the first comparison showed that on only two of the seventeen test scores analyzed was there a difference of any practical significance (viz., accounted for three percent or more of the total variance) and in these cases (second grade Metropolitan stories and Coop scales) non-compensatory students gained slightly more than compensatory students. For the remainder, compensatory students gained to about the same extent as did non-compensatory students. In the second comparison, compensatory students gained to the same extent as did non-compensatory students for 14 of the 17 scales. For the remainder, the groups were not comparable due to their having different regression curves (at the sixth grade only). In the last comparison, there were no practical differences between the gains of compensatory and non-compensatory students for 15 of the 17 scales. Of the remainder,

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* See Table 28 of Trismen, et al., 1975a. These analyses used Fall test score plus its square to obtain an expected Spring score.

** It may be seen in the next section that the test scores of students in these latter schools were higher than those of compensatory students in the former schools.

one showed differences favoring somewhat the gains of non-compensatory students (second grade Metropolitan stories) while for the other scale the groups were not comparable due to non-parallel regression curves. For an overwhelming preponderance of these reading scales then (some 86 percent overall) compensatory students grow at the same rate as do non-compensatory students (viz. they do not fall further behind). A number of other analyses involving classroom grouping practices showed that compensatory versus non-compensatory comparisons either did not show any practical differences in their gain (the one-exception being the Coop scale at the second grade) or that the regression curves for the two groups were not comparable (some 44 percent overall). These residual gain analyses then, support the assertion that compensatory students do not fall further behind non-compensatory students. However, they do not support the notion of their being closer together in the Spring than in the Fall.

In summary, all of these analyses support the assertion that compensatory students tend not to fall further behind non-compensatory students during the academic year. Further, results for the first five analytic techniques tend to show that, in going from Fall to Spring, compensatory students improve their reading test scores relative to their non-compensatory counterparts. However, since the residual gain analyses do not support this notion this latter assertion cannot be made unequivocally. To make this assertion unequivocally one must first refute the notion that this "apparent movement" is not brought about merely by the tendency of a

more extreme group to move closer to its population value on a second testing occasion than would a less extreme group (the well-known "regression to the mean effect"). Although not completely refutable, such "regression effects" should be minimal since the test scores collected as part of this study were not available for the use of local school personnel in assigning students to a compensatory or a non-compensatory group.* In addition, all the tests used displayed a high degree of internal consistency (see Table 11 of Trismen, et. al, 1975a) so that extreme scores would be less likely to produce a "regression effect." As a consequence we shall regard this "movement" as suggestive of the upper limit on the kinds of "gains" that might actually be occurring.

(b) Reading test performance of compensatory reading students compared with national percentile test norms. Our next comparison focuses on fourth grade students and how they fared compared to national norms. Only fourth grade students are analyzed because both Fall and Spring norms were not available for the tests used at the other grade levels.*

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* Viz. these decisions were made on some basis other than the test scores used for this study.

** All comparisons are based on the Metropolitan Achievement Test and were obtained by converting the average raw score to its percentile equivalent using the individual norms tables. (See Reversed Tables 23A and B of Trismen, et al., 1976c).

- The typical student who received compensatory assistance in reading at the fourth grade, maintained a 22nd percentile standing from the early fall to the late spring on the total reading scale.
  - A student who started at the 22nd percentile in the Fall but made no progress during the school year (i.e., kept his same raw score) would have dropped to the 12th percentile in the Spring.*
  - For the same corresponding time period his/his typical advantaged schoolmate, who did not receive such assistance, moved from the 48th percentile of the national norm in the fall to the 50th percentile in the spring--an increase of two percentile ranks, while students in schools that did not offer compensatory assistance in reading moved from the 40th to the 44th percentile--an increase of four percentile ranks.**

In tabular form these results were:

READING TOTAL SCALE

| Student Category | Fall | Spring |
|---|---|---|
| Compensatory | 22 | 22 |
| Non-Compensatory in non-compensatory schools | 40 | 44 |
| Non-compensatory in compensatory schools | 48 | 50 |

* This is an example included from the test norms for comparison purposes.

** Similar analyses based on deviation scores show compensatory students to be about the same distance behind or closer to the national average in the Spring than in the Fall (see Appendix C of this report).

. By subtests the results were:

.. For WORD KNOWLEDGE

| Student Cateogry | Fall | Spring |
|---|---|---|
| Compensatory | 22 | 20 |
| Non-Compensatory in non-compensatory schools | 40 | 40 |
| Non-compensatory in compensatory schools | 46 | 48 |

.. For READING

| Studert Category | Fall | Spring |
|---|---|---|
| Compensatory | 22 | 26 |
| Non-compensatory in non-compensatory schools | 44 | 50 |
| Non-compensatory in compensatory schools | 50 | 52 |

These results show that for Word Knowledge, compensatory students drop slightly from Fall to Spring while non-compensatory students either stay the same or increase slightly. For the Reading scale both compensatory students and students in schools that don't have compensatory programs increase by 4 to 6 percentile ranks while the remaining non-compensatory students increase by 2 percentile ranks.

. By source of funds the results were:

PERCENTILE RANKS FOR TOTAL READING

TYPE OF STUDENT

| | COMPENSATORY ASSISTED | | NON-COMPENSATORY ASSISTED | |
|---|---|---|---|---|
| Type of School | Fall | Spring | Fall | Spring |
| Title I | 20 | 20 | 46 | 48 |
| Non-Title I | 24 | 24 | 54 | 60 |
| Non-Compensatory | - | - | 40 | 44 |

These results show that compensatory students, regardless of the source of funds, maintain their same relative status from Fall to Spring. These contrast with the results for non-compensatory students who show an increase in their percentile rank with this increase being greatest in non-Title I schools and least in Title I schools. However, there are marked differences among the separate scales as can be seen from the following:

PERCENTILE RANKS FOR WORD KNOWLEDGE

TYPE OF STUDENT

| | COMPENSATORY ASSISTED | | NON-COMPENSATORY ASSISTED | |
|---|---|---|---|---|
| Type of School | Fall | Spring | Fall | Spring |
| Title I | 22 | 18 | 42 | 44 |
| Non-Title I | 24 | 24 | 54 | 56 |
| Non-Compensatory | - | - | 40 | 40 |

PERCENTILE RANKS FOR READING

TYPE OF STUDENT

| | COMPENSATORY ASSISTED | | NON-COMPENSATORY ASSISTED | |
|---|---|---|---|---|
| Type of School | Fall | Spring | Fall | Spring |
| Title I | 20 | 22 | 48 | 50 |
| Non-Title I | 22 | 28 | 56 | 60 |
| Non-Compensatory | - | - | 44 | 50 |

These results show that for the Word Knowledge sub-scale compensatory students in Title I schools slip somewhat from Fall to Spring while those in non-Title I schools maintain their same relative rank. Non-compensatory students in schools that don't have compensatory programs maintain their same relative status from Fall to Spring whereas other categories of non-compensatory students increase their percentile rank slightly. For the Reading sub-scale all categories of students increase their standing from Fall to Spring with this increase being greatest in non-Title I schools or in schools that don't offer compensatory assistance.

Overall then, these percentile analyses show that the concentration of low scoring students is greatest in Title I schools with the result that their compensatory and non-compensatory students rank lower than their counterparts in non-Title I schools. Similarly, non-compensatory students in Title I schools lie closer to the rank of students in non-compensatory schools than to such students in non-Title I schools. With one exception (Word Knowledge for compensatory students in Title I schools) all categories of students either maintain their same relative rank or advance slightly with these advances tending to be greater in non-Title I schools. Undoubtedly the greater concentration of reading problems in Title I schools as well as the fact that they provide compensatory assistance to lower scoring (viz. more needy) students have an effect on the advances they are able to manifest. The differential gains for the Reading versus the Word Knowledge scales may reflect a greater emphasis given to the former at the fourth grade. Finally, one wonders if the gains manifested by non-compensatory students in schools that have compensatory programs might be attributable, in part, to the presence of such a program (viz. their performance is not held back by the slower students as it would likely be if all students were receiving the same amount of instruction).

(c) Student's liking for reading activities and positive feelings about themselves as readers.

Students in this study can be compared with one another as well as with those in an earlier study with regard to their affective growth. Each type of comparison is discussed in turn.

From earlier discussions it may be recalled that the affective instrument allowed a student to indicate how positively he felt about different reading activities and about himself as a reader. In order to illustrate the relative status of compensatory and non-compensatory students on this measure we have computed ratio's similar to those in a preceeding section. The numerator of this ratio represents a rescaling of the number of positive choices made by compensatory students and the denominator, a rescaling of the number of positive choices made by non-compensatory students. When the ratio is less than one it indicates that compensatory students made fewer positive choices than non-compensatory students; equal to one--that the groups are about equal; and, greater than one--that compensatory students had more positive choices than did non-compensatory students.*

- When compensatory students were compared with students in schools that did not have compensatory programs the fall and spring ratios were:

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* The following ratios are obtained from Table 28 of Trismen, et al., 1975a by dividing the respective fall or spring values for compensatory students by that of non-compensatory students. For the fourth and sixth grades a constant of one was added to each mean before division. The values used are for the comparisons: "All CR vs. NCR schools"; and, "All CR vs. All NCR, both in CR schools". The statistical analyses are not based on the ratios.

| Grade | Fall | Spring | Shift |
|---|---|---|---|
| 2 | .90 | .99 | .08 |
| 4 | 1.53 | 1.66 | .13 |
| 6 | 1.68 | 1.64 | -.04 |

When compensatory students were compared with non-compensatory students in their same schools the ratios were:

| Grade | Fall | Spring | Shift |
|---|---|---|---|
| 2 | .90 | .95 | .05 |
| 4 | 1.74 | 2.03 | .29 |
| 6 | 1.82 | 1.84 | .02 |

.. These results tended to differ by the particular comparisons being made and within these by the analytic technique employed and the grade level involved. However, for a preponderance of the comparisons there were either no differences in the growth of the two groups or differences slightly favoring compensatory students*.

... Students in Title I and non-Title I schools grew more favorable about themselves to about the same extent at each grade level (there were not appreciable differences among them)**.

* For the residual gain (covariance) analyses in Table 28 of Trismen, et al., 1975a the results were about one-third no difference and one-third slightly in favor of compensatory student gains. For the unconditional analyses in Appendix C, the gain score analyses in Table A showed no differences while those in Table B which encoded compensatory -non-compensatory status as a variable, showed either no change in status from Fall to Spring or a shift in the status of compensatory students closer to or surpassing that of non-compensatory students.

** Viz. differences that accounted for three percent or more of the variance (see Trismen, et. al, 1976c, Table A).

> ... Among students in the fourth and sixth grades who were receiving compensatory assistance, those who had such assistance in prior years tended to rank about the same in the fall as those who did not have any prior assistance. However, those who had received prior assistance became more favorable in their attitudes to a greater extent during the course of the year than did those who had not had any prior assistance*.

In a preceding section results from the Equality of Educational Opportunity Survey (Coleman, et al., 1966) were used to give an approximate indication of what the achievement status of disadvantaged (minority) students might have been prior to the initiation of Title I. This same study also showed that disadvantaged (minority) students became progressively more fatalistic about their ability to enhance their life circumstances through the avenue of education**. Although the current study did not measure a student's sense of fatalism it did deal with its antecedents insofar as they are rooted in his reading experiences. The results of the current study show that compensatory students become increasingly more favorable towards themselves as readers and in their liking for reading activities and improve more in those attitudes than do non-compensatory students (within each of grades 4 and 6 only). As a result they come to equal or surpass their peers in this regard by the close of the academic year.

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* See Table 29 of Trismen, et al., 1975a.

** See especially, Mayeske, et al., 1973b, page 60. These were trends in the grade level averages.

(d) The cost of such services and their source of funds.

Results in an earlier section showed that the most educationally needy students, as evidenced by their depressed reading scores, were the ones who were receiving compensatory services. In dollars their services were from 3% to 349% more costly per student than those offered non-compensatory students. Schools with compensatory reading programs funded by Title I tended to spend slightly more per student in absolute amounts (except for one special category of special reading group) but slightly less in relative amounts (viz. relative to services provided non-compensatory only students) than did schools with compensatory reading programs funded from sources other than Title I.

On the average compensentory students tended to be as close or closer to their non-disadvantaged peers in the spring than in the fall with the extent of this "catch-up" being greater at the lower than at the higher grades. Although such results do not readily lend themselves to cost-effectiveness calculations* they do suggest that student reading skill acquisition and liking for reading are enhanced by these additional resources. However, extensive analyses did not uncover a clear relationship between the level of resources (or their corresponding dollar amounts) and the magnitude of skill growth experienced. Rather, given a minimal level of resources, the ways in which they were utilized appeared more important than the sheer amount (e.g. the use of instructional aides for clerical or custodial functions rather than instructional activities).**

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* See Flynn, et al., 1976b.

** See Flynn, et al., 1976b for these extensive analyses.

Earlier results of this study also showed that compensatory students were behind their less disadvantaged peers in their level of reading skill development (as indexed by their percentile rank) in the fall to about the same extent at each grade level. Such results suggest that the benefits students derive from these added resources may not accumulate across the years. Of course, this latter conjecture is tempered by the fact that it is the most educationally needy students who are to be served each year and they are not necessarily the same students from one year to the next (viz. a compensatory project does not carry along its successes). Then too, compensatory students may experience greater skill losses over the summer months than do their non-disadvantaged peers.

Our fifth question asks:

5. Were there any unusually effective programs, and if there were, what made them so?*

It may be recalled from our earlier discussion that 29 schools which displayed a range of effectiveness (e.g. high, medium, and low) in terms of their compensatory students' growth in reading skills during the academic year were selected for indepth study. Teams of trained** observers visited each school twice: to verify that the reading programs operated as they were believed to on the basis of the teachers' descriptions of their activities and to develop possible explanations for project performance; and, to further refine and clarify those explanations. Neither the observers nor the school personnel being visited knew the values of the effectiveness ratings.

After the visits were completed the effectiveness scores were compared with the observers' judgments concerning project performance. There was a consensus that five of the programs were unusually effective by both standards. Four of the programs were funded by Title I. The fifth was a compensatory programs which owed its origins, in part, to Title III of ESEA.

These five compensatory programs were always either well above average or near average in their degree of effectiveness. However, their performance did not necessarily follow a consistent pattern across the three grade levels studied. For example, one school was unusually

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* Details on these results can be found in Trismen, et al., 1976a.

** Their training emphasized what to observe and how to make these observations objectively and reliably.

effective at the second grade whereas another was so only at the second and sixth grades. Of the remaining three, two lacked a sixth grade but were unusually effective at the other grade levels while the last school was unusually effective at all three grade levels. Although not selected in terms of their children's percentile gain*, the availability of Fall and Spring norms for the Metropolitan Reading scores at the fourth grade allowed for such a comparison. In the three programs that were unusually effective at this grade level, a typical compensatory student manifested an average percentile shift of seven ranks from the Fall to the Spring (from the 17th percentile in the Fall to the 24th percentile in the Spring on the Metropolitan total scale). For the subtests corresponding results were:

| | Fall | Spring |
|---|---|---|
| Word Knowledge | 17 | 24 |
| Reading | 17 | 27 |

When the costs of the compensatory programs in these five schools were compared with those in the remaining schools, they were not consistently more or less expensive. Rather, on the average they cost about the same as the average of the other schools.**

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* Unusually effective compensatory programs were identified by the extent to which the average of all their test scores in the Spring exceeded that which could be expected on the basis of their Fall scores (the residual gain criterion). See Trismen, et al., 1976a for these analyses. Percentile ranks were computed in the same manner as described earlier.

** See Flynn, et. al., 1976b.

There were some elements that the observers felt were common to these five programs. First, all had defined reading as an important instructional goal, had assigned it priority among the school activities and had manifested this commitment by expending more time on reading or on having a better quality of reading resources. Second, in all five schools, there was effective educational leadership specific to the issue of reading (in three of five it was the principal). Third, an outstanding feature of all five was careful attention to basic skills. Fourth, in all of these schools there was a relative breadth of materials. Last, in all five schools there was evidence of cross fertilization of ideas among teachers.

Additional insights into the nature of effectiveness were gained from detailed analyses of the observations made by the teams when they visited the 29 schools.* Those classrooms on which there was achievement effectiveness information from the prior year were visited by two observers each time, at approximately eight week intervals, to rate classroom activities and student-teacher interaction. These ratings were found to contain eleven characteristics which differentiated among the classrooms of these 29 schools. When these characteristics were related to the achievement effectiveness information the following results were obtained:

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* See Trismen, et. al, 1976b, pp. 1-19.

- In grade 2, effectiveness was significantly and positively related to the degree of adult-centeredness of the classroom, to teacher affect (liking for the students) and to the level of joint involvement of student-teacher interaction in learning.
  - Effectiveness was negatively related to equality of teacher attention to students (second grade only).
- In grade 4, effectiveness was again positively related to the degree of adult centeredness of the classroom and negatively related to punitive control by the teacher.
- In grade 6, effectiveness was positively related to the degree of student autonomy and to the equality of teacher attention to students.
  - Effectiveness was negatively related to classroom affect and teacher warmth (sixth grade only).

These results suggest that different kinds of teacher behaviors may be effective depending upon the age/grade/maturational level of the students involved. Such results may also help to explain, in part, the fact that some of the unusually effective programs were not uniform in their effect across the grade levels.

Our sixth question is really a set of questions similar to the preceding, only focusing on summer programs. The first question asks: "What was the incidence of summer compensatory programs, their nature and costs?"

Roughly 26 percent of the 266 schools participating in the study during the regular school year offered some type of compensatory activities during the summer months. Almost half of the schools that had summer programs (41%) were included for further study on the basis of their willingness to participate and their having a sufficient number of summer students to make such an examination possible.* When these latter schools (viz. the 27 summer program schools) were compared to the others, they were found to be located more frequently in the suburbs, to have a compensatory program funded by Title I during the regular school year, to have slightly greater concentrations of compensatory students during the regular school year, and, to a lesser extent had more experienced teachers who expressed greater satisfaction with their administration**.

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* The information on which these discussions are based can be found in Tables 24 through 45 of Trismen, et al., 1976b and Al-Salam, et al., 1976 for the cost results. Schools included for the summer study tended to have higher achievement scores during the regular school year than did the remaining schools. Schools that refused to participate in the summer study would have raised the achievement scores of summer students slightly had they been included whereas those eliminated because of too few students would have lowered the summer average somewhat had they been included.

** See Tables 24 and 25 of Trismen, et al., 1976b for these results.

Summer programs differed from regular school year programs in the following ways:*

- .. Attendance was voluntary
- .. All but one of the schools had a shorter school day.
- .. School staff indicated that their instructional groups were smaller, that their instruction was more flexible and individualized, that they were more concerned with remediation and enrichment and that they used a greater variety of instructional materials.
- .. Smaller class sizes resulted in a greater percent of total summer program cost going to staff expenditures (88% in the summer versus 69% in the regular year).
- .. Costs per student hour of instruction were over 2.5 times greater in the summer than during the regular school year (56¢ per summer session hour versus 22¢ per regular school session hour).
  - ... Per student hourly cost in schools that received Title I funds were 1.7 and 1.6 times more expensive for the regular and summer sessions respectively, than in schools that did not receive such funds.

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* See pages 30-34 of Trismen, et al., 1976b and Tables 22-24 of Al-Salam, 1976 for these results and those in the next section.

- Summer programs differed from one another in the following ways:
  - .. Seventy-eight percent of the schools had a five or six week summer program, 18% had a four week program and 4% an eight week program.
  - .. The most frequent bases for determining pupil participation were: depressed reading levels (24%); teacher or staff recommendations (24%); and, parent request (21%).
  - .. In 85% of all summer study schools summer compensatory reading programs were funded wholly or in part by funds supplementary to the regular school budget.
    - ... Forty-six percent of all summer study schools used Title I funds for such purposes.
  - .. The most frequent instructional approach was a combination of linguistic-phonetic and language experience (63%) followed closely by linguistic-phonetic alone (11%) and ecletic (11%).
    - ... Title I funded programs differed from others in that they spent more time improving motor abilities related to reading.
  - .. Cost differences among schools were pronounced and were primarily due to different utilized resources, different program lengths and different student-staff ratios.

... Cost differences among grade levels were not appreciably different being 56, 54 and 46 dollars per student for grades 2, 4 and 6 respectively.

.. Programs that had a remedial/compensatory emphasis were about twice as expensive as those that had an enrichment or enrichment/remedial emphasis (about $31 per student for the latter types versus about $67 to $75 per student for the former types).

. Title I funded programs were about 77 percent more expensive than those without such funding ($70 per student for Title I versus $40 for the others, this difference being due primarily to the greater compensatory emphasis of the former).*

Our second question concerning summer compensatory reading programs asks: "How do students who attend them differ with regard to their test scores and background?"**

. Students who attended a summer program differed from regular year students in their same schools in the following ways:

.. In the Fall students who were to attend summer compensatory programs the subsequent summer attained slightly higher overall test scores than did other compensatory students who would not attend such a program. By Spring their (viz. summer attendees) test scores substantially exceeded those of regular year compensatory students except at the second grade where they had fallen slightly behind the other compensatory students.

* See Tables 16 and 17 of Al-Salam, et al., 1976.

** See Tables 31 through 34 of Trismen, et al., 1976b. These analyses pertain to students who attended a 1973 summer program. During the 1972-73 school year they were in the second, fourth or sixth grade.

... These same patterns also prevailed when summer attendees were compared to regular year compensatory students in schools that did not offer summer programs.

.. In their liking for reading, summer attendees were no different from their regular year compensatory counterparts for both the fall and spring of the second grade. However, at the fourth grade summer students were slightly more favorable for both fall and spring results while at the sixth grade they were less favorable in the fall and more favorable in the spring.

.. When compared to compensatory students in schools that did not have summer programs, summer attendees tended to have more positive attitudes toward themselves as readers.

.. Eighty-one percent of summer students were white whereas during the regular school year only 63% of the compensatory students in schools that had summer programs were white.

.. Fifty-three percent were males whereas during the regular school year 57% of the compensatory students in schools that had summer programs were males.

.. Of the summer school students, 35% participated in the free lunch program during the regular school year. During the regular school year about 50% of the students in schools that had summer programs participated in the free lunch program.

- About 48% of the summer students had had prior assistance in compensatory reading whereas during the regular school year almost 62% of compensatory students in these schools had received some form of prior compensatory assistance in reading.

- Students who attended a summer program differed from one another in the following ways:
  - Students in Title I funded schools scored lower than students in non-Title I funded schools on both the Spring tests and on those administered at the completion of their summer session.

- These results suggest that students who attend summer compensatory programs are proportionately somewhat less educationally and economically disadvantaged (as indexed by their test scores and free lunch/minority status, repectively) than are regular year compensatory students who do not attend such sessions. Further, students in Title I funded summer programs are more educationally disadvantaged (as indexed by their test scores) than are other summer attendees.

Our last question about summer programs asks: "How did students benefit from their attendance and, if some programs were more effective than others, what accounted for their success?"*

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* See Tables 39-43 of Trismen, et al., 1976b. The reader is reminded that these analyses are based on only 27 schools involving less than 200 students.

- Students who attended summer programs were able to maintain the level of skill development they had demonstrated on the Spring tests (viz. they did not display losses over the summer months as would be expected of students who did not attend such programs, especially disadvantaged students).
  - .. Students in Title I funded programs achieved an amount that was equal to that of students in other programs.
    - ... As a consequence the reading skill differences among these categories of students remained the same from the spring to end of the summer session (viz. Title I students did not fall fall further behind).
- Some programs were more successful than others [(viz. their students achieved to a greater or lesser extent than would be expected on the basis of their Spring test scores*]. When successful programs were compared with unsuccessful ones it was found that the succrssful ones:
  - .. Concentrated on grade 2 programs and less on multi-age programs.
  - .. Had more teachers from other school districts and fewer who taught in that same school during the regular school year.

* There were six such schools for students who had completed grade 2 the prior year (three successful and three unsuccessful. Similarly, there were four such schools for students who had completed grade four the prior year (two successful and two unsuccessful).

.. Had more experienced teachers who indicated greater satisfaction with various aspects of the program and tended to disagree in greater number to the following: "The pupils want to learn but they don't have the right background for school work".

.. Did not differ from the others in terms of their type of approach, or their level of resources utilized or the level of associated cost of these resources (viz. they were neither more nor less expensive than the others).**

The seventh and final question asks:

"How do the results of this study compare with those from earlier time periods and other Title I evaluation studies?"

This is the first comprehensive national study of compensatory reading programs, most of which were funded by Title I of the Elementary and Secondary Education Act (nearly 58% were Title I funded). Early national evaluation studies of Title I were inconclusive due in part to the infancy and diffuseness of the program (not targeted on basic skills and not serving the most needy students) and due also to the lack of availability of evaluative data (early national evaluations depended upon picking up whatever data happened to be available locally***). However, a trend observed

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* See page 61 of Trismen, et al., 1976b.

** See Chapter 5 of Al-Salam, 1976.

*** A practice which, even now, will not permit methodologically sound inferences to be made about program impact. (See for example "Assessment of Reading Activities Funded Under the Federal Program of Aid for Educationally Deprived Children", Government Printing Office, Washington, D.C., December 12, 1975).

in the annual State Title I reports, which have become more complete in recent years, tends to show that student participants achieve at a rate that is equal to or greater than that of the average student, while they are in the program*.

Further support for these results comes from local Title I evaluations which show an increasing incidence of highly successful projects (by highly successful is meant that project participants narrow the distance they are behind their more advantaged peers by about one-third or more)**. The results from these three sources of evidence (viz. national, state and local Title I evaluations) contrast with those from a national study conducted just prior to funding of Title I which showed that disadvantaged (minority) students fell increasingly further behind their more advantaged (non-minority) peers as they progressed through their years of schooling and developed an increasing sense of fatalism about their ability to improve their life chances through the avenues of education***.

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* See Gamel, et al., 1975; and Thomas, et al., 1976.

** See: Annual Evaluation Report on Programs Administered by the U.S. Office of Education, FY 1975, pp. 91-94. U.S. Department of Health Education and Welfare, Office of Education, Office of Planning, Budgeting and Evaluation. (See Appendix D of this Summary for the relevant pages).

*** See Coleman, et. al, 1966; Mayeske, et.al, 1973a, 1973b, 1975 and for more recent evidence, Ozenne, 1973. Older students of a given background were further behind majority students than were their younger counterparts of the same background.

Prior to 1965 there was less of a national focus on the achievement performance of disadvantaged children and, as a consequence, their performance was seldom selected out for comparison with their non-disadvantaged peers. However, as part of this study, an historical overview of students' performance on standardized reading tests was made. The survey concluded that for the forty year period prior to 1965 the average student (elementary and secondary grades) showed a progressive increase in his or her reading skills. However, at about 1965 this increasing trend slowed down and since then a very slight decline may even have set in*. This latter conjecture tends to be supported by other evidence. For example, results from college entrance examinations administered near the completion of high school, show a definite decline in the performance of prospective applicants in the verbal and mathematics areas over this same time period. Similarly, results from the National Assessment of Educational Progress show a decline in Science and Writing skills during a five year period**.

All of these trends pertain to the average or above average student. What then might characterize the status of disadvantaged students for this same time period? Since most compensatory activities are concentrated on the early elementary grades and focus on basic skills it is instructive to note from the National Assessment results for Writing

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* See: Farr, Tuinman, and Rowls (1974)
** See: NAEP Newsletters of 1975 (VIII, (2)) and 1976 (IX(1))

that nine year olds actually improved in their writing skills when compared with their counterparts of four years earlier. Similarly, a special study of functional literacy, also conducted by National Assessment, showed that 17 year olds in 1974 performed better than their counterparts in 1971 and that those who showed the greatest gains were children of parents with low educational backgrounds.* These two trends of a slowing down in the rate of improvement for the typical or average student and an acceleration of this rate for disadvantaged students suggests that compensatory education may be working against a general cultural trend. The factors underlying this cultural trend, if indeed one can be said to exist at all, are unknown at this time.**

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* See: NAEP Functional Literacy (1975)

** See especially Harnischfeger and Wiley (1975) for an examination of different bases for a trend and for an explication of the different factors involved. Investigation of a similar trend in England for this same time period suggested that their decline was due to two factors: (1) a growing tendency on the part of early elementary teachers to let students progress at their own pace rather than adhering to fixed standards of accomplishment for given age/grade groups coupled with; (2) a lack of recognition on the part of later elementary teachers that they were responsible for basic reading instruction and a lack of preparedness to engage in such instruction (Start, 1972; Start and Wells, 1972). Results from National Assessment on changes in reading skills over a four to five year period will become available in mid 1976, and will be more definitive concerning the existence of such a trend.

Conclusions

The preceding results say a lot about compensatory reading programs in general, as well as about how the statements might vary depending upon the source of funds used to support such programs. As before they can be organized around a set of questions; however, the questions are fewer in number and more general in nature.

1. In schools that offer compensatory programs, are the most educationally needy students being provided compensatory assistance in reading? Using the level of a student's performance on a standardized reading measure as an index of his need for assistance the answer is unequivocally yes. Schools that receive Title I funds have greater concentrations of low scoring students and provide assistance to more of them than do non-Title I schools.

Since the incidence of such needs differs depending upon a student's membership in various subpopulations, proportionately more of these subpopulations are provided services. For example, proportionately more older than younger students, more boys than girls, more poverty than non-poverty students (using free lunch participation as the index) and more minority than non-minority students receive services than one would expect merely on the basis of their incidence in the general population and these latter two are especially so for Title I schools. Nevertheless, the provision of services appears to be guided mainly by their need for special assistance in reading.

2. Are the compensatory services supplemental to those usually provided students in regular (non-compensatory) reading programs? Using cost, as developed from the resource-cost model, as an index of the level of resources provided, compensatory students do receive more services than their non-compensatory counterparts, and the level of additional resources varies with the nature of their instructional group membership. Title I schools tended to spend more than non-Title I schools in absolute amounts, but non-Title I schools tended to spend more in relative amounts (viz. they spent slightly more on their compensatory students compared to non-compensatory students) when they did offer such special assistance. However, the incidence of small, special reading groups (the most expensive kind of instructional group) was much greater for Title I schools.

3. How do compensatory reading students benefit from their special assistance?

The nature of the results tended to vary somewhat depending upon the subtest and grade level being examined and upon the analytic technique employed. All of the analyses supported the assertion that compensatory students tend not to fall further behind non-compensatory students during the academic year (the main exception was for a scale called Word Knowledge). Also, percentile analyses showed that with regard to the 50th percentile (national norm) student, both compensatory and non-compensatory students manifested improvement even though the latter had a somewhat greater percentile increase than the former. Other analyses, suggested that for

some of the sub-tests, compensatory students were closer to non-compensatory students in their reading skill performance in the Spring than in the Fall. However, since compensatory students tended to rank at about the same percentile in the Fall of the second, fourth and sixth grades it was suggested that gains acquired during the academic year tended not to hold up in subsequent years.* Such results would be affected by the fall off over the summer months and the fact that the programs tend to serve the most needy students each year and they are not necessarily the same students from one year to the next (this is especially so for Title I).

Students who receive compensatory assistance in reading tended to become favorable towards themselves as readers and toward their reading activities to a degree that was equal to or greater than that of their unassisted peers. This was so to the same extent for Title I as for non-Title I students.

* This observation is not based on a follow-up of the same individual students over a period of years.

4. How do unusually effective programs differ from the others?

The five unusually effective programs could not be differentiated analytically from the others in terms of their use of a single approach to compensatory reading. Similarly, their cost was neither more nor less than that of the other programs. The five appeared to share a number of common elements concerned with what one might term a set of "planning and management variables" (viz. all manifested a commitment to reading with a careful focus on basic skills guided by effective leadership, with ideas shared among staff members and with the staff having access to a relatively broad array of materials). The same programs were not uniform in their degree of effectiveness at the different grade levels--an observation for which other data suggested that a teacher's way of relating to his/her students might be involved. An index in percentile ranks of the extent to which unusually effective programs exceeded the others was available from the results at the fourth grade. In Word Knowledge the typical compensatory student slipped by two percentile ranks from the Fall to the Spring while the typical student in the unusually effective programs increased by seven percentile ranks. For the Reading sub-scale, the typical compensatory student increased by four percentile ranks while his counterpart in the unusually effective programs increased by ten percentile ranks from the Fall to the Spring. Such figures help to develop an appreciation of what is realistically achievable in the aggregate for compensatory programs--an increase in the seven to ten percentile range in terms of national norms for individual students is <u>unusually</u> good. For some programs depending upon the past gains of their students served, the prevention

of a loss of this order would be judged unusually good even though, as a result of such an attainment, their students would only maintain their same percentile rank from Fall to Spring.

Four of these five unusually effective programs were funded by Title I. The fifth had its origins in part, in Title III of ESEA.

Questions similar to the preceding can also be posed of summer programs. Answers to them showed the following:

1. With regard to need: students who received compensatory assistance in a summer program had depressed reading scores during the regular school year although they were not as low scoring as regular year compensatory students who did not attend summer programs nor were summer attendees proportionately as poor or non-white as were their regular year compensatory counterparts.

   .. Students in Title I funded programs had lower test scores than did students in non-Title I programs.

2. With regard to level of resources: costs per student hour of instruction were 2.5 times greater in the summer than during the regular school year.

   . Title I funded programs were about 1.6 times more expensive than non-Title I programs.

3. With regard to benefit: at the time of completion of their summer programs student attendees did not fall below the level of skill development they had attained in the Spring.

.. Students in Title I funded programs achieved an amount equal to that of students in non-Title I programs even though the former scored lower on the Spring tests than did the latter (viz. Title I students did not fall further behind).

4. With regard to unusually effective summer programs: five could be identified*, however, they did not differ from others in terms of their type of approach nor were they more nor less expensive than others--rather, a few characteristics of the teaching staff related to their experience and attitude toward their students appeared to play a prominent role.

* Three at grade two and two at grade four.

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Al-Salam, Nabeel, and D. Flynn, 1976, An Evaluation of the Cost Effectiveness of Alternative Compensatory Reading Programs Volume IV: Summer Programs. Bethesda, Md.: RMC Research Corporation (UR-231),

This report extends the resource-cost model to summer programs, presents analyses of their standard costs and examines the results of an attempt to perform cost-effectiveness calculations.

Dienemann, Paul F., D. L. Flynn and N. Al-Salam, 1973, Site Visit Reports for Summer Compensatory Reading Programs. Bethesda, Maryland: RMC Research Corp. (UR-225).

This volume contains a case description of the projects and resources in each of the 27 sites selected for the study of summer programs. Included also is a synthesis and summary of the case results.

Dienemann, Paul, F., D. L. Flynn, N. Al-Salam, 1974, An Evaluation of the Cost Effectiveness of Alternative Compensatory Reading Programs Volume I: Cost Analysis. Bethesda, Maryland: RMC Research Corporation, (UR-231).

This report deals with the development of the resource-cost model to allow standard costs to be estimated on the basis of resources utilized. Included also are the results of cost analyses at the classroom level.

Farr, Roger, J. Tuinman, M. Rowls, 1974, Reading Achievement in the United States: Then and Now Bloomington, Ind.: Indiana University,

This report attempts to synthesize what can be learned concerning student performance on standardized test of reading skills during the past century.

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This report contains the results of an extensive set of tests that were conducted to determine the sensitivity of the resource-cost model to departures from its assumptions as they affect the cost estimates. Other sources of error were also examined.

Flynn, Donald L., A. E. Hass and N. Al-Salam, 1976b, An Evaluation of the Cost-Effectiveness of Alternative Compensatory Reading Programs Volume III: Cost-Effectiveness Analysis of Regular School Year Programs. Bethesda, Md.: RMC Research Corporation (UR-231).

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This report describes the results of detailed micro-observations of teachers and students during reading instruction in a sample of compensatory projects deemed to be worthy of special observations because they were engaged in unusual (non-routine) kinds of instructional practices.

Quirk, Thomas J., K. B. Nalin and S. F. Weinberg, 1973a, The Development of a Teacher Observation Instrument for Reading Instruction. Princeton, New Jersey: Educational Testing Service (PR-73-39).

Describes the development and use of procedures and scales for making detailed micro-observations of teacher behavior during reading instruction.

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Describes the development and use of procedures and scales for making detailed micro-observations of student behavior during reading instruction.

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This report, in three volumes, summarizes the results from a survey of principals and teachers in grades 2, 4 and 6 of a national probability sample of 731 elementary schools, concerning detailed aspects of their regular and compensatory reading instructional practices.

Trismen, Donald A., M. I. Waller, and G. Wilder, 1976a, A Descriptive and Analytic Study of Compensatory Reading Programs Final Report: Volume II. Princeton, New Jersey: Educational Testing Service (PR-76-3).

This report contains descriptions of: the manner in which schools with varying degrees of effectiveness were identified; the ways in which site visit teams were formed and utilized; and, the results of their observations. Included also are analyses of schools that were selected because they had unusual approaches to compensatory instruction and the results of observations in selected other types of schools (e.g., non-compensatory).

Trismen, Donald A., M. I. Waller, and K. Bulter-Nalin, 1976b, A Descriptive and Analytic Study of Compensatory Reading Programs: Addendum I to Volume I of the Final Report Princeton, New Jersey: Educational Testing Service, (PR-76-2).

This addendum describes the results of highly structured and detailed observations that were made of teacher and student behaviors during reading instruction and how these were related to student reading skill attainment. Included also are analyses of summer programs, comparisons of the students who attended them and an analysis of their reading skill attainment.

Trismen, Donald, A., and M. I. Waller,, 1976c, A Descriptive and Analytic Study of Compensatory Reading Programs: Addendum II to Volume I of the Final Report. Princeton, New Jersey: Educational Testing Service, (PR 76-5)

This report contains selected analyses similar to those in Volume I but with refinements in the classification of schools by funding categories.

Trismen, Donald A.; M. I. Waller, and G. Wilder, 1975a, A Descriptive and Analytic Study of Compensatory Reading Programs Final Report: Volume I Princeton New Jersey: Educational Testing Service (PR-76-2).

This report contains the results of extensive comparative analyses of compensatory and non-compensatory students with regard to their background attributes, test performance, liking for reading and growth in reading skills as related to their instructional experiences.

Trismen, Donald A., M. I. Waller, G. Wilder and K. Butler-Nalin, 1975b, A Descriptive and Analytic Study of Compensatory Reading Programs: Addendum to the Phase I Report. Princeton, New Jersey: Educational Testing Service (PR-75-23).

This report presents the results of further analyses concerned with: indices of teacher background and their correlates; geographic comparisons; comparisons of schools that do and do not offer compensatory reading programs; and a brief historical review of reading instructional practices in the U.S. since colonial times.

Trismen, Donald A., 1972, A Descriptive and Analytic Study of Compensatory Reading Programs. Princeton, New Jersey: Educational Testing Service (PR-72-2).

This report summarizes results from the first six months of the study concerned with the development of detailed plans and specifications. These include: sample frame development and selection; questionnnaire development; and detailed design considerations (including an Appendix volume).

## APPENDIX A

The purpose of this appendix is to illustrate that very different conclusions about program impact can be reached depending upon whether raw scores or grade level equivalents are used for analysis purposes*.

The first set of figures, given in Table 1, compare the total number of reading skill items completed correctly in the Fall and in the Spring. Examination of these data shows that compensatory students (CR) exhibit a greater increment in the number of items correct from the Fall to the Spring than do either non-compensatory students in their own schools (NCR) or students in schools that don't have compensatory reading programs. These differences are more pronounced at the second grade than at the higher grade levels. Further, when these results are compared with the Metropolitan Achievement Test (MAT) norms at the fourth grade (the only grade level for which both Fall and Spring norms were available) one finds that all students achieve at a greater rate than does the typical or average student. The average student shows an improvement of 8 items during the course of the year, moving from 63 items correct in the Fall to 71 correct in the Spring. Hence, in terms of raw scores, compensatory students are closer to their non-compensatory peers in the Spring than in the Fall--on the average they tend to catch up although a considerable difference still remains.

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* The data for these analyses are taken from Tables 23A and 23B of Trismen, et al., 1975a (see MAT TOTALS).

Table 1 - Mat Total Number of Items Correct

| Grade Level | Test Administration | CR* | NCR** | NCR-CR Difference | NCR Schools*** | NCR Schools-CR Difference |
|---|---|---|---|---|---|---|
| Second | Fall | 40.3 | 56.7 | 16.4 | 53.3 | 13.0 |
| | Spring | 59.6 | 70.0 | 10.4 | 67.8 | 8.2 |
| | Difference | 19.3 | 13.3 | | 14.3 | |
| Fourth | Fall | 39.3 | 60.7 | 21.4 | 56.5 | 17.2 |
| | Spring | 50.0 | 70.1 | 20.1 | 66.4 | 16.4 |
| | Difference | 10.7 | 9.4 | | 9.9 | |
| Sixth | Fall | 57.8 | 76.2 | 18.4 | 74.3 | 16.5 |
| | Spring | 64.2 | 79.7 | 15.5 | 77.5 | 13.3 |
| | Difference | 6.4 | 3.5 | | 3.2 | |

* CR - students who received compensatory assistance in reading.

** NCR - students in schools with compensatory reading programs who did not receive such asssistance.

*** NCR schools - students in schools that do not have compensatory reading programs.

Table 2 - Mat Total Grade Level Equivalents

| Grade Level | Test Administration | CR** | NCR** | NCR-CR Difference | NCR Schools*** | NCR Schools-CR Difference |
|---|---|---|---|---|---|---|
| Second | Fall | 1.76 | 2.31 | .55 | 2.21 | .45 |
| | Spring | 2.46 | 3.21 | .75 | 3.05 | .59 |
| | Difference | .70 | .90 | | .84 | |
| Fourth | Fall | 2.93 | 4.36 | 1.43 | 4.10 | 1.17 |
| | Spring | 3.57 | 5.32 | 1.75 | 5.00 | 1.43 |
| | Difference | .64 | .96 | | .90 | |
| Sixth | Fall | 4.22 | 6.20 | 1.98 | 6.03 | 1.81 |
| | Spring | 4.80 | 6.83 | 2.03 | 6.59 | 1.79 |
| | Difference | .58 | .63 | | .56 | |

* CR - students who received compensatory assistance in reading.

** NCR - students in schools with compensatory reading programs who did not receive such assistance.

*** NCR Schools - students in schools that do not have compensatory reading programs.

Analyses of these data, after they have been converted to grade-level equivalents, are given in Table 2. Examination of these results would lead one to the conclusion that compensatory students (CR) are one-half to almost two years behind NCR students in the fall and that they fall progressively further behind during the regular school year with this drop being most severe at the fourth grade and least severe at the sixth grade. Such results would lead one to the view that in spite of their assistance, compensatory students do not achieve at a rate equal to or greater than that of their unassisted peers. In fact one would conclude that non-compensatory students (NCR) attain almost a full year of growth over this period of time whereas CR students attain only six-tenths of that amount.

These results for grade level equivalents are an artifact of a procedure which both forces test scores to take on certain properties (by making them pass through or near average performance at different grades) and accentuates small differences in test performance so that they assume unwarranted importance (e.g. for some tests at some grade levels, one item correct can be worth one-half a year of growth). Grade level equivalents do not accurately reflect test results and should never be used in educational evaluations.

APPENDIX B

Standard Score Differences for Compensatory versus Non-Compensatory Differences by Test and Grade Level

Compensatory Students Compared With Students in Schools That Do Not Have Compensatory Programs

| Test | Grade Level: | 2 | | 4 | | 6 | |
|---|---|---|---|---|---|---|---|
| | | Fall | Spring | Fall | Spring | Fall | Spring |
| Metropolitan Word Knowledge | | -.66 | -.51 | -.77 | -.79 | -.80 | -.70 |
| Metropolitan Reading | | -.68 | -.59 | -.76 | -.78 | -.82 | -.74 |
| Metropolitan Total | | -.72 | -.58 | -.80 | -.80 | -.84 | -.74 |
| COOP/STEP II | | -.74 | -.64 | -.74 | -.70 | -.86 | -.81 |

Compensatory Students Compared With Non-Compensatory Students from Schools that Offer Compensatory Programs

| Test | Grade Level: | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Fall | Spring | Fall | Spring | Fall | Spring |
| Metropolitan Word Knowledge | | -.84 | -.63 | -.98 | -.98 | -.89 | -.83 |
| Metropolitan Reading | | -.86 | -.74 | -.93 | -.79 | -.91 | -.83 |
| Metropolitan Total | | -.91 | -.74 | -.99 | -.98 | -.94 | -.87 |
| COOP/STEP II | | -.91 | -.84 | -.95 | -.89 | -.96 | -.92 |

These data were computed from the values in Revised Tables 23A and B of Trismen et al., 1976c by subtracting the means of the two groups and dividing by the sample standard deviation.

APPENDIX C

Fourth Grade Metropolitan Standard Score Values for Compensatory and Non-Compensatory Students Taken from the National Fall and Spring Means

| Test | Compensatory Students | | Non-Compensatory Students in Schools that offer Compensatory Programs | | Non-Compensatory Schools | |
|---|---|---|---|---|---|---|
| Grade 4* | Fall | Spring | Fall | Spring | Fall | Spring |
| Metropolitan Word Knowledge | -1.09 | -1.03 | -.11 | -.04 | -.32 | -.23 |
| Metropolitan Reading | - .97 | - .82 | -.04 | +.12 | -.21 | -.04 |
| Metropolitan Total | -1.10 | -1.03 | -.12 | -.04 | -.30 | -.23 |

* These values were excerpted from Revised Table 23A and B of Trismen, et al., 1976 c.

APPENDIX D

Evidence of Effectiveness From State and Local Reports

Another form of information concerning the aggregate benefits of Title 1 comes from the annual State evaluation reports. Early in FY '73 legislative activities suggested that Title I would retain its identify even if consolidation were to occur. Therefore, a study was initiated to see what could be learned from a critical examination of the information in recent State Title I reports (FY's 71-74), how such results might have changed when compared with earlier years (FY's 69-70 in Wargo, et. al, 1972) and, how State reporting systems might be improved.* Results from the first phase of this study, which is concerned with the review of current and past reports, reveals that most continue to show a number of serious shortcomings which precludes their usefulness in making statements about the achievement benefits of project participants at the state level. Most reports do not contain statistically representative data and the data which are presented are almost always expressed in terms of grade level equivalent gains. The data are unrepresentative because many LEAs do not get their reports in on time to be used in the State's report and of those that do, the data are often incomplete and nonrepresentative.** Hence, in preparing his

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* Specific steps that are being taken to improve State and local project evaluation practices and reports are discussed in the final portion of this report.

** Some States have used the Anchor test results to equate achievement test scores for grades 4, 5 and 6 (1974). However, this practice is limited and will diminish as more manufacturers revise their tests.

report the State evaluator is forced to rely only on the available data and this is a biased subset of all LEA projects and their participants.* Almost all of the States report their achievement benefits in grade equivalent gains--a metric that capitalizes on systematic biases introduced by practices of test manufacturers, as discussed in a subsequent section.

Despite these drawbacks some trends across this six-year period could be discerned. They were: (1) the numbers of Title I participants showed a progressive decrease while expenditures over time showed a corresponding increase with the result that average Title I per-pupil expenditures increased; (2) most participants were involved in Title I during the regular school term, most were in the primary grades and most were involved in reading or language arts programs; (3) expenditure data which were available showed a substantial and continuing increase for instruction and a decrease for construction and equipment; (4) there was a heavy emphasis on direct educational services in contrast to services supportive of the instructional program with reading and language arts receiving highest priority; (5) needs assessment information indicated that reading and mathematics are the most frequently identified areas of need and that standardized tests are used to determine student needs; (6) for the small number of states for which impact data were found to be valid (about 17) student participants manifested growth equivalent to or greater than the national average; however, their fall test scores

* The direction of the bias is probably positive if one recognizes that children present at the beginning and end of the school year are likely to be more academically able than those who leave.

at successive grade levels showed that such gains as did occur were not cumulative across the years, undoubtedly for some of the same reasons cited earlier (summer losses and serving the most needy each year) as well as due to the States use of Grade Level Equivalent scores for reporting gains (Gamel, et al., 1975).

In a recent search for effective reading projects sponsored by the Right-to-Read program (viz. the search was not limited to compensatory projects) some 1500 candidates were identified. Of this total about 52 percent eliminated themselves from consideration (by failing to respond to the survey questionnaire). Of the 728 remaining only 27 (or less than four percent) were found to meet defensible standards for claims of effectiveness (e.g., adequate criterion measures, statistical adequacy, experimental design, etc.). Of these 27 projects, OE's Dissemination and Review Panel (DRP) approved 12 as meeting adequate evaluation standards (this represents a survival rate of less than one percent of 1500 or about 1.6 percent of the 728). Of those that were approved by the DRP eight were compensatory projects and four of these were funded by Title I (Bowers, et. al, 1974). Such results show that the problems of adequate evaluation procedures are not limited to a particular Federally funded program but are rather endemic to the educational sector.

These results can be contrasted with those from a survey conducted by the Title I program staff. In this survey each State was encouraged to nominate two effective projects. Fifty-one were received, screened and reduced to 28 by the OE staff. These 28 were then site visited to make detailed observations of them and to insure that they were in compliance with regulations. The 17 survivors from this latter screening

stage were submitted to the DRP; 11 were approved for dissemination. On the basis of these two studies (as well as the foregoing) it can be asserted that the evaluation requirements for Title I "lead the way" for the evaluation of State and locally funded projects. Indeed, one might question whether effectiveness concerns would have attained anywhere near the prominence they have during the past decade were it not for the Title I evaluation requirements.

A third, earlier search conducted by OPBE, sought to identify, validate and package up to 8 effective approaches to compensatory education so that schools in other locales could duplicate the projects by working directly from the package (Tallmadge, October 1974). Some 200 projects were considered as potential candidates for packaging. Initial screening on three criteria reduced this number to 136. The three criteria were that the program had to: emphasize reading and math benefits; be oriented toward disadvantaged children; and, be evaluated more than once. Of the 136 survivors, detailed descriptive information could be obtained on only 103. Fifty-four percent of these were rejected due to inadequate evidence of effectiveness as determined by an exceptionally rigorous examination which included independent analyses of project raw data and on-site visitations. Hence, six projects were selected and their specific implementation requirements were packaged in what have come to be called "Project Information Packages" (PIP's) (five of these six were Title I funded). These six packages are now being field tested

to see if results in other sites can be produced which are comparable to those of their original site.*

When the effectiveness data for the above projects were being carefully validated (Tallmadge and Horst, 1974), some heretofore unrecognized effects of the practices of test manufacturers were revealed. Since these effects are dramatic in nature and have profound implications for the conduct of all evaluations they will be dealt with in some detail here.

Many test manufacturers obtain their "norm" data (namely, data on how a nationally representative sample of students perform on the test) during the middle of the academic year, about February. For many purposes including program evaluation, however, norms are desired so that one can gauge their students' standing relative to other students at the beginning and at the end of the school year. To fulfill this need the manufacturers usually create "synthetic" norms by drawing a smoothed curve through the average or median scores for consecutive grade levels. This curve is then assumed to represent the growth throughout the academic year for a typical or average student. However, students probably do not grow according to this kind of a curve. They may forget a great deal over the summer and may learn more during some periods of the year than others. Consequently, this smoothing procedure introduces systematic biases which can produce some of the following results depending upon the grade level involved: (a) project students can show better than month for month gains yet never catch up

* For more details on the nature of the field test see the evaluation projects described under the Packaging and Field Testing Program.

with their more advantaged peers; (b) project students are virtually precluded from showing month for month gains or better since the typical or average student only gains two-thirds of a month per month.

In addition, some test publishers break the nine month academic year up into three equal segments. For example, starting with September 1st as the beginning of the school year, three months of growth would occur between November 30th and December 1st and another three months of growth would occur between February 28 and March 1st. As a result of these kinds of synthetic norms, a program that administers its pre-test late in the Fall and then post-tests early in the Spring will show more month per month growth than a program that tests early in the Fall and late in the Spring, even though the latter program might be considerably more effective than the former. Finally, the use of grade equivalent scores, rather than standard scores or percentiles, was shown to systematically distort the amount of growth even when real norms were available for the time period under consideration. As a result projects can be judged effective and worthy of dissemination when they aren't and project participants can be judged as catching up with their more privileged counterparts when they aren't. Or alternatively, on occasion effective projects can be rejected as being ineffective. The antidote to all this is to use only those tests which have real norms appropriate for the time interval under study and to base the evaluation on standard scores and express the results in percentile ranks.* These results hve profound implications for the upgrading of State and local Title I evaluation practices discussed in subsequent paragraphs.

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* For example, participating students moved from the 12th percentile on the pre-test to the 33rd percentile on the post-test.

Anchor Test Study Equivalence and Norms Tables for Selected Reading Achievement Tests (Grades 4, 5, and 6). Washington, D.C.: U.S. Government Printing Office, 1974.

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