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ABSTRACT

The Promotional Gates Program was initiated in the New York City Public Schools in order to set and maintain citywide curriculum and performance standards, identify students unable to meet the minimum standards, and provide remedial instruction. Under this program, the promotional policy sets "gates" at grades 4 and 7; students unable to meet performance standards at the end of these school years are retained and given intensive instruction in reading and mathematics. This report examines (1) staff development in the program for 1982-83; (2) implementation of the Gates 1982 summer program and outcomes reflected in test results in August, 1982; and (3) the initial implementation of the 1982-83 Gates program and outcomes reflected in test results in January, 1983. Data in the report refer to students held over in the 4th or 7th grade for the first time in 1981-82. Also presented are data on two subgroups of the Gates population: limited English proficient and resource room students. It is concluded that (1) program organization and administration through January, 1983, was more efficient than in the previous year; (2) appeal procedures were formalized and more consistently applied than in the program's first year; (3) reactions to staff training for the summer and school year programs were largely favorable; and (4) reading outcomes at the end of summer school and in January, 1983, were equivalent to or slightly better than the previous year's results. Problem areas are identified as student attendance, a shortage of instructional materials, and services to limited English proficient students. (GC)

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O.E.E. Evaluation Report

July, 1983

THE 1982-83 PROMOTIONAL GATES PROGRAM:

MID-YEAR ASSESSMENT AND ANALYSIS OF AUGUST, 1982 AND JANUARY, 1983 TEST RESULTS

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A SUMMARY OF THE REPORT

STUDENT ELIGIBILITY

In April, 1982, 28,108 fourth- and seventh-grade students scored below the promotional criteria on standardized reading and/or mathematics tests and became eligible for the Promotional Gates Program. Of this number, 987 students were subsequently discharged from the school system and 2,029 students were granted exceptions from the promotional policy. By June, 1982, the number of Gates-eligible students was 25,068 -- 18 percent of all students enrolled in the fourth or seventh grade for the first time in 1981-82.

SUMMER PROGRAM AND AUGUST TEST RESULTS

Approximately 70 percent of Gates-eligible students registered for the Gates summer program. More than half of the students held over in June, 1982 took the optional retest in August, and more than a quarter of all the June holdovers attained scores which allowed promotion to the fifth or eighth grade before the outset of the 1982-83 school year. In general, students who took part in the Gates summer program were more successful in meeting the promotional criteria in August than were students who had not participated or who had attended for only a few days.

Students who had initially scored below the criterion in one subject were more successful in gaining promotion than were students who had fallen below the criteria in both areas. Seventh-grade students made real gains in reading, but the reading achievement of fourth-grade holdovers showed no real improvement over the summer. Both grades made real gains in mathematics achievement. Summer school participants made greater strides than non-participants in both reading and mathematics.

FULL-YEAR GATES PROGRAM: PLACEMENT AND ATTENDANCE DATA

At the beginning of the 1982-83 school year, 19,051 students (13.7 percent of all first-time fourth or seventh graders in 1981-82) were eligible for participation in the Gates program. Information collected on class placement indicates that 87 percent of Gates holdovers were placed in either Gates or Gates Extension classes by November, 1982. However, data gathered through November 30 indicate that, on the average, seventh-grade Gates students had poor attendance. Improving attendance remains a major challenge to program administrators.

MIDYEAR OUTCOMES

When Gates-eligible students were tested in January, 1983, 11 percent met the more difficult midyear criteria and became eligible for promotion. An additional 17 percent scored above the end-of-year promotional criteria in January. These results are similar to the midyear results of the 1981-82 Gates program. The January test data also indicate that fourth-grade Gates students made real gains of two months in reading and four months in mathematics. Seventh-grade Gates students made gains of at least five months in reading and eight months in mathematics. Seventh-grade gains in reading were slightly higher this year than they were last year; the performance of fourth graders was similar in the two years. As in the first year of the program, limited English proficient Gates students had lower achievement levels than other Gates students, indicating that services for this special group should be reexamined.

GENERAL CONCLUSIONS

The Gates evaluation team noted some major strengths in the program's implementation.

- -- The organization and administration of the Gates program through January, 1983 was more efficient than it had been the previous year, despite the introduction of the mathematics standard and the creation of three categories of Gates holdovers.
- -- Appeal procedures were formalized and more consistently applied than in the program's first year.
- -- Reactions to staff training for the summer and full-year programs were largely favorable.

At the same time, the team identified areas requiring continued attention.

- -- Improving student attendance remains a major challenge to program administrators.
- -- A shortage of instructional materials related to suggested curricula hampered summer school instruction.
- -- Services to limited English proficient students should be scrutinized, judging by their performance on the CAT.

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I. INTRODUCTION

THE INTENT OF THE PROMOTIONAL POLICY

Tne intent of the New York City Public School's promotional policy (Promotional Policy for Students in Grades Kindergarten through Grade Nine, Chancellor's Regulation A-501) is to set and maintain citywide curriculum and performance standards, identify students unable to meet the minimum standards, and provide remedial instruction. The promotional policy sets "gates" at grades four and seven: fourth- and seventh-grade students unable to meet minimum performance standards at the end of the school year are retained and given intensive instruction in reading and mathematics.

The policy was introduced in June, 1980. Promotional standards for kindergarten through grade nine were implemented during 1980-81, and promotional gates in reading were established for grades four and seven at the end of the 1980-81 school year. At the end of the 1981-82 school year, promotion depended on performance levels in mathematics as well as reading.*

THE PROMOTIONAL GATES PROGRAM, 1981-82

A series of evaluation reports documents the implementation process and assesses program outcomes during the first year of the Gates program.**

In 1983-84, mathematics achievement will no longer be used as a promotional standard, but it will remain a performance standard.

**These reports are available from the Office of Educational Evaluation (O.E.E.).

In its final 1981-82 report, the Gates evaluation team concluded that the program met its objectives with respect to staff selection and training, class size, scheduling requirements, and the use of exemplary curricula.

In April, 1981, over 24,000 fourth- and seventh-grade students were identified as potential program participants based on their performance on one of two reading tests.* The number of participants changed during the course of the year as a result of exceptions granted and interim testing. By April, 1982, 69.5 percent of the 18,653 Gates students with complete test records had attained the promotional criteria. Those who did not were retained again in 1982-83 and placed in Gates Extension classes.

Analysis of Gates students' April, 1981 pretest and April, 1982 posttest scores indicated that they made significant gains in reading, although their achievement did not differ greatly from that of a non-Gates comparison group. The evaluation team concluded that while 70 percent of Gates students were better able to handle work in the next grade, helping the remaining 30 percent of students meet promotional criteria continued to be a difficult problem.

SCOPE OF THIS EVALUATION

In the present report, we have examined:

-- staff development for 1982-83;

-- implementation of the Gates 1982 summer program and outcomes reflected in the August, 1982 test results;

-- the initial implementation of the 1982-83 Gates program and outcomes reflected in January, 1983 test results.

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*The Criterion Achievement Test (CAT) or the Criterion-Referenced English Syntax Test (CREST).

We asked the same basic questions about the summer and the full-year programs: to what extent did the program help students meet promotional criteria, and how much academic progress did the students make? To answer these questions we have looked at the achievement of various categories of Gates students in 1982-83:

-- reading-only holdovers;

-- mathematics-only holdovers;

-- reading-mathematics holdovers.

The data in this report refer to students held over in the fourth or seventh grade for the first time in 1981-82.* The report also includes data on two subgroups of the Gates population: limited English proficient students and resource room students.**

Throughout the report, we highlight program changes that occurred since last year. Chapter II, "Program Background," outlines the general operation of the Gates program: promotional criteria; the exception and appeals procedure; the testing schedule; and categories of eligibility. Chapter III, "Staff Development," briefly presents staff reactions to training for the summer and full-year programs. Chapter IV, "Summer Instructional Program," describes the summer curricula, discusses the evalation team's

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*The Gates Extension Program, 1982-83, is evaluated in a separate O.E.E. report.

**Resource room students are mainstreamed special education students receiving additional attention in resource classroom's (as opposed to students in self-contained special education classrooms).

classroom observations, and presents attendance data. We explore the impact of the summer program in Chapter V, which presents the results of optional August retests.

Although our end-of-year report will present a detailed analysis of the full-year Gates program, Chapter VI presents initial data concerning class placements and student atte dance. Chapter VII analyzes the midyear test results and compares them to last year's midyear results. Chapter VIII presents our major findings and conclusions.

II. PROGRAM BACKGROUND

PROMOTIONAL CRITERIA, APRIL, 1982

Reading Criteria

As in 1981-82, fourth- and seventh-grade students had to take the California Achievement Test (CAT) and attain scores of at least 3.7 and 6.2 respectively to be promoted.

However, the promotional criteria for limited English proficient (LEP) students were changed in 1982. Students who had been in an English-language school system for more than two but less than four years were required to obtain a raw score above the twentieth percentile on the reading subtest of the Language Assessment Battery (LAB; English version).* For fourth-grade students, this was equivalent to a score of 13 (level II of the LAB); for seventh-grade students this was equivalent to a score of 25 (level III). Students in an English-language program for more than four years were subject to regular promotional criteria on the CAT. Students in an English-language program for less than two years were exempt from the promotional policy.

Mathematics Criteria

In April, 1982 students were for the first time subject to promotional criteria in mathematics. To be promoted, they had to attain scores on the New York City Mathematics Test (N.Y.C.M.T.) that were

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*In 1981, promotion of LEP students who had been in an English language school system for less than four years had been based on the Criterion Referrenced English Syntax Test (CREST).

not more than two years below their grade level. (Fourth graders had to score 2.7 or above; seventh graders, 5.7 or above.)

While the reading criteria for the two grades were roughly equivalent in terms of percentile ranks (twenty-seventh percentile for fourth grade and twenty-ninth percentile for seventh grade), this was not the case for mathematics. The fourth-grade mathematics criterion was equivalent to the seventh percentile in national norms while the seventh-grade mathematics criterion was equivalent to the twenty-third percentile. One would therefore expect to see significantly fewer mathematics hold-overs in fourth grade; this was indeed the case.

STUDENT ELIGIBILITY

The promotional policy allows students to move into and out of the Gates program at a number of points in the school year. The Gates population changes as students attain promotional criteria at any one of a number of test administrations, are granted waivers of the promotional standard through exceptions or appeals or are discharged from the school system.*

Promotion at the end of the 1981-82 year depended on the April, 1982 tests. Optional retests were administered in August, 1982. During the fall, the tests were given to students who had not been tested in April or August. Students were retested in January, 1983, for midyear promotion; midyear promotion criteria, however, were more stringent than end-of-year criteria.

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*A detailed accounting of pupil movement in and out of the Gates program is presented in Appendix A.

Figure 1 presents the number of students in the Gates program at various points from April, 1982 through February, 1983. In April, 1982, 28,108 students, or 21.6 percent of all students in the fourth or seventh grade for the first time, failed to meet promotional criteria. The Office of Promotional Policy granted exceptions to 2,053 of these students, and thus in June, 1982, 25,068 students, or 18 percent of first-time fourth and seventh graders, were actually held over. A breakdown of the June holdovers by grade and eligibility category is presented in Table 1. The number of seventh-grade holdovers was more than double the number of fourth-grade holdovers, an imbalance reflecting the relatively greater impact of the mathematics standard on the seventh grade: 10 percent of fourth-grade and 72 percent of seventh-grade holdovers did not meet the mathematics criterion.

EXCEPTION AND APPEALS PROCEDURE

In 1982-83, procedures for requesting exceptions from the promotional policy were formalized by the Office of Promotional Policy (O.P.P.) and in May, 1982, these procedures were announced in a memorandum to community superintendents. Principals requesting individual exceptions were required to submit a detailed educational profile for each student on a standard form. As in the previous year, principals' requests were sent to the community superintendent; approved requests were then forwarded to the Office of Promotional Policy for consideration. In addition, this year all parents of fourth- and seventh-grade children who did not meet promotional criteria were advised by letter of the Chancellor's regulation authorizing their right to appeal the promotional status of their children.

TABLE 1

Categories of Student Eligibility for
the Promotional Gates Program
as of June, 1982

	Reading-only holdovers[a]	Mathematics-only holdovers[a]	Reading-Mathematics holdovers[a]	Total holdovers
Grade 4	7,059	177	650	7,886
Grade 7	4,683	5,827	6,672	17,182
	11,742	6,004	7,322[a]	25,068

NOTE: The promotional status of an additional 4,842 students was unknown because they lacked scores for both tests or they lacked either a reading or mathematics score but met the criterion in the other subject.

[a]Holdovers in only one subject either scored above the criterion, or were missing scores in the other category.

[b]Reading-mathematics holdovers scored below the criterion in both subjects.

Exceptions were generally decided by considering the number of months a student's total score fell below the promotional criterion; a student's comprehension subtest score on the CAT; and/or a student's problem-solving subtest score on the N.Y.C.M.T. For the first time, the Office of Promotional Policy also considered indications of ability on alternative tests of reading: the Degrees of Reading Power (D.R.P.) and the Pupil Evaluation Program (PEP) tests.

In examining exceptions for seventh-grade students, reviewers also took into account the number of subjects a student had failed. The exception was more likely to be denied if a student had failed several subjects.

The number of exceptions granted in 1982 was five times the number granted in 1981, reflecting the impact of the new procedures.

III. STAFF DEVELOPMENT

EVALUATION QUESTIONS

An important component of the Promotional Gates Program is the training of program staff. In 1982-83, training for district facilitators, supervisors, and teachers was held on three separate occasions. Training in June anticipated the Gates summer-school program. Training for the full-year program took place over a two-week period in August and on one additional day in November.

We looked at summer school pre-service training and at pre- and in-service training for the full-year program with the following questions in mind:

-- What changes had occurred in the organization and implementation of the training programs since the previous year?

-- What were participants' reaction to the programs?

-- Were there differences in the perceptions of facilitators, supervisors, and teachers? between teachers of different subjects?

TRAINING FOR THE SUMMER PROGRAM

To prepare for the summer program, leaders of district staff development received three hours of training in their subject area -- communication arts or mathematics; site supervisors received three hours of training related to both subjects; and teachers received four hours of pre-service training in the appropriate subject(s). Teachers were also required to attend a total of eight hours of in-service staff development during

afternoons in July and August, after teaching students in the morning. This additional training was conducted in the districts, not centrally.

In general, supervisors and teachers surveyed by the evaluation team seemed pleased with the summer workshops. Many did suggest, however, that training was rushed and that more time at workshops for reviewing materials and practicing new techniques might be helpful. For the most part supervisors and teachers expressed similar reactions, although supervisors as a group felt less prepared to handle the responsibilities of the program (66 percent of the supervisors felt prepared, compared with 80 percent of the teachers).

Table 2 provides a breakdown of positive ratings given to the workshops by teachers in each grade and subject area. The percentage of positive ratings of communication arts workshops ranged from 48 percent to 92 percent. Mathematics workshops consistently received higher ratings, the percentage of positive ratings ranging from 68 to 95 percent among fourth-grade teachers, and from 60 to 94 percent among seventh-grade teachers.

TRAINING FOR THE FULL-YEAR PROGRAM

Pre-Service Training -- August, 1982

The Division of Curriculum and Instruction conducted a needs assessment among Gates staff which was used to plan training for the full-year Gates program. Ten half-day sessions were held from August 16 to August 27. New Gates teachers received more extensive training (20 to 40 hours) than teachers participating in the program for a second year (8 to 16 hours).

TABLE 2

Teachers' Reactions to Training for the Summer Program

Questions	Percentage of Positive Ratings			
	Communication Arts		Mathematics	
	Grade 4 (N=116)	Grade 7 (N=155)	Grade 4 (N=22)	Grade 7 (N=119)
The Gates programs were clearly explained.	87%	83%	95%	92%
Questions were answered satisfactorily.	92	81	91	94
Relevant demonstrations/ examples were provided.	76	71	91	81
Relevant activities/ exercises were provided.	77	66	82	76
Had opportunity to practice techniques.	48	51	68	60
Appropriate balance of explanation and practice was provided.	57	56	77	70
Had opportunity to study program materials.	61	69	77	77
Now understand the Gates summer program.	77	74	86	88
Believe the Gates summer program will be effective.	76	70	86	83
Teachers' needs were addressed.	72	65	82	84
Feel prepared for responsibilities.	81	81	86	93

Twenty of the 25 facilitators who attended training in August responded to an evaluation questionnaire, and their reactions were generally favorable. Eighty percent felt that questions were encouraged and answered professionally; 70 percent felt that relevant activities were provided. Most facilitators also expressed confidence in their overall ability to implement the Gates program in 1982-83 (84 percent) and to deal with situations that they were likely to encounter (80 percent).

A smaller majority of facilitators felt that the training prepared them for specific responsibilities, such as evaluating program effectiveness (65 percent), organizing follow-up staff training (60 percent), and understanding the relationship of special and bilingual education to the Gates program (60 percent).

Supervisors and teachers were also asked to evaluate their training. Table 3 presents results from 116 supervisors and 1,293 teachers who responded to our questionnaire; most of them gave positive ratings to each aspect of training reviewed. Most felt that questions were encouraged and answered professionally, that relevant activities were provided, and that they were prepared to supervise or teach the Gates program. However, fewer respondents in both groups felt that they had had sufficient time to learn program techniques.

In-Service Training -- November, 1982

In-service training during 1982-83 was also reorganized to reflect the program staff's experiences in 1981-82. In 1981-82, each district had held its own teacher training, offering eight hours of training in

communication arts and eight in mathematics. This year, staff training planned and administered centrally and offered to both teachers and supe in the form of a six-hour session held on Veterans Day. Districts using exemplary programs provided an additional four hours of local training. Only districts using optional programs provided all 16 hours of staff training locally.

Most of the workshops given at the training sessions were led by experienced Gates teachers or curriculum specialists. They covered a wide variety of topics, such as oral-language development, mathematics anxiety, the use of audio-visual media, techniques for teaching writing in Gates classrooms, and exemplary curricula.

Overall, participants rated workshops favorably: 92 percent found that the workshops helped them improve classroom instruction; 89 percent planned to use materials from the workshops in their instructional programs and 81 percent felt that follow-up workshops should be provided.

TABLE 3

Reactions of Supervisors and Teachers to Pre-Service Training for the Full-Year Gates Program, August, 1982

Questions	Percentage of Positive Ratings	
	Supervisors N=116	Teachers N=1,293
Questions were encouraged and answered professionally.	95%	88%
Relevant demonstrations/activities/ exercises were provided.	85	85
Had opportunity to study program materials.	79	69
Had sufficient time to learn program techniques.	67	60
Learned how Gates teachers are to use individual diagnosis to plan for instruction.	76	71
Participant's needs were addressed.	73	73
Understand this Gates program.	85	77
Agree with instructional methods to be used.	84	70
Believe this program will be effective.	84	79
Feel prepared to supervise/teach this Gates program.	83	75

°Supervisors and teachers were generally satisfied with pre-service training for the full-year program.

°Both groups were least satisfied with opportunities to practice techniques.

IV. SUMMER INSTRUCTIONAL PROGRAM

The summer instructional program was conducted for six weeks, from July 6, 1982 to August 13, 1982. A minimum of five teachers and 100 students was required to establish a site. There were 133 summer school sites in the 32 districts, each supervised by a summer administrator. Students in both grades received one and one-half hours of communication arts and/or one and one-half hours of mathematics instruction daily, in classes of no more than 20 students.

DESCRIPTION OF CURRICULA

The curriculum guide for the summer Gates reading classes (both grades) suggested that each daily lesson include a few minutes of journal writing and newspaper reading, a whole-group reading lesson based on literature or content-area materials, a period of skills instruction, sustained silent reading, some oral reading by the teacher, and a preview of the next day's lesson. The guide also provided teachers with reading assessment materials and sample lessons.

The mathematics guide suggested that the daily lesson include homework review, problem-solving, a directed group lesson, small-group instruction/individualized skill practice, homework assignments, and a summary-preview. It also prescribed objectives and provided a planning log, a large selection of instructional activities, and appropriate mastery tests.

CLASSROOM OBSERVATIONS

The evaluation team visited 66 Gates classes at 44 summer school sites.* Observers considered three aspects of instruction: environment; classroom climate; and lesson organization and content. They rated classrooms by assigning either a positive ("adequate" or "commendable"), a negative ("needs attention"), or non-evaluative ("not applicable") rating.**

Table 4 shows the percentage of communication arts and mathematics classes receiving positive ratings. Since Gates classes in both fourth and seventh grades followed the same instructional plan for each subject, and since observations led to similar findings for both grades, ratings for fourth- and seventh-grade classes are combined.

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*Twenty-four observers visited 21 fourth grades and 25 seventh grades in all districts, covering five to eight percent of classes in each of four instructional categories: fourth-grade communication arts, fourth-grade mathematics, seventh-grade communication arts, and seventh-grade mathematics.

**To obtain a measure of interrater reliability, two observers visited the same 18 classrooms. Each observer rated the classrooms separately and they later compared ratings. Where ratings differed, they resolved the differences after discussing the observed lesson and the basis for assigning a rating. In this way, each of 18 classrooms was assigned a pair of ratings along 14 relevant criteria. Of the 252 pairs of ratings thus assigned, 86 (34 percent) were originally in disagreement. Of these, 38 were resolved in favor of the higher score, 32 were resolved in favor of the lower score, and six were resolved in favor of a rating midway between the two original ratings. In ten cases, one observer shifted from a nonevaluative rating ("not applicable") to the rating assigned by the other observer.

TABLE 4

Observers' Ratings of Summer Classes

Questions	Percentage of Positive Ratings: Communication Arts Grade 4 & Grade 7 N= 36	Percentage of Positive Ratings: Mathematics Grade 4 & Grade 7 N= 30
Area		
School Environment		
Security maintained	78%	80%
School Climate	83	80
Classroom Climate		
Physical conditions	58	83
Room arrangement	78	77
Sufficiency of materials	53	70
Noise level	94	87
Pupil-teacher, pupil-pupil interactions	92	93
Lesson		
Reflects suggested curriculum	44	53
Content appropriate to student needs	83	83
Objective clearly presented	78	83
Pupils able to practice	53	77
Teacher gives guidance	92	83
Orderly and productive pace	69	77
Lesson summarized, preview given, homework assigned	28	70

°School environment and classroom climate generally received high ratings, although the percentages of positive ratings assigned to communication arts classes in regard to physical conditions and mat were relatively low.

°Observers assigned fewer positive ratings to communication arts lessons than to mathematics lessons.

The program was satisfactorily implemented in a majority of the classes visited. Aspects of school environment -- school security and school climate -- were rated positively for at least three-quarters of the classes. For the most part, observers also praised the classroom climate, at least those elements which were within the teachers' control such as noise level, room arrangement, and classroom interactions. They were less enthusiastic about the physical condition of the rooms and about the sufficiency of materials, particularly in the communication arts classes.

In general, observers were more critical of communication arts lessons than of mathematics lessons, noting that pupils were given less opportunity to practice and that teachers failed to summarize or preview lessons, or assign homework: only 28 percent of the communication arts classes received positive ratings in these areas.

Although observers indicated that content in most classes was appropriate to student needs, many of the lessons did not clearly reflect the suggested Gates curriculum objectives or procedures: only 44 percent of the communicatio arts classes and 53 percent of the mathematics classes received positive ratings in this regard.

ATTENDANCE

Throughout the summer program, districts provided the Office of Promotional Policy with information on the daily attendance of students at district summer sites. Table 5 provides a citywide summary of this information. District registers indicate a total of 13,624 students -- 71 percent of those eligible -- registered for .eading classes and 8,951

TABLE 5

Average Daily Attendance in Summer Program
Reading and Mathematics Classes

	Eligible	Registered (% of eligibles)		Average Daily Attendance	Percentage in Attendance (% of registered)
Reading		N	%	N	%
Grade 4	7,709	5,600	72.6	4,431	79.1
Grade 7	11,355	8,024	70.7	5,731	71.4
Both grades	19,064	13,624	71.5	10,162	74.6
Mathematics					
Grade 4	827	469	56.7	405	86.4
Grade 7	12,459	8,482	67.9	5,723	67.5
Both grades	13,286	8,951	67.2	6,128	68.5

students -- 67 percent of those eligible -- registered for summer mathematics classes.

Data for individual students in each district indicated that 46 percent of the reading students and 44 percent of the mathematics students eligible for the summer program attended at least half of the total instructional sessions.*

Of those who registered for summer school, the average daily attendance of fourth-grade students was better than that of seventh-grade students. (The percentage of fourth graders enrolled in the mathematics classes, however, was relatively low.)

*Appendix B presents summer attendance date for individual districts.

V. OUTCOMES: AUGUST, 1982 TEST RESULTS

EVALUATION QUESTIONS

The optional August test gave students a second opportunity to attain the promotional criteria and become eligible for promotion to the fifth or eighth grade. Our initial questions in looking at the August, 1982 test data were:

-- What proportion of Gates students became eligible for promotion to the fifth or eighth grade in August, 1982?

-- What were the gains of Gates students in reading and mathematics from April to August, 1982?

Since we were particularly interested in the impact of the voluntary summer program, we conducted a separate analysis to compare the test results of participants with nonparticipants, and asked:

-- What was the impact of summer school participation on criteria attainment and on achievement in reading and mathematics?

Thus the first section of the chapter provides an overview of August, 1982 test results; the second section looks more closely at the effect of participation in the summer program.

AN OVERVIEW

Criteria Attainment

Table 6 provides an overview of the students who attained the promotional criteria in August. More than half of the students eligible for the Gates program -- an almost equal proportion in each grade -- took the optional August test. The 6,734 students promoted on the basis of

this testing represent 26.9 percent of the June holdovers.* The proportion of students promoted was nearly the same in both grades (25.8 percent and 27.3 percent in the fourth and seventh grades, respectively).

The number of students in each category of elibility is also illustrated in Table 6. As might be expected, in each grade the proportion of reading-mathematics holdovers attaining criteria was much smaller than the proportion of successful reading-only or mathematics-only holdovers; in the fourth grade, only 5.8 percent of the reading-mathematics holdovers met the criteria.

Student Achievement

To measure student achievement, we examined test results for all students with scores from both April and August tests.** We adjusted the average April scores in each grade to account for regression to the mean*** and to permit an estimate of gain over and above effects due to regression.

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*The number of students promoted represents 45 percent of the retested group.

**The summer tests were voluntary, and students who chose to retake the test in August were those who might have been expected to score higher than the average Gates holdover. Therefore conclusions about the two groups must be drawn cautiously. Appendix C displays differences in the scores of the two groups.

***The regression effect has been discussed in previous evaluation reports on the Gates program. It results when the same test is used for both pupil selection and program evaluation and is particularly strong at the "tails" of a test score distribution. Appendix D presents the adjustment procedures followed here.

TABLE 6

Criteria Attainment by Eligibility Category
August, 1982

	Total	Reading-Only (% of eligibles)	Mathematics-Only (% of eligibles)	Reading-Mathematics (% of eligibles)
Grade 4				
Number tested	4,686 (59.4%)	4,402 (62.4%)	75 (42.4%)	209[a] (32.2%)
June holdovers	7,886	7,059	177	650
Met criteria	2,038	1,947 (27.6)	58 (32.8)	33 (5.8)
Category shifts[b]	+ 55	+ 163	+33	-141
September holdovers	5,903	5,275	152	476
Grade 7				
Number tested	10,566 (61.5%)	3,165 (67.6%)	3,819 (65.5%)	3,582[a] (53.7%)
June holdovers	17,182	4,683	5,827	6,672
Met criteria	4,696	1,961 (41.9)	2,143 (36.8)	592 (8.8)
Category shifts[b]	- 183	+ 537	+1,016	-1,370
September holdovers	12,669	3,259	4,700	4,710

NOTE: Numbers in parentheses indicate percentage of total June Gates-eligible students when applicable.

[a]This does not include students tested in only one of the two subjects.

[b]Category shifts arose primarily from: reading-mathematics holdovers who met the criterion on only one summer test, and students not previously tested who failed to meet criteria on one or both tests.

[c]The percentage of students attaining the joint reading-mathematics criteria was small in both grades.

Reading Achievement. Table 7 summarizes April and August, 1982 CAT results for all retested June holdovers with below-criterion April reading scores. This includes reading-mathematics holdovers as well as reading-only holdovers. (No analysis of bilingual students' LAB scores was possible since few students had been held over on the basis of their LAB scores.)

On the average, fourth-grade students showed an adjusted gain of only two scale-score units from April to August testings. Their observed gain was no greater than would have been expected as a result of regression. On the other hand, seventh-grade students' April to August adjusted gains indicated a real gain for this group. Their adjusted gain of 12.1 scale-score units is equivalent to a gain of at least four months.

Mathematics Achievement. Table 8 summarizes the April and August, 1982 N.Y.C.M.T. results of all retested June holdovers who had initially scored below the mathematics criteria. On the average, fourth-grade students obtained an August score which was, in grade-equivalent terms, three months higher than their adjusted April score. The average August grade equivalent of students in the seventh grade was four months higher than their adjusted April score.* Scores in both grades indicate significant mathematics achievement during the summer months.

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*Grade-equivalent scores should not be used to compare achievement of the two grades. Scale scores are the appropriate metric for comparing achievement across grade levels. Table 8 indicates that fourth graders made higher scale score gains than seventh graders.

TABLE 7

Summer Reading Achievement
by Gates Students

Grade	N[a]	April, 1982 Observed mean scale score	(S.D.)	Adjusted mean scale score[b]	Grade equivalent	August, 1982 Scale score	(S.D.)	Grade equivalent	Difference Scale score
Four	4,549	375.1	(21.6)	390.5	3.5	392.5	(30.0)	3.5	2.0
Seven	6,862	454.2	(26.6)	470.1	5.6	482.2	(38.3)	6.0	12.1

[a]This analysis includes students who had both April and August, 1982 CAT scale scores. Too few students had April and August, 1982 LAB scores to analyze achievement on that test.

[b]An adjustment was made to account for regression to the mean.

[c]Fourth-grade students showed no greater gain than would have been expected as a result of regression.

[c]Seventh-grade students showed an average adjusted gain of four months.

TABLE 8

Summer Mathematics Achievement
by Gates Students

Grade	N[a]	April, 1982				August, 1982			Difference
		Observed mean scale score	(S.D.)	Adjusted mean scale score[b]	Grade equivalent	Mean scale score	(S.D.)	Grade equivalent	Scale score
Four	277	246.8	(9.8)	254.7	2.6	273.9	(24.1)	2.9	19.2
Seven	7,037	344.6	(18.9)	351.8	5.0	362.6	(30.0)	5.4	10.8

[a] This analysis includes students who had both April and August, 1982 N.Y.C.M.T. scale scores.

[b] An adjustment was made to account for regression to the mean.

- Both grades made significant gains in mathematics.
- Fourth graders showed average adjusted gains of three months, or 19.2 scale score units.
- Seventh graders showed average adjusted gains of four months, or 10.8 scale score units.

IMPACT OF SUMMER SCHOOL PARTICIPATION

The six-week summer program consisted of 28 days of instruction in reading and 27 days in mathematics. In order to examine the impact of program participation, we defined students who attended for 15 or more instructional days as participants; we defined those in attendance for fewer (or no) days as nonparticipants. (The number of students in attendance for at least one but less than 15 days was small.)

In comparing scores of participants and nonparticipants, it is important to bear in mind that the proportion of participants taking the tests was much greater than the proportion of nonparticipants taking the test.* In addition, participants were probably more highly motivated, and thus more likely to score well. On the other hand, within the retested group, participants and nonparticipants had similar April scores.** It may also be true that some of the nonparticipants taking the August test had received tutorial or other assistance.

The Summer Reading Program

Table 9 separates the reading holdovers into two groups: those who participated in the summer program 15 or more days and those who did not. Approximately half or (46.5 percent) of the 19,064 students held over for reading attended summer school for 15 or more days. Proportions were similar in the two grades.

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*Among the participants, 98.5 percent (or 8,727 students) took the reading test, compared with only 29.9 percent of the nonparticipants (or 3,048 students). In mathematics, the figures were 98.8 and 31.4 percent.

**See Appendix C.

TABLE 9

Attainment of Reading Criteria by
Summer School Participants and Nonparticipants

	Grade Four (N^a = 7,709)				Grade Seven (N^a = 11,355)			
	Participants (15+ days)		Nonparticipants		Participants (15+ days)		Nonparticipants	
	n	(%)[b]	n	(%)[b]	n	(%)[b]	n	(%)[b]
Retested:								
Met criterion	1,676	(44.8%)[a]	346	(37.0%)[a]	2,642	(53.0%)[a]	882	(41.8%)
Did not meet criterion	2,068	(55.2)	590	(63.0)	2,341	(47.0)	1,230	(58.2)
	3,744		936		4,983		2,112	
Not retested	82		2,947		55		4,205	
	3,826		3,883		5,038		6,317	

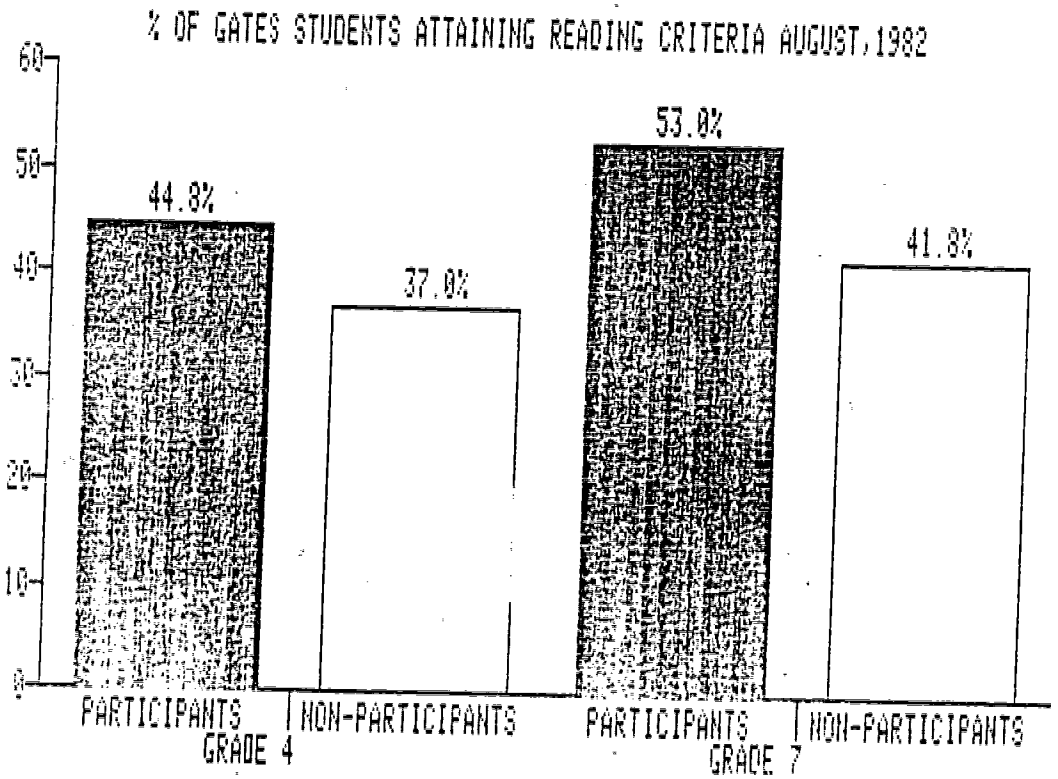
NOTE. The summer test was either the CAT or, if the student was eligible to take it, the LAB. Students without a test score by August, 1982 were not Gates-eligible in August, 1982 and are not included in these numbers. Summer school participants for whom no attendance information was entered are classified here as nonparticipants. (LAB-eligibles were classified as nonparticipants since attendance data were not available for them.)

[a] "N" represents the number eligible in each grade (7,709 in grade four and 11,355 in grade seven); "n" represents the number in each attendance category. Percentages of students who met or did not meet criteria in each attendance category are based on the number tested: 4,680 fourth graders and 7,095 seventh graders. Comparisons of the attainment rates of participants and nonparticipants (using a Chi square test) showed: grade four, (corrected, $df=1$) = 18.2, $p<.0001$; grade seven, (corrected, $df=1$) = 74.76, $p<.0001$.

[b] Percentage of those retested.

Criteria Attainment. In each grade, summer school participants were more likely than the nonparticipants to meet the reading criteria. (See Table 9.) In the fourth grade, 44.8 percent of the participants met the criterion, compared with 37.0 percent of the nonparticipants. The difference was larger in the seventh grade: 53 percent of participants met the reading criterion, compared with 41.8 percent of nonparticipants. These within-grade differences were statistically significant. These data are displayed graphically in Figure 2.

FIGURE 2



Student Achievement Gains. Table 10 summarizes data concerning pretest and posttest scores of participants and nonparticipants. In each grade, summer school participants made significantly greater gains from April to August than did nonparticipants. In the fourth grade, the average score of participants was one month (five scale score units) higher than that of nonparticipants, and in the seventh grade, the average score of participants was four months (nine scale score units) higher than that of nonparticipants.

The Summer Mathematics Program

Table 11 displays the number and percentages of mathematics holdovers attaining criteria on the August, 1982 N.Y.C.M.T. A relatively small percentage of fourth-grade mathematics holdovers attended summer school.* Only 26.5 percent of the 827 eligible fourth graders participated in the summer mathematics program, compared with 47.5 percent of eligible seventh graders.

*This may in part reflect differences in eligibility. In the fourth grade the number of mathematics-only holdovers was relatively small; thus mathematics holdovers were primarily reading-mathematics holdovers. In the seventh grade, there were a large number of mathematics-only holdovers as well as a large number of reading-mathematics holdovers.

TABLE 10

Comparison of Reading Achievement:
Summer School Participants and Nonparticipants

		N[a]	Observed mean scale score August, 1982	(S.D.)	Adjusted mean scale score August, 1982[b]	Grade equivalent	F*
Grade Four	Participants	3,746	393.5	(29.8)	393.4	3.5	20.5
	Nonparticipants	803	387.8	(29.3)	388.3	3.4	
Grade Seven	Participants	4,988	485.4	(38.0)	485.4	6.1	139.0
	Nonparticipants	1,874	474.0	(38.0)	474.0	5.7	

[a]This analysis includes Gates-eligible students who had both April and August, 1982 CAT scale scores.

[b]An analysis of covariance (ANCOVA) was performed to adjust the August, 1982 scores; this partial adjustment accounts for differences between summer school participants' and nonparticipants' April, 1982 scores.

*$p < .0001$ in both analyses.

°Average gains of fourth-grade participants were one month higher than those of nonparticipants.

°Average gains of seventh-grade participants were four months higher than those of nonparticipants.

TABLE 11

Attainment of the Mathematics Criteria by
Summer School Participants and Nonparticipants

	Grade Four (N^a = 827)				Grade Seven (N^a = 12,499)			
	Participants 15+ days		Nonparticipants		Participants 15+ days		Nonparticipants	
	n^a	(%)[b]	n^a	(%)[b]	n^a	(%)[b]	n^a	(%)[b]
Retested:								
Met criteria	156	(74.3)	56	(64.4)	2,675	(50.9)	673	(29.4)
Did not meet criteria	54	(25.7)	31	(35.6)	2,585	(49.1)	1,619	(70.6)
	210		87		5,260		2,392	
Not retested	9		521		56		4,891	
	219		608		5,316		7,283	

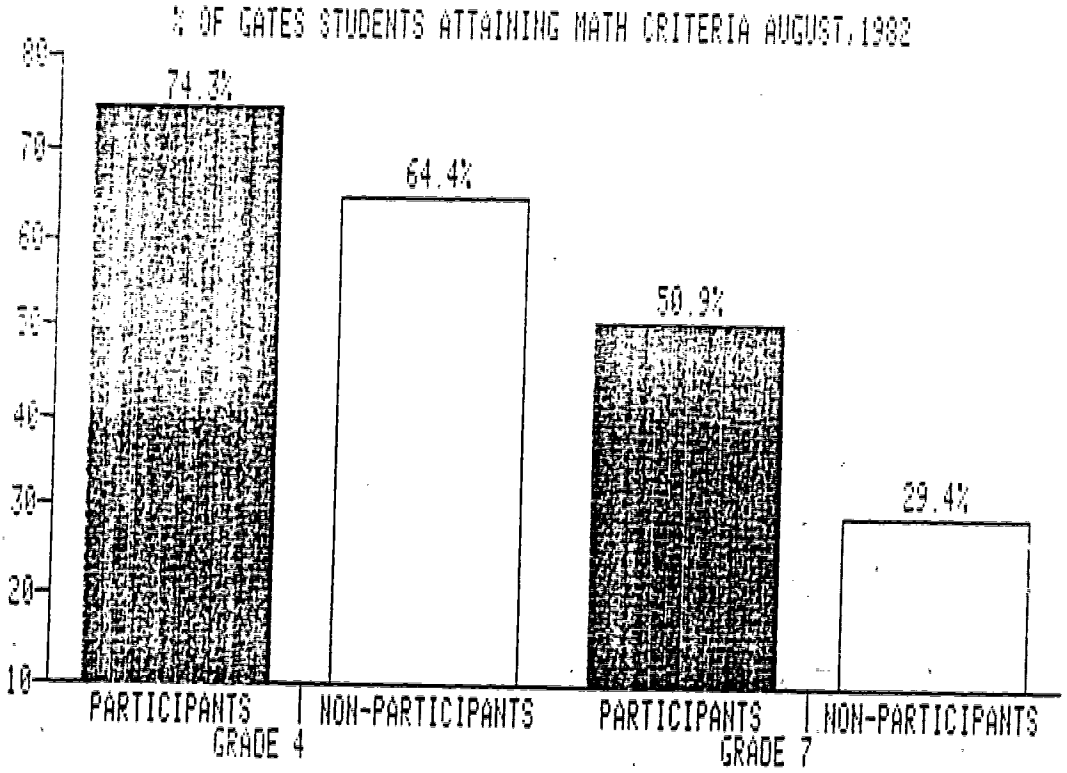
NOTE. These figures only include students with at least one below-criterion test score in June. Untested students would not have been identified as eligible for the Gates program. Also, summer school participants for whom no attendance information was entered are classified here as nonparticipants.

[a] "N" represents the number eligible in each grade; "n" represents the number in each attendance category.

[b] Percentages of students who met or did not meet criteria in each attendance category are based on the number who actually took the test: 297 fourth graders and 7,552 seventh graders. Comparisons of the attainment rates of participants and nonparticipants showed: grade four, chi square (corrected, df=1) = 2.50, p=.11; grade seven, chi square (corrected, df=1) = 297.9, p<.0001.

Criteria Attainment. In each grade, a higher proportion of participants than nonparticipants met the mathematics criterion, although the difference was statistically significant only in the seventh grade. In the fourth grade, 74.3 percent of the participants who took the mathematics test met the criterion, compared with 64.4 percent of the nonparticipants. In the seventh grade, 50.9 percent of those who attended summer classes met the criterion, compared with 29.4 percent of the nonparticipants. Figure 3 displays these data graphically.

FIGURE 3



Achievement. Table 12 compares the mathematics gains of summer school participants and nonparticipants from April to August. The gains of summer school participants were significantly greater than those of nonparticipants in each grade. In the fourth grade, the average August score of participants was two months (seven scale score units) greater than that of the nonparticipants. The difference between participants and nonparticipants was greater in the seventh grade: the average August score of participants was six months (14 scale score units) greater than that of nonparticipants.

TABLE 12

Comparison of Summer Mathematics Achievement
by Summer School Participants and Nonparticipants

Grade	Summer school	N[a]	Observed mean scale score August, 1982	(S.D.)	Adjusted mean scale score August, 1982[b]	Grade equivalent
Four[c]	Participants	203	276.0	(23.7)	275.7	3.0
	Nonparticipants	74	268.1	(24.4)	268.9	2.8
Seven[d]	Participants	5,065	367.0	(29.6)	366.5	5.6
	Nonparticipants	1,972	351.3	(27.9)	352.7	5.0

[a]This analysis includes Gates-eligible students who had both April and August, 1982 N.Y.C.M.T. scale scores.

[b]An analysis of covariance (ANCOVA) was performed to adjust the August, 1982 scores; this partial adjustment accounts for some of the difference between summer school participants' and nonparticipants' April, 1982 scores.

[c]$F=29.1$, $p<.0001$

[d]$F=499.0$, $p<.0001$

°Average gains of fourth-grade participants were two months (seven scale score units) greater than those of nonparticipants.

°Average gains of seventh-grade participants were six months (14 scale score units) greater those of nonparticipants.

VI. THE FULL-YEAR GATES PROGRAM: CLASS PLACEMENTS AND ATTENDANCE

Following the August testing, 18,572 students were eligible for participation in the Gates program. In September, make-up tests administered to students with missing test scores resulted in the identification of an additional 479 Gates-eligible students, bringing the Gates population to 19,051 students. Updates of the data base by the Office of Student Information Services (OSIS) indicate that another 155 students were identified as eligible during the fall, bringing the total Gates population to 19,206.*

CLASS PLACEMENTS

Table 13 displays the classroom placements of Gates students reported by districts on the November 30, 1982 roster. Information was available for 93.1 percent of the students (17,880 students). Of these, 85.1 percent were placed in Gates classrooms and an additional 2.1 percent assigned to Extension classes.** The remaining 12.8 percent were, for the most part, held over but not put into Gates classes: either none were available in the school and parents refused cluster site assignments, or the students were promoted to the next higher grade despite the promotional policy.

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*See Appendix A for a more detailed description of the make-up testing and updates of the data base.

**Because there is some ambiguity on the data base regarding the definition of an Extension student, it is likely that some of the 373 students had been incorrectly identified as Gates students and actually belonged in these Extension classes.

TABLE 13

Class Placements of 1982-83 Gates Students

	Class Placement				
	Gates	Gates Extension	Non-Gates	Unknown	Total
Four:					
Reading-only	4,096	106	758	486	5,446
Math-only	73	1	61	20	155
Reading-Mathematics	414	16	46	52	528
Total	4,583	123	865	558	6,129
Seven:					
Reading-only	2,618	97	380	222	3,317
Mathematics-only	3,711	23	731	319	4,784
Reading-Mathematics	4,304	130	315	227	4,976
Total	10,633	250	1,426	768	13,077

°85.1 percent of students for whom data were available were placed in Gates classes.

°Placement of fourth-grade mathematics-only holdovers was inconsistent: only 54.1 percent were placed in Gates classes.

Placement of fourth-grade students held over solely for mathematics was inconsistent because in many schools the number of students in this category was too small to constitute separate classes: only 54.1 percent of the 135 fourth-grade mathematics-only holdovers were assigned to Gates classes.

Attendance

The Office of Student Information Services collected and analyzed attendance data on Gates students through November 30, 1982. These data, displayed in Table 14, indicate that attendance by seventh-grade Gates students was poor. While 62.1 percent of fourth-grade Gates students attended school more than 94 percent of the time, only 43.4 percent of the seventh graders did so. Almost 30 percent of seventh-grade holdovers attended school less than 83 percent of the time. The evaluation team will provide more complete information on the full-year attendance pattern of Gates students in an end-of-year report, but this initial sampling strongly suggests that efforts to improve the attendance of Gates students must continue.

TABLE 14

Attendance by Gates Students
Through November 30, 1982

	Attendance Rate	N	(%)
Grade Four	94-100%	2,744	62.1
	84-93%	1,036	23.5
	less than 83%	608	13.8
	LTA*	28	0.6
Grade Seven	94-100%	4,223	43.4
	84-93%	2,468	25.4
	less than 83%	2,894	29.8
	LTA*	142	1.4

Source: Office of Student Information Services.

*Long-term absence.

VII. MIDYEAR OUTCOMES: JANUARY, 1983 TEST RESULTS

EVALUATION QUESTIONS

Data reflecting the impact of the 1982-83 full-year program will not be available before the beginning of the 1983-84 school year. Our purpose in analyzing mid-year results is to shed some light on the progress of Gates students. Looking at the January, 1983 test results, we asked:

-- What proportion of Gates students were promoted in January as a result of meeting midyear promotional criteria?

-- What proportion of Gates students were able to attain the less stringent end-of-year promotional criteria in January?

-- What gains did Gates students make in reading and mathematics between April, 1982 and January, 1983?

-- How do these results compare with last year's results?

-- What were the observed gains made by subgroups of the Gates population and how did they compare to last year's gains?

ATTAINMENT OF PROMOTIONAL CRITERIA

Midyear Promotional Standards

The January, 1983 administrations of the CAT, the N.Y.C.M.T., and the LAB were meant to provide the highest achieving Gates students with an opportunity for promotion to the fifth or eighth grade at the midpoint of the school year. However, the desire to reward outstanding achievement was tempered by the realization that students promoted midyear would encounter problems in their new grades. Evaluation of the 1981-82 Gates program indicated that students promoted in January, 1982, experienced great difficulty in attaining fifth- or eighth-grade promotional criteria

in April, 1982. As a result, in 1982-83 the criteria for midyear promotion were higher than they had been in the first year of the program. The scores necessary for promotion in January, 1983 are displayed in Table 15.

TABLE 15

JANUARY, 1983 PROMOTIONAL CRITERIA

Test	Grade 4	Grade 7
Mathematics - N.Y.C.M.T. (grade equivalent)	2.7	6.6
Reading - CAT (grade equivalent)	4.6	7.2
Reading - LAB[a] (raw score)	15	26

[a]For LEP students who have been in an English-language school system for more than two but less than four years.

January Test Results

In January, as in August, students were held to either the reading criteria (reading-only holdovers) or the mathematics criteria (mathematics-only holdovers), or both (reading-mathematics holdovers), depending upon their performance on earlier tests. Eleven percent of the Gates students were able to meet midyear promotional criteria. An additional 17.2 percent attained the less stringent end-of-year criteria, but were not promoted.

The data are presented by grade and eligibility category in Table 16. Overall, seventh-grade students were more successful than fourth-grade students in attaining the midyear promotional criteria. On the other hand, fourth-grade students were more successful than seventh-grade students in attaining the end-of-year promotional criteria. In both grades, students who were eligible in both reading and mathematics had a great deal of difficulty in meeting the joint criteria. Only seven percent of the fourth-grade and ten percent of the seventh-grade reading-mathematics holdovers attained even the end-of-year promotional criteria in both subjects in January.

These results were compared to outcomes of the January, 1982 tests to get a sense of the program's relative success in 1982-83. After discounting the effect of mathematics criteria from the 1983 results, we found that outcomes in the two years were similar. In our midyear assessment of the 1981-82 Promotional Gates Program, we reported that 32.6 percent of eligible fourth graders and 29.8 percent of eligible seventh graders were able to meet the end-of-year promotion criteria by January, 1982. In January, 1983, 31.2 percent of fourth graders and 29 percent of seventh graders who were held over for reading were able to meet these end-of-year promotional criteria. The slight differences may reflect lower mean pretest scores in April, 1982.

TABLE 16

Attainment of Promotional Criteria By Gates Students
January, 1983

	Basis of Eligibility							
	Reading-Only		Mathematics-Only		Reading-Mathematics		Total	
	n	Percent of those eligible	n	Percent of those eligible	n	Percent of those eligible	n	Percent of those eligible
Grade Four								
December Eligibles	5,446		155		528		6,129	
Number Tested in January	3,447	63.3%	56	36.1%	180[a]	34.1%	3,683	60.1%
Met January Criteria	343	6.3	15	9.6	2[b]	0.3	360	5.9
Attained End-of-Year Promotional Criteria[c]	1,793	32.9	47	30.3	37	7.0	1,877	30.6
Grade Seven								
December Eligibles	3,317		4,784		4,976		13,077	
Number Tested in January	2,126	64.1	3,014	63.0	2,823[a]	56.7	7,963	60.9
Met January Criteria	517	15.6	1,093	22.8	108[b]	2.2	1,718	13.1
Attained End-of-Year Promotional Criteria[c]	1,230	37.1	1,780	37.2	498	10.0	3,508	26.8

[a] Includes only those students who were tested in both mathematics and reading.

[b] Includes only those students who met the criteria on both tests. In the fourth grade, four students met the criterion in reading but not mathematics, and 30 students met the criterion in mathematics but not reading. In the seventh grade, 297 students met the criterion in reading but not mathematics, and 392 met the criterion in mathematics but not reading.

[c] Includes students who attained the January promotional criteria.

°The percentage of seventh graders promoted midyear was greater than the percentage of fourth graders.

°Overall, a greater percentage of fourth graders than seventh graders attained the end-of-year criteria.

STUDENT ACHIEVEMENT, APRIL, 1982 TO JANUARY, 1983

Reading Achievement: An Overview

The April, 1982 to January, 1983 gains in reading achievement of Gates students who were held over on the basis of reading scores are presented in Table 17.* Fourth-grade Gates students made adjusted gains of two months (11 scale score units) and seventh-grade Gates students made adjusted gains of five months (14 scale score units). The April, 1981 to January, 1982 adjusted gains of Gates students in reading achievement were two months in the fourth grade and four months in the seventh grade, indicating a slight increase in the impact of the Gates program on seventh graders' reading achievement in this second year of program implementation.

Reading Achievement by Subgroups of the Gates Population

Limited English Proficient (LEP) Students. LEP students who had been in an English-language program for more than four years were subject to promotional criteria on the CAT.** The observed reading gains of these students from April, 1982 to January, 1983 were less than the observed gains of the total population.*** (See Table 18.) Fourth-

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*Appendix D presents observed gains in reading achievement by community school district.

**The gains of students who were subject to promotional criteria on the LAB are not reported here because there were too few students to yield meaningful results.

***The scores of subgroups of the population cannot be adjusted for regression to the mean, so we have compared observed gains in both groups. The same procedure was followed in looking at data concerning resource room students.

TABLE 17

Reading Achievement by Gates Students
April, 1982 to January, 1983

Grade	N[a]	April, 1982 Observed mean scale score (S.D.)	April, 1982 Adjusted mean[b] scale score	April, 1982 Grade equivalent	January, 1983 Scale score (S.D.)	January, 1983 Grade equivalent	Difference Scale score
Four	3,506	370.3 (23.5)	386.7	3.4	398.1 (30.0)	3.6	11.4
Seven	4,999	447.2 (28.7)	464.7	5.4	479.0 (37.2)	5.9	14.3

[a]This analysis includes all students who were held over on the basis of reading scores below the promotional criteria and had both April, 1982 and January, 1983 CAT scores.

[b]An adjustment was made to account for regression to the mean.

TABLE 18

Reading Achievment of LEP Students in the Gates Program
April, 1982 to January, 1983

		April, 1982			January, 1983			Difference
Grade	N[a]	Observed mean scale score	(S.D)	Grade equi-valent	Observed mean scale score	(S.D.)	Grade equi-valent	Scale[b] score
Four	275	366.6	(23.0)	2.8	383.6	(31.8)	3.3	17.0
Seven	253	441.1	(30.4)	4.6	467.7	(34.3)	5.5	26.6

[a]This analysis includes all LEP students in the Gates program who had both April, 1982 and January, 1983 CAT scale scores.

[b]These are observed gains, which are higher than real gains.

[c]LEP students made similar smaller gains than the total Gates population.

grade LEP students made observed gains of 17 scale-score units, compared with observed gains of 27.8 scale-score units for all fourth-grade Gates students; seventh-grade LEP Gates students made observed gains of 26.6 scale-score units, compared with observed gains of 31.8 scale score units for all seventh-grade Gates students.* These data are consistent with our prior findings concerning Gates-eligible LEP students, and indicate a need for scrutiny of services being provided for them.

Resource Room Students. The gains in reading achievement by Gates students who were also participating in the resource room program are displayed in Table 19. These students made gains that were slightly higher than those of the general population, just as they did last year.

Mathematics Achievement: An Overview

The April, 1982 to January, 1983 gains of Gates students in mathematics which were impressive, are presented in Table 20.** Fourth-grade Gates students made adjusted gains in mathematics achievement of four months (26 scale score units) and seventh-grade Gates students made adjusted gains of eight months (21 scale score units). The average January grade-equivalent score of fourth graders was above the end-of-

*Scale score units are used to allow meaningful comparison with the total population.

**Appendix E presents the observed gains in mathematics achievement broken down by district.

TABLE 19

Reading Achievement of Resource Room Students in the Gates Program
April, 1982 to January, 1983

Grade	N[a]	April, 1982 Observed mean scale score	(S.D)	Grade equivalent	January, 1983 Observed mean scale score	(S.D.)	Grade equivalent	Difference Scale score[b]
Four	419	370.0	(22.3)	2.9	400.6	(30.3)	3.7	30.6
Seven	388	448.3	(26.0)	4.8	485.1	(40.6)	6.1	36.8

[a]This analysis includes resource room students in the Gates program who had both April, 1982 and January, 1983 CAT scale scores.

[b]These are observed gains, which are higher than real gains.

°The gains of resource room students were slightly higher than those of the general population.

TABLE 20

Mathematics Achievement by Gates Students
April, 1982 to January, 1983

		April, 1982				January, 1983			Difference
Grade	N[a]	Observed mean scale score	(S.D.)	Adjusted[b] mean scale score	Grade equivalent	Observed mean scale score	(S.D.)	Grade equivalent	Scale score
Four	208	244.8	(10.2)	252.6	2.6	279.0	(29.8)	3.0	26.4
Seven	5,401	337.5	(20.1)	345.5	4.8	367.2	(31.9)	5.6	21.7

[a]This analysis includes all students held over on the basis of mathematics scores below the promotional criteria and who have both April, 1982 and January, 1983 N.Y.C.M.T. scores.

[b]An adjustment was made to account for regression to the mean. (See Appendix D.)

°Students in both grades made significant gains in achievement.

°The average fourth-grade score was above the end-of-year promotional criteria.

°The average seventh-grade score was only one month below the end-of-year criteria.

year promotional criterion, and the average January grade-equivalent score of seventh graders was only one month below the criterion.

Mathematics Achievement by Subgroups of the Gates Population

Limited English Proficient (LEP) Students. All LEP students who had been in an English-language school system for more than two years were subject to promotional criteria on the N.Y.C.M.T. Their observed gains, presented in Table 21, were only slightly lower than those of the entire Gates population. In the seventh grade, LEP students made an average observed gain of 26.4 scale score units, compared with the average observed gain of 29.7 scale score units for the entire Gates group. Too few fourth-grade LEP students were subject to the mathematics standard to allow a reliable comparison.

Resource Room Students. The gains in mathematics achievement by resource room students in the Gates program are presented in Table 22. The average observed gain in mathematics achievement by seventh-grade resource room students was 36.4 scale-score units, somewhat higher than the observed gain of the entire seventh-grade Gates population. Here again, there were too few fourth graders to allow an analysis.

TABLE 21

Mathematics Achievement of LEP Students in the Gates Program
April, 1982 to January, 1983

		April, 1982			January, 1983			Difference
Grade	N[a]	Observed mean scale score	(S.D.)	Grade equivalent	Observed mean scale score	(S.D.)	Grade equivalent	Scale score
Seven	224	331.1	(21.6)	4.3	357.5	(32.0)	5.2	26.4

[a]This analysis includes all seventh-grade LEP students in the Gates program who had an April, 1982 and January, 1983 N.Y.C.M.T. scale scores.

[b]These are observed gains, which are higher than real gains.

[c]The average observed mathematics gains of seventh-grade LEP students were only slightly slower than those of the Gates population as a whole.

TABLE 22

Mathematics Achievement on the N.Y.C.M.T.
by Resource Room Students in the Gates Program
April, 1982 to January, 1983

		April, 1982			January, 1983			Difference
Grade	N[a]	Observed mean scale score	(S.D.)	Grade equivalent	Observed mean scale score	(S.D.)	Grade equivalent	Scale score[b]
Seven	356	337.4	(19.1)	4.5	373.8	(32.5)	5.9	36.4

[a]This analysis includes all seventh-grade resource room students in the Gates program who had both an April, 1982 and January, 1983 N.Y.C.M.T. scale scores.

[b]These are observed gains, which are higher than real gains.

[c]The average observed mathematics gains by seventh-grade resource room students were higher than those of the Gates population as a whole.

VII. CONCLUSIONS

ORGANIZATION OF THE PROGRAM

In 1982-83 the Promotional Gates Program was far more complex than it had been in its first year and presented formidable organizational problems. The introduction of a mathematics standard created three types of Gates students at each grade level. Nonetheless, the administration of the program was more efficient in 1982-83 than it had been the previous year. For example, appeals procedures were formalized in 1982-83, and identification of Gates students and monitoring of class placement proceeded far more smoothly.

Most students received appropriate Gates services. Data provided on the November 30, 1982 roster indicate that, overall, 87 percent of the Gates students for whom eligibility and class placement information were available were assigned to appropriate classes. The placement of fourth-grade mathematics-only holdovers was inconsistent because many schools had too few students in this category to warrant the establishment of a Gates class.

STAFF TRAINING

Supervisors and teachers commented that staff training for the summer program was somewhat rushed. Teachers were particularly dissatisfied with the limited opportunities to study program materials and to practice suggested teaching techniques. Nonetheless, reactions to summer training were relatively favorable. In addition, the majority of participants in the August, 1982 training for the full-year Gates

program gave favorable ratings to each aspect of training under consideration. The November staff-development workshops received especially high ratings. Over 90 percent of participants found these workshops useful and relevant. The staff training component of the Gates program has become increasingly successful over time and is highly appreciated by teachers and supervisors.

INSTRUCTION

The evaluation team was generally impressed with summer school instruction. The team praised teachers' interpersonal skills, the clarity of objectives, and the appropriateness of lesson content. However, lessons often lacked closure and follow-up and recommended materials were frequently in short supply. Teachers often provided curricula other than those suggested for the program. Further improvements in this area may be necessary.

Instruction in the full-year Gates program will be examined in the 1982-83 end-of-year report.

ATTENDANCE

Seventh-grade attendance levels were poor in the summer and the fall of 1982, as they had been the previous year. The attendance problem which surfaced in the program's first year remains serious. Attendance data for individual districts suggest that some solutions may reside in district practices and that it might be useful to identify and share exemplary practices that promote attendance.

ACHIEVEMENT

Overall achievement results for 1982-83 are not directly comparable to those of 1981-82 because of the mathematics criteria were not enforced until the program's second year of operation. However, the reading outcomes at the end of summer school and in January, 1983 were equivalent to or slightly better than last year's results.

August, 1982 Results

One-quarter of all students eligible for the Gates program in June, 1982, became eligible for promotion by attaining the promotional criteria on the August, 1982 test(s). However, as might be expected, very few of the reading-mathematics holdovers were able to meet both criteria and qualify for promotion.

Analysis of students' gains over the summer indicate that seventh graders made real gains in reading achievement, and students in both grades improved their mathematics skills. The gains of fourth graders who were elgible in reading were not larger than we would expect as a result of regression. It appears that the summer mathematics program had more direct impact on students than the communication arts program.

Midyear Results

The January test administration was meant to provide the highest achieving Gates students with an opportunity for promotion at the midpoint of the year. The midyear criteria for reading were set at even higher levels in 1982-83 than in 1981-82 in order to ensure that students promoted midyear would have continued success. The addition

of a mathematics standard also presented many students with more difficult criteria for advancement. Nevertheless, the eligibility rate for promotion in January, 1983, was equivalent to that of January, 1982. In January, 1983, as in January, 1982, seventh-grade students were more successful in meeting the midyear reading criterion for their grade than were fourth-grade students.

The percentage of Gates students meeting the end-of-year reading criteria in January, 1983 may be directly compared to the percentage who did so in January, 1982. In both grades, there was little difference from one year to the next. Average reading gains in each of the two years were also similar.

As in 1981-82, gains in reading achievement by Gates students who were also participating in the resource room program were higher than those by the general Gates population, and gains by limited English proficient students were lower. These data indicate that the services being provided to Gates students of limited English proficiency should be given careful attention.

The percentage of students in each grade able to meet the end-of-year mathematics criteria by January, 1983 was similar to that of students meeting the reading requirement. Students in both grades made appreciable gains in mathematics achievement from April [illegible]ary, 1983.

APPENDIX A

Detailed Pupil Accounting
April through September, 1982

TABLE A-1

Student Eligibility for the Promotional Gates Program after April, 1982 Testing

	Grade					
	Four		Seven		Total[a]	
	n	(%)	n	(%)	n	(%)
Exempt from Gates[b]	6,725	(10.1)	8,929	(12.3)	15,654	(11.2)
No decision[c]	1,421	(2.1)	4,150	(5.7)	5,571	(4.0)
Scores below one or both test criteria (not exempt)	8,984	(13.5)	19,124	(26.3)	28,108	(21.6)
Scores at or above both test criteria	49,594	(74.3)	40,438	(55.7)	90,032	(63.2)
Total April, 1982 test group[d]	66,724	(100.0)	72,641	(100.0)	139,365	(100.0)

[a]Grades for an additional 35 students were not available on the November 30, 1982 data tape used for these analyses.

[b]In the fourth grade, 2,870 students were exempt on the basis of limited English proficiency (LEP), 3,855 were special education students; in the seventh grade, 3,202 were LEP students and 5,727 were classified as special education students.

[c]No-decision students are either missing one test score (and have a passing score on the other test) or are missing scores on both the reading and mathematics tests.

[d]These totals include all first-time fourth- and seventh-grade students tested in April, 1982. Students who had been held over in 1981-82 Gates classes (Gates Extension-eligible students) are not included.

TABLE A-2

Categories of Student Eligibility for the Promotional Gates Program as of June, 1982

	Grade Four				
	Reading only	Math only	Reading & Math	Total	No decision
Students subject to promotional criteria after April, 1982 tests	8,103	189	692	8,984	1,421
Discharged	- 276	- 13	- 27	- 316	- 176
Appeals/ exceptions	- 762	- 7	- 6	- 775	- 12
Category shifts as a result of exceptions[a]	- 6	+ 8	- 9	- 7	+ 7
June, 1982 eligibles	7,059	177	650	7,886	1,240
	Grade Seven				
Students subject to promotional criteria after April, 1982 tests	5,668	6,335	7,121	19,124	4,150
Discharged	- 194	- 227	- 250	- 671	- 529
Appeals/ exceptions	- 813	- 358	- 83	-1,254	- 36
Category shifts as a result of exceptions[a]	+ 22	+ 77	- 116	- 17	+ 17
June, 1982 eligibles	4,683	5,827	6,672	17,182	3,602

NOTE. Students classified as reading-only are those with a CAT score below the criterion and either a mathematics score above the criterion or a missing mathematics score. Math-only students have a mathematics score below the criterion and either a reading score above the criterion or a missing reading score. Reading-and-math students have reading and mathematics scores below criterion. No-decision students are either missing one test score (and have a score above criterion on the other test) or are missing scores on both the reading and mathematics tests.

[a]A student's eligibility category changed even if he or she was given an exception for only one test.

TABLE A-3

Criteria Attainment by Gates-Eligible Students:
Summer, 1982

	Basis of eligibility			
	Reading-only	Math-only	Reading-Math	No decision
	Grade Four			
June, 1982 eligibles	7,059	177	650	1,240
Number tested in August	4,402	75	209[a]	105[b]
Met promotional criteria	-1,947	-58	-33	-68
Category shifts[d]	+163	+33	-141	-55
September, 1982 eligible[e]	5,275	152	476	1,117
	Grade Seven			
June, 1982 eligibles	4,683	5,827	6,672	3,602
Number tested in August	3,165	3,819	3,582[a]	376[b]
Met promotional criteria	-1,961	-2,143	-592	-196
Category shifts[d]	+537	+1,016	-1,370	-183
September, 1982 eligibles[e]	3,259	4,700	4,710	3,223

[a]These are students who were tested in both reading and mathematics.

[b]These are students who were tested in reading or mathematics or both (if they needed it).

[c]A small number of students not included in these figures met one criterion but were not promoted because they needed a second test.

[d]Category shifts arose primarily from: reading-mathematics holdovers who met the criterion on only one summer test, and no-decision students who scored below criteria on one or both tests.

[e]These totals do not include the results of fall, 1982 continuous makeup testing.

TABLE A-4

Criteria Attainment by Gates Students
Who Were Eligible for Fall Makeup Testing

	Basis of Gates Eligibility			
	Reading only	Math only	Reading & Math	No decision
	Grade Four			
September 1982 Gates eligibles	5,275	152	476	1,117
Met criteria and were promoted[a]	--	--	--	-62
Category shifts[b]	+127	+2	+44	-173
Gates students 1982-83	5,402	154	520	882
	Grade Seven			
September, 1982 Gates eligibles	3,259	4,700	4,710	3,223
Met criteria and were promoted[a]	--	--	--	-85
Category shifts	+36	+61	+209	-306
Gates students 1982-83	3,295	4,761	4,919	2,832

[a]Students were eligible for the September makeup testing if they were missing either an April or an August, 1982 score on one or the other test. By definition, none of the holdovers were eligible for promotion on the basis of these tests because they had already scored below promotional criteria on one test. Only no-decision students could be promoted.

[b]Category shifts arose from no decision students who scored below criteria on one or both of the tests that they were taking for the first time.

APPENDIX B

Summer School Participation
by District

TABLE B-1

Summer School Participation By Districts: Reading Classes

District	Grade Four			Grade Seven		
	Number of eligibles June, 1982	Number attended 15+ days	Percent attended 15+ days	Number of eligibles June, 1982	Number attended 15+ days	Percent attended 15+ days
1	168	74	(44.0)	259	64	(24.7)
2	127	58	(45.7)	139	73	(52.5)
3	171	80	(46.8)	252	123	(48.8)
4	215	73	(34.0)	228	85	(37.3)
5	154	86	(55.8)	292	127	(43.5)
6	382	211	(55.2)	374	189	(50.5)
7	266	135	(50.8)	403	171	(42.4)
8	254	151	(59.4)	567	326	(57.5)
9	492	203	(41.3)	660	261	(39.5)
10	683	281	(41.1)	799	307	(38.4)
11	165	117	(70.9)	366	173	(47.3)
12	266	104	(39.1)	227	68	(30.0)
13	278	173	(62.2)	395	201	(50.9)
14	285	134	(47.0)	466	166	(35.6)
15	321	199	(62.0)	392	168	(42.9)
16	177	101	(57.1)	224	90	(40.2)
17	474	246	(51.9)	752	272	(36.2)
18	141	96	(68.1)	268	148	(55.2)
19	487	243	(49.9)	622	301	(48.4)
20	172	75	(43.6)	401	175	(43.6)
21	196	93	(47.4)	311	129	(41.5)
22	136	75	(55.1)	183	104	(56.8)
23	205	74	(36.1)	311	150	(48.2)
24	191	86	(45.0)	295	109	(36.9)
25	76	30	(39.5)	109	57	(52.3)
26	13	9	(69.2)	66	42	(63.6)
27	391	162	(41.4)	531	257	(48.4)
28	120	79	(65.8)	211	74	(35.1)
29	154	86	(55.8)	351	190	(54.1)
30	148	75	(50.7)	212	80	(37.7)
31	102	56	(54.9)	314	199	(63.4)
32	298	161	(54.0)	369	156	(42.3)
33	0	-	-	6	3	(50.0)
Citywide	7,708[a]	3,826	(49.6)	11,355	5,038	(44.4)

NOTE. These data are from students who scored below promotional criteria on the April, 1982 CAT. Summer attendance data were not available from the few LAB-eligible students who took the summer LAB. Excluded are: students eligible for Gates on the basis of a below-criterion mathematics score only; and no decision students who had no spring, 1982 reading score. In addition, some students attended fewer than 15 days. These students, and any others for whom attendance data were not available, are considered nonparticipants in the summer school program. As a result, this may be a conservative estimate of summer school participation.

[a]One fourth-grade student who did not attend summer school is missing because his or her district was not specified.

TABLE B-2

Summer School Participation by Districts: Mathematics Classes

District	Grade Four			Grade Seven		
	Number of eligibles June, 1982	Number attended 15+ days	Percent attended 15+ days	Number of eligibles June, 1982	Number attended 15+ days	Percent attended 15+ days
1	28	4	14.3	294	100	34.0
2	4	0	0.0	146	69	47.3
3	20	5	25.0	268	126	47.0
4	32	5	15.6	338	133	39.3
5	21	6	28.6	313	112	35.8
6	31	3	9.7	469	222	47.3
7	31	11	35.5	395	139	35.2
8	25	13	52.0	545	303	55.6
9	59	8	8.5	799	293	36.7
10	72	14	19.4	902	362	40.1
11	12	4	33.3	421	181	43.0
12	19	0	0.0	265	71	26.9
13	18	2	11.1	459	210	45.8
14	19	3	15.8	408	148	36.3
15	23	9	39.1	454	143	31.5
16	25	9	36.0	215	89	41.4
17	61	20	32.8	800	319	39.9
18	24	11	45.8	358	194	54.2
19	55	15	27.3	525	211	40.2
20	18	0	0.0	407	173	42.5
21	19	1	5.3	302	110	36.4
22	16	6	37.5	173	83	48.0
23	27	12	44.4	391	169	43.2
24	17	7	41.2	318	128	40.3
25	9	0	0.0	103	50	48.5
26	0	0	-	81	44	54.3
27	57	16	28.1	568	271	47.7
28	9	7	77.8	268	127	47.4
29	18	9	50.0	400	197	49.3
30	17	5	29.4	288	122	42.4
31	3	1	33.3	410	244	59.5
32	38	13	34.2	388	158	40.7
33	0	-	-	28	15	53.6
Citywide	827	219	(26.5)	12,499	5,316	(42.5)

NOTE. These data are from those students who scored below promotional criteria on the April, 1982 N.Y.C.M.T. It excludes: students eligible for the Gates program on the basis of a below-criterion reading score only; and no-decision students who had no spring, 1982 mathematics score. In addition, some students attended fewer than 15 days; these students, and any others for whom attendance data were not available, are considered nonparticipants in the summer school program. As a result, this may be a conservative estimate of summer school participation.

APPENDIX C

Differences In Scores of Students
Tested In August and Those Not Retested

August, 1982: The Tested Group

The summer tests were voluntary, and comparison of the mean April CAT scores of students who opted for the August test with those of students who did not take the test revealed that a somewhat higher-than-average scoring group of students chose to take the August test. In the fourth grade, April CAT scale scores for those not tested in August averaged 368.1; those tested on both occasions had a higher average April score of 375.1 scale score units. In seventh grade, the values were 446.0 and 454.2, respectively. Looking at the N.Y.C.M.T. scores, we found that in grade four, April N.Y.C.M.T. scale scores for those not tested in August averaged 244.8; those tested on both occasions had an average April score of 246.8. In grade seven, the values were 338.3 and 344.6, respectively.

Participants and Nonparticipants

April scores of participants and nonparticipants were very similar. The average April CAT score of (retested) fourth-grade participants was 375.4 scale-score units; the average retested nonparticipant scored 373.7. Each is comparable to a 3.1 grade equivalent. In the seventh grade the average score for both retested groups was 454.2, a 5.0 grade equivalent. In mathematics the fourth-grade summer school participants who took the August test averaged 247.2 scale-score units on the N.Y.C.M.T., while the mean for retested nonparticipants was 245.8. Each is comparable to a 2.5 grade equivalent. In the seventh grade, participants averaged 345.2 scale-score units; nonparticipants averaged 343.1. Each is comparable to a 4.7 grade-equivalent on the N.Y.C.M.T. We analyzed covariance (ANCOVA) to make partial adjustments for the slight differences in the April, 1982 scores of the two groups.

APPENDIX D

Statistical Adjustment of Pretest Scores to Account for Regression to the Mean

STATISTICAL ADJUSTMENT OF PRETEST SCORES TO ACCOUNT FOR REGRESSION TO THE MEAN

The equation used to adjust pretest scores to account for the regression effect is taken from A.O.H. Roberts, "Regression Toward the Mean and the Regression Effect Bias" in New Directions for Testing and Measurement, Number 8, 1980, (San Francisco, Jossey-Bass), pages 59-82. The equation is:

$$\bar{X}cs = \bar{X}s + \frac{o^2}{s^2}(1 - O_{xx})(\bar{X}g - Xs)$$

This formula was used with the appropriate CAT or N.Y.C.M.T. values to correct April, 1982 pretest means, where:

	CAT, Form C		N.Y.C.M.T., Form B	
	Grade 4	Grade 7	Grade 4	Grade 7
$\bar{X}cs$ = corrected pretest (scale score) mean of program participants.....	*	*	*	*
$\bar{X}s$ = pretest (scale score) mean of program participants.....	**	**	**	**
$\bar{X}g$ = citywide (scale score) mean on pre-test.....	446.7	524.5	357.4	408.6
o = standard deviation of pretest scale scores citywide.....	64.6	75.8	49.0	66.0
s = standard deviation of pretest scale scores citywide.....	52.1	59.6	45.4	55.7
O = coefficient of reliability.....	.86	.86	.94	.92

*These values are computed on the following pages.

**These values appear on the following pages. Values from the April to August and April to January periods differ since the latter period excludes the April scores of students who met the criteria in August.

Adjustment of April, 1982 CAT for Students' Gains from April, to August, 1982

Grade Four

$(N = 4{,}549, \bar{X}s = 375.1)$

$$\bar{X}cs = 375.1 + \frac{(64.6)^2}{(52.1)^2}(1-.86)(446.7 - 375.1)$$

$$\bar{X}cs = 375.1 + 15.4$$

$$\bar{X}cs = 390.5$$

Grade Seven

$(N = 6{,}862, \bar{X}s = 454.2)$

$$\bar{X}cs = 454.2 + \frac{(75.8)^2}{(59.6)^2}(1-.86)(524.5 - 454.2)$$

$$\bar{X}cs = 454.2 + 15.9$$

$$\bar{X}cs = 470.1$$

Adjustment of April, 1982 CAT for Students' Gains from April, 1982 to January, 1983

Grade Four

$(N = 3{,}506, \bar{X}s = 370.3)$

$$\bar{X}cs = 370.3 + \frac{(64.6)^2}{(52.1)^2}(1-.86)(446.7 - 370.3)$$

$$\bar{X}cs = 370.3 + 16.47$$

$$\bar{X}cs = 386.7$$

Grade Seven

$(N = 4{,}999, \bar{X}s = 447.2)$

$$\bar{X}cs = 447.2 + \frac{(75.8)^2}{(59.6)^2}(1-.86)(524.5 - 447.2)$$

$$\bar{X}cs = 447.2 + 17.53$$

$$\bar{X}cs = 464.7$$

Adjustment of April, 1982 N.Y.C.M.T. for Students' Gains from April, to August, 1982

Grade Four

$(N = 277, \bar{X}s = 246.8)$

$$\bar{X}cs = 246.8 + \frac{(49.0)^2}{(45.4)^2}(1-.94)(357.4 - 246.8)$$

$$\bar{X}cs = 246.8 + 7.9$$

$$\bar{X}cs = 254.7$$

Grade Seven

$(N = 7,037, \bar{X}s = 344.6)$

$$\bar{X}cs = 344.6 + \frac{(66.0)^2}{(55.7)^2}(1-.92)(408.6 - 344.6)$$

$$\bar{X}cs = 344.6 + 7.2$$

$$\bar{X}cs = 351.8$$

Adjustment of April, 1982 N.Y.C.M.T. for Students' Gains from April, 1982 to January, 1983

Grade Four

$(N = 208, \bar{X}s = 244.8)$

$$\bar{X}cs = 244.8 + \frac{(49.0)^2}{(45.4)^2}(1-.94)(357.4 - 244.8)$$

$$\bar{X}cs = 244.8 + 7.8$$

$$\bar{X}cs = 252.6$$

Grade Seven

$(N = 5,401, \bar{X}s = 337.5)$

$$\bar{X}cs = 337.5 + \frac{(66.0)^2}{(55.7)^2}(1-.92)(408.6 - 337.5)$$

$$\bar{X}cs = 337.5 + 7.2$$

$$\bar{X}cs = 345.5$$

APPENDIX E

Student Achievement from April, 1982 to January, 1983
by District

TABLE E-1

Reading Achievement by Fourth-Grade
Gates Students
April, 1982 to January, 1983

District	N	April, 1982			January, 1983			Difference
		Mean scale score	(S.D.)	G.E.	Mean scale score	(S.D.)	G.E.	Scale score
1	99	367.1	26.0	2.8	386.0	33.7	3.4	18.9
2	49	370.2	21.5	2.9	409.7	27.1	3.9	39.5
3	87	369.9	21.6	2.9	393.1	34.0	3.5	23.2
4	91	365.9	22.4	2.8	392.3	35.1	3.5	26.4
5	66	371.7	22.3	3.0	409.6	30.0	3.9	37.9
6	178	368.6	21.3	2.9	393.8	35.2	3.5	25.2
7	156	371.9	21.5	3.0	396.2	34.0	3.6	24.3
8	114	374.3	19.5	3.1	394.8	31.2	3.6	20.5
9	249	370.0	21.9	2.9	393.7	27.5	3.5	23.7
10	364	366.5	25.9	2.8	393.0	26.5	3.5	26.5
11	72	369.6	25.8	2.9	401.8	25.5	3.7	32.2
12	121	367.6	24.9	2.9	393.2	27.4	3.5	25.6
13	127	374.5	21.8	3.1	400.3	26.2	3.7	25.8
14	130	369.9	24.8	2.9	389.4	30.3	3.4	19.5
15	122	368.5	31.4	2.9	406.0	29.8	3.8	37.5
16	97	373.4	19.6	3.0	394.3	24.2	3.5	20.9
17	246	368.2	25.1	2.9	400.6	28.0	3.7	32.4
18	63	374.9	23.9	3.1	412.0	33.8	3.9	37.1
19	211	369.4	25.8	2.9	400.4	29.0	3.7	31.0
20	48	367.3	26.4	2.8	400.9	30.0	3.7	33.6
21	83	378.5	17.6	3.2	406.7	28.0	3.8	28.2
22	53	374.7	17.9	3.1	403.4	28.5	3.7	28.7
23	107	373.3	20.4	3.3	396.1	28.0	3.6	22.8
24	73	377.5	17.2	3.2	406.9	25.5	3.8	29.4
25	21	370.7	30.8	3.0	407.2	31.5	3.8	36.5
26	3	370.3	23.5	2.9	407.0	31.2	3.8	36.7
27	124	367.8	27.4	2.9	396.2	27.4	3.6	28.4
28	46	369.8	23.1	2.9	404.1	27.0	3.8	34.3
29	64	375.3	19.5	3.1	404.6	25.8	3.8	29.3
30	51	371.8	22.8	3.0	410.8	33.9	3.9	39.0
31	35	370.8	20.6	3.0	410.5	29.5	3.9	39.7
32	156	371.4	18.2	3.0	400.2	30.0	3.7	28.8

TABLE E-2

Reading Achievement by
Seventh-Grade Gates Students
April, 1982 to January, 1983

District	N	April, 1982			January, 1983			Differenc
		Mean scale score	(S.D.)	G.E.	Mean scale score	(S.D.)	G.E.	Scale score
1	135	447.9	28.7	4.8	471.9	33.2	5.7	24.0
2	61	439.8	34.5	4.6	477.8	39.1	5.9	38.0
3	111	441.0	35.3	4.6	486.1	34.8	6.2	45.1
4	92	449.6	26.2	4.9	477.8	38.9	5.9	28.2
5	144	446.7	27.8	4.8	479.1	38.1	5.9	32.4
6	172	446.3	26.7	4.8	478.8	30.7	5.9	32.5
7	201	442.7	31.2	4.7	483.6	40.2	6.1	40.9
8	245	447.1	28.7	4.8	477.5	31.1	5.9	30.4
9	296	445.1	27.9	4.8	472.4	36.7	5.7	27.3
10	436	444.5	27.8	4.8	478.0	36.4	5.9	33.5
11	162	445.0	32.1	4.8	477.0	35.5	5.9	32.0
12	76	450.7	21.9	4.9	474.1	36.0	5.7	23.4
13	167	451.6	26.5	5.0	487.3	40.8	6.2	35.7
14	252	445.7	25.8	4.8	473.8	34.5	5.7	28.1
15	178	446.4	32.2	4.8	480.3	32.9	6.0	33.9
16	96	438.7	31.7	4.6	464.8	45.0	5.4	26.1
17	334	450.4	28.5	4.9	478.6	38.3	5.9	28.2
18	108	447.7	31.5	4.8	475.1	36.8	5.8	27.4
19	266	448.6	27.8	4.9	471.1	36.3	5.6	22.5
20	168	450.2	27.1	4.9	484.9	36.5	6.1	34.7
21	131	452.2	26.1	5.0	488.1	39.7	6.3	35.9
22	71	451.6	30.0	5.0	491.7	35.9	6.4	40.1
23	89	446.7	30.3	4.8	484.3	38.2	6.1	37.6
24	122	449.0	28.8	4.9	480.6	37.5	6.0	31.6
25	23	437.4	24.6	4.5	484.0	33.8	6.1	46.6
26	28	452.0	26.4	5.0	488.8	29.6	6.3	36.8
27	206	444.7	31.2	4.8	488.3	42.7	6.3	43.6
28	84	449.2	29.4	4.9	469.0	35.8	5.6	19.8
29	131	488.8	28.0	4.9	495.2	37.2	6.5	46.4
30	76	446.2	30.6	4.8	466.6	32.9	5.5	20.4
31	124	458.0	20.5	5.2	492.1	31.5	6.4	34.1
32	212	448.2	26.7	4.8	472.3	36.9	5.7	24.1

TABLE E-3

Math Achievement by
Seventh-Grade Gates Students
April, 1982 to January, 1983

District	N	April, 1982			January, 1983			Differen
		Mean scale score	(S.D.)	G.E.	Mean scale score	(S.D.)	G.E.	Scale score
1	140	339.4	19.7	4.6	360.4	29.3	5.3	21.0
2	60	338.8	20.7	4.6	373.3	36.9	5.8	34.5
3	111	331.2	21.1	4.3	364.6	33.1	5.5	33.4
4	120	336.9	21.6	4.5	362.5	30.3	5.4	25.6
5	137	338.6	21.0	4.6	372.3	31.9	5.8	33.7
6	191	337.3	20.1	4.5	372.2	35.2	5.8	34.9
7	172	337.8	19.8	4.5	360.5	26.7	5.3	22.7
8	227	335.6	20.2	4.5	362.7	29.7	5.4	27.1
9	347	334.8	20.9	4.5	365.1	34.8	5.5	30.3
10	449	336.4	20.5	4.5	367.6	34.6	5.6	31.2
11	181	338.7	19.9	4.6	365.5	27.3	5.5	26.8
12	110	341.5	18.0	4.7	364.8	33.4	5.5	23.3
13	210	338.0	19.9	4.5	363.6	29.2	5.5	25.6
14	201	336.1	19.4	4.5	359.2	28.7	5.3	23.1
15	217	338.5	20.2	4.6	368.6	31.6	5.7	30.1
16	77	334.5	21.0	4.5	350.0	27.2	4.9	15.5
17	346	336.2	20.9	4.5	360.6	31.0	5.3	24.4
18	128	338.7	19.1	4.6	377.0	30.5	6.0	38.3
19	245	339.5	19.4	4.6	363.3	27.0	5.4	23.8
20	164	339.8	20.0	4.6	374.2	33.3	5.9	34.4
21	137	340.8	18.6	4.6	375.9	32.6	6.0	35.1
22	68	340.8	17.7	4.6	377.2	32.0	6.0	36.4
23	173	337.1	19.1	4.5	364.5	30.7	5.5	27.4
24	143	335.9	22.0	4.5	369.4	33.1	5.7	33.5
25	29	343.1	18.0	4.7	373.6	28.5	5.9	30.5
26	29	339.8	18.2	4.6	386.8	25.1	6.5	47.0
27	246	337.1	20.8	4.5	366.6	29.8	5.6	29.5
28	119	336.0	19.8	4.5	367.3	28.9	5.6	31.3
29	139	337.9	19.1	4.5	381.1	36.3	6.2	43.2
30	102	338.0	19.6	4.5	370.5	30.2	5.8	32.5
31	174	341.1	18.8	4.6	386.0	32.6	6.4	44.9
32	201	338.4	19.0	4.5	362.3	28.3	5.4	23.9