ERIC REPORT RESUME

A COMPARISON OF MATHEMATICS PROGRAMS FOR ABLE JUNIOR HIGH SCHOOL
STUDENTS.
GOLDBERG, MIRIAM L. + AND OTHERS

*TABLES (DATA), *MATHEMATICS CURRICULUM, *COMPARATIVE ANALYSIS,
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THE APPENDIXES FOR THE TALENTED YOUTH PROJECT (TYP) MATHEMATICS
STUDY INCLUDE THE MEASURING INSTRUMENTS AND TABLES COMPILED DURING
THE INVESTIGATION. THE PROJECT COMPARED THE EFFECTIVENESS OF VARIOUS
CURRICULUM PATTERNS AND PRACTICES IN MATHEMATICS EDUCATION CURRENTLY
USED WITH ACADEMICALLY TALENTED JUNIOR HIGH STUDENTS. THE FOUR
APPENDIXES ARE (1) INSTRUMENTS, (2) SEVENTH-GRADE TABLES, (3)
EIGHTH-GRADE TABLES, AND (4) NINTH-GRADE TABLES. (GC)

A Comparison of Mathematics Programs for Able Junior High School Students

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Volume II - Appendixes for Final Report

TALENTED YOUTH PROJECT

HORACE MANN—LINCOLN INSTITUTE OF SCHOOL EXPERIMENTATION

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NEW YORK, NEW YORK 10027

U. S. OFFICE OF EDUCATION

BUREAU OF RESEARCH

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VOLUME II

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APPENDIX A

Only two instruments are included in this Appendix --
the Questionnaire on Mathematics and the General Information
Blank which includes the section on Rating Your Abilities.

The six tests prepared by the Educational Testing Service
are under security and cannot be reproduced.

The Teacher-Made Tests, prepared for each program each
year (a total of 17) are not included in this report. Their
high degree of specificity to the particular program for which
they were constructed limits their general usefulness and does
not seem to warrant the inclusion of approximately 100 additional
pages. However, single copies of these tests are available
upon written request to the authors.

QUESTIONNAIRE ON MATHEMATICS

The purpose of this questionnaire is to obtain information about how students like you feel about the subject of mathematics. This is not a test, but it is an opinionnaire in which you are asked for your frank opinions. In order for the questionnaire to be effective, you must give your true feelings in your answers. There is no such thing as a "right" or "wrong" answer, so please respond according to your own feelings and opinions. The results will be valuable in improving the teaching of arithmetic and mathematics in the future. Naturally, your answers to this questionnaire will have no bearing whatever on your school marks.

DIRECTIONS: Read each of the statements below regarding mathematics, mathematicians, and mathematical careers. Record your responses on the answer sheet.

Mark between the lines under A if you Strongly Agree with the statement.
Mark between the lines under B if you are in Mild Agreement.
Mark between the lines under C if you are Neutral.
Mark between the lines under D if you are in Mild Disagreement.
Mark between the lines under E if you Strongly Disagree.

EXAMPLE: 100. I think ice skating is more fun than roller skating.

```
ANSWER SHEET

        A      B      C      D      E
100.    ▆      ||     ||     ||     ||
```

Since a heavy line has been drawn between the lines under A, the feeling recorded is Strong Agreement. If you had been in Mild Agreement, then you would have recorded a heavy line under B. If you had no feeling one way or the other about the statement, you would have recorded a heavy line under C, the Neutral position. If you had been in Mild Disagreement, then you would have recorded a heavy line under D. If you had Strongly Disagreed, you would have recorded a heavy line under E.

BE CAREFUL TO RECORD ONLY ONE ANSWER FOR EACH QUESTION. If you make a mistake and need to correct an answer, erase the incorrect response completely and then mark the intended response. Work rapidly. Record the first response that comes to mind as you read each item.

1. For me, training for a career in mathematics or science is not worth the time and effort required.

2. The chief reward in mathematical work is the thrill of discovery.

3. There is much self-satisfaction to be received from work as a mathematician.

4. Mathematics is colder and less exciting than almost any other subject I have studied.

5. I could have learned a great deal of the mathematics covered in school in less time, just by reading textbooks.

6. I frequently get so wrapped up in a mathematical problem that I could spend hours working on it.

7. Math is one of my best subjects.

8. Scientists and mathematicians display an almost unreasonable attachment to their work.

9. Mathematics receives too little serious attention in the mass media – newspapers, television, and radio.

10. At the present time mankind has little need for creative mathematics as more math is already known than is being used.

11. Mathematicians attach less value to beauty than do people in most other professions.

12. Mathematicians are more concerned about the order of things than about the welfare of people.

13. Mathematics and science are so much more important to social progress than other fields that mathematicians and scientists should be exempt from military service.

14. Outside of the fields of science and engineering man finds little in math that helps him to understand and solve his problems.

15. What helps me most in learning math is to be allowed to find out how to do the lesson by myself.

16. I learn more mathematics when I am taught the rule first, and then see some examples.

17. I learn math best when the teacher tells us exactly how to go about solving the problems.

18. Mathematical work is monotonous.

19. If I were interested in a certain profession and found out that it requires a knowledge of advanced mathematics, I would be even more interested than before.

20. I learn mathematics better when we see various examples of a certain kind of problem first, and then are allowed to discover the rule ourselves.

21. Girls as well as boys should take mathematics.

22. If I came across a tough mathematics puzzle in a magazine, I would probably spend as much time as needed to solve it.

23. I think I have considerable talent for mathematics.

24. In high school, boys should receive more encouragement to take mathematics courses than girls.

25. Mathematics is a man's world: there is little room in it for women.

26. High school mathematics should be required only for those students who want to be mathematicians.

27. Important economic, political, and social processes are greatly influenced by mathematicians.

GO ON TO THE NEXT PAGE

28. I find that math is not difficult to learn if I keep up with each lesson; but if I miss a lesson, I might as well give up.

29. The questions good students ask in a mathematics class usually help me understand the work better.

30. Mathematicians are generally stiff and formal in their dealings with other people.

31. I get fun out of doing mathematical problems.

32. Mathematicians are generally shy, lonely individuals.

33. A mathematician's career is full of adventure.

34. Mathematicians are more emotional than other people.

35. I would say that it is not worth much to get the right answer to a problem if you do not really understand the problem.

36. I am fairly sure that I will do well in all the mathematics courses that I will take in the future.

37. Girls generally have less mechanical aptitude than boys; therefore, they should not consider scientific or mathematical careers.

38. To become a mathematician requires superior intellectual ability.

39. By translating ideas into mathematical symbols their beauty and originality are lost.

40. Mathematics is not a good field for creative people to enter.

41. Unless mathematics is applied to solving scientific or social problems, it has little value.

42. Mathematics has contributed very little to the development of ideas pertaining to the social sciences.

43. The development of new ideas is the mathematician's greatest source of satisfaction.

44. About all of the mathematics worth knowing has been developed and can be found somewhere in books.

45. There is too much drill required in the study of math.

46. Sometimes I see a good way of working a mathematical problem which is different from the one we are expected to use.

47. A knowledge of mathematics is essential to the study of human behavior.

48. I enjoy the study of mathematics.

49. When some of the students show that they understand the solution to a problem before I understand it, I feel discouraged and blame them for showing off.

50. When my friends do not understand something in mathematics, I am usually able to explain it to them.

51. It is possible to be a well-educated adult without going beyond junior high school mathematics.

52. The greatest value of elementary and high school mathematics is to enable people to handle their financial affairs competently.

53. Mathematics will enable me to think more clearly in other subject areas.

54. Before I am through with high school I expect to take as much math as the school offers.

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55. To appreciate modern society fully, a person must understand the importance of mathematics.

56. If I had a choice for homework, I would probably select nine easy problems worth 10 points rather than three difficult problems worth 10 points.

57. I do not have the intelligence for a successful scientific or mathematical career.

58. If I wanted to, I could probably be a good mathematics teacher some day.

59. I enjoy solving mathematical problems even when I cannot see any practical use for them.

60. When I cannot solve a mathematical problem fairly quickly, I wish that I could keep working at the problem until I solve it.

61. I believe that mathematical work is boring.

62. Mathematicians are too narrow in their views.

63. Learning to solve mathematical problems improves one's ability to solve other kinds of problems.

64. I frequently read about mathematical subjects that are not necessarily related to our school work.

65. Unless I know that I am getting the right answers, I hesitate to go on to more difficult problems.

66. A mathematician might be described as a nonconformist.

67. Success in mathematical work requires great dedication and self-discipline.

68. When I read an article that has graphs in it, I generally skip over them and continue with the text.

STOP

Horace Mann-Lincoln Institute of School Experimentation
Teachers College, Columbia University

Individual Data Sheet

Name _____   Birthdate: Year ____ Month ____ Day____

Address _____   Age _____ Class _____

School (Name or No.) _____   Teacher _____

_____   Date _____

Please answer the questions below to the best of your ability:

1. <u>Father's Occupation</u>: _____

On the lines below describe briefly what your father actually does. For example, if his occupation is "salesman", tell what he sells and where he works. If his occupation is "plant manager", describe the kind of plant he manages, its size, location, and what it produces. If his occupation is "teacher", tell at what grade level, which subjects, and where he teaches.

_____

_____

_____

2. <u>Mother's Occupation</u>: _____

a. On the lines below describe briefly what your mother actually does, if her occupation is other than housewife.

_____

_____

_____

b. How long has your mother been working? _____Years.

3. <u>Parent's Education</u>. In the list below place an F in the space at the left of the phrase which describes the highest grade in school which your FATHER has completed, and an M at the left of the phrase which describes the highest grade in school which your MOTHER has completed.

_____ a. Some elementary school   _____ e. Some college

_____ b. Graduated from elementary   _____ f. Graduated from a four-year
             school   college

_____ c. Some high school   _____ g. Some graduate work.

_____ d. Graduated from high school   _____ h. Holds a doctor's degree (MD, PhD,
                                                        EdD, DDS, etc.)

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4. __Number of Siblings:__

    a. No. of older brothers?_____ Younger brothers?_____ Twin brother?_____

    b. No. of older sisters? _____ Younger sisters? _____ Twin sister? _____

5. __Educational Plans:__ Check the one statement below which best describes what you are most likely to do after you graduate from high school.

_____a. Work full time   _____b. Work during the day,   _____c. Attend full time
      no further   go to school in the   at a junior college
      schooling   evening   or technical school

_____d. Go full time to a four year college

6. __Occupational Plans:__ On the line below name the occupation which you now think you will enter.

    _____

7. __Favorite Activities:__ Describe briefly in order of preference the three activities other than school work (special lessons, watching T.V., hobbies, sports, etc.) which you enjoy most.

    a._____   b. _____

             c. _____

8. __Time Spent on Out-of-school Activities:__ On the line at the left of the listed activities enter the approximate number of hours __per week__ (outside of school) that you spend on each one:

_____a. All homework.   _____b. Reading (not directly related to your school work).

_____c. Math homework.   _____d. Hobbies (collections, models, chess, etc.).

_____e. Practicing a musical instrument.   _____f. Sports or outdoor activities.

_____g. Attending special classes (Hebrew School, Dancing, Art school, etc.).

10. __School Subjects:__   a. Which is your favorite school subject?_____

    b. Which school subject do you like least? _____
    c. If you could plan your own school program to include only those subjects which you consider important and were allowed to study each of these for as long or as little time as you thought necessary, what kind of weekly program would you plan for yourself? Schedule yourself for 30 hours. List all subjects you would choose (include lunch) and the number of hours per week you would like to spend on each.

Subjects to be Studied	Hours Per Week	Subjects to be Studied	Hours Per Week
a. _____	_____	e. _____	_____
b. _____	_____	f. _____	_____
c. _____	_____	g. _____	_____
d. _____	_____	h. _____	_____

11. Rating Your Abilities: Below are some statements on which you are asked to rate yourself. For each of the statements circle the number at the right which you think best describes you at the present.

Abilities	Very Good	Good	Fair	Not too Good	Poor
1. My ability to take criticism is	1	2	3	4	5
2. My ability to make decisions is	1	2	3	4	5
3. My ability to assume leadership is	1	2	3	4	5
4. My ability to work independently is	1	2	3	4	5
5. My ability to solve problems is	1	2	3	4	5
6. My ability to speak before groups is	1	2	3	4	5
7. My ability to express ideas in writing is	1	2	3	4	5
8. My ability to stick to my convictions is	1	2	3	4	5
9. My ability to think clearly is	1	2	3	4	5
10. My ability to carry out responsibility is	1	2	3	4	5
11. My artistic ability is	1	2	3	4	5
12. My athletic ability is	1	2	3	4	5
13. My musical ability is	1	2	3	4	5
14. My mathematical ability is	1	2	3	4	5
15. My mechanical ability is	1	2	3	4	5
16. My intellectual ability is	1	2	3	4	5
17. My social ability is	1	2	3	4	5
18. My self-confidence is	1	2	3	4	5
19. My sense of humor is	1	2	3	4	5
20. My appearance is	1	2	3	4	5
21. My eagerness to learn is	1	2	3	4	5
22. My judgment is	1	2	3	4	5
23. My physical health is	1	2	3	4	5
24. My imagination is	1	2	3	4	5
25. My disposition is	1	2	3	4	5

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APPENDIX B

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Table B-1

Regression Analyses of Pupil Scores in Five Mathematics
Programs on the Developed Mathematical AbilitiesTest, the Mathematics
Achievement Test and the Teacher-Made Tests at the End of Grade Seven.

	Beta Weights	
Independent Variables	Developed Math Abilities	Mathematics Achievement
1. IQ	.0474	.0973
2. Reading Achievement	.0809	.0494
3. Mathematics Achievement	.2901	.2994
4. Attitudes: Total Score	.0003	-.0280
5. Attitudes: Self-interest	.1294	.2255
6. Socio-economic Status	-.2190	-.3155
7. Self-ability rating	-.0224	.0343

C = -6.9849	C = -11.1023
SE = 3.4019	SE = 3.8136
R^2 = .3270	R^2 = .3436
MR = .5719	MR = .5861

Table B-2

Regression Analysés of Pupil Scores
on the <u>Teacher-Made Test-I</u> for Six Mathematics Programs
at the End of Grade Seven.

	Beta Weights					
	Programs					
Independent Variable	I	II	III	IV	V	VI
1. IQ	0.0266	0.0829	0.0450	0.0371	0.1116	0.1103
2. Reading	0.0081	0.0779	-0.0042	0.0335	0.0111	0.0353
3. Arithmetic	0.2587	0.2666	0.2198	0.1726	0.1577 ·	0.2218
4. Total Attitudes	-0.0453	-0.0670	-0.0228	-0.0017	0.0225	-0.0654
5. Category V. Attitudes	0.1504	0.2642	0.1744	0.0795	0.2190	0.3401
6. SES	-0.2489	-0.0672	-0.1521	-0.8071	0.1075	-0.0246
7. Abilities Self-Rating	-0.0225	0.0072	-0.0075	-0.0025	0.0441	0.0303

	C=9.4039	C=7.6783	C=4.4620	C=8.3700	C=7.7832	C=9.8381
	SE=3.2970	SE=3.1349	SE=3.2925	SE=3.2509	SE=3.1534	SE=3.1390
	R^2=0.2401	R^2=0.3125	R^2=0.2158	R^2=0.2414	R^2=0.3037	R^2=0.3373
	MR=0.4900	MR=0.5590	MR=0.4645	MR=0.4913	MR=0.5511	MR=0.5808

Table B-2a

Regression Analyses of Pupil Scores
on the <u>Teacher-Made Test-II</u> for Five Mathematics Programs
at the End of Grade Seven.

	Beta Weights				
	Programs				
Independent Variables	II	III	IV	V	VI
1. IQ	0.0673	0.0791	0.0200	0.1125	0.0554
2. Reading	0.1203	0.0486	-0.0143	0.0319	0.1174
3. Arithmetic	0.2690	0.2293	0.3132	0.1944	0.2199
4. Total Attitudes	-0.0541	-0.0343	-0.0391	-0.0284	0.0504
5. Category V Attitudes	0.2398	0.1850	0.1149	0.3615	0.0372
6. SES	-0.1221	-0.0139	-0.8242	-0.1691	-0.0560
7. Abilities Self-Rating	-0.0066	-0.0139	-0.0150	0.0043	-0.0142
	C=-6.1958	C=-2.7930	C=7.8744	C=-9.0062	C=-7.7072
	SE+3.2042	SE=3.2078	SE=3.5558	SE=3.4166	SE=3.0611
	R^2=0.3137	R^2=0.2928	R^2=0.2726	R^2=0.3653	R^2=0.3090
	MR=0.5601	MR=0.5411	MR=0.5221	MR=0.6044	MR=0.5559

[a] Program I took only one Teacher Made Test.

Table B-3

Means and Standard Deviations of Pre-test Measures
for Pupils Enrolled in Six Mathematics Programs
at the Beginning of Grade Seven.

		Means and Standard Deviations	
	Variable	Mean	S.D.
1.	Pupil Sex	1.4898	0.4999
2.	Pupil Age	145.1253	4.3786
ϑ 3.	Verbal IQ	129.9172	9.1429
ϑ 4.	STEP-Reading	51.4579	5.9314
ϑ 5.	STEP-Math	31.7766	5.7004
ϑ 6.	Attitudes Toward Math	38.5990	9.3991
7.	Sub-Category I	5.7888	2.5021
8.	Sub-Category II	5.6185	2.1859
9.	Sub-Category III	8.1322	2.2921
10.	Sub-Category IV	4.5797	1.6253
ϑ 11.	Sub-Category V	11.4793	4.3431
12.	Sub-Category VI	3.0450	1.4941
ϑ 13.	Father's Occupation	2.9637	1.4308
14.	Mother's Occupation	6.6350	2.2106
15.	Father's Education	5.5321	1.4441
16.	Mother's Education	5.0406	1.2007
17.	No. Older Sibs	0.7819	0.8668
18.	No. Younger Sibs	0.0755	1.0336
19.	Occupational Plans	2.1394	1.2104
20.	Educational Plans	3.8550	0.4893
21.	Hours of Home Study	8.5978	4.9469
22.	Hours of Math Homework	34.7776	17.0257
23.	School Hours Desired for Math	4.9102	2.0390
24.	% School Day Desired for Math	16.5487	7.1300
ϑ 25.	% School Day for Academic Studies	65.8673	16.0107
ϑ 26.	Ability: Self-Rating	50.1455	10.0659
27.	Math Ability: Self-Rating	2.0000	0.8670
28.	Task Directedness	5.7490	1.7197
29.	Intellectual Ability	17.5048	4.1444
30.	Personal Social Ability	7.9420	2.1024
31.	Employment Status of Mother	0.3895	0.6490
32.	Hours Spent at Reading	5.8046	7.8319
33.	Hours Spent at Music	2.5611	3.6808
34.	Hours Spent Out of School	2.3851	3.6271

ϑ Scores which entered into the regression analyses.

Table B-3a

Correlations of Initial Pupil Data in Five Mathematics Programs at the Beginning of the Seventh Grade

Correlations

Table B4a

Analysis of Variance of Raw Scores on Sub-test I (Standard Enriched) of ETS-II for Pupils in Six Mathematics Programs at the End of Grade Seven.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	409.18	5	81.84	48.36 ᵠ
Within Groups	2484.32	1468	1.69	
TOTAL	2893.50	1473		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched		-.8507 ᵠ	-.8012 ᵠ	-1.1638 ᵠ	-1.2710 ᵠ	-.6968 ᵠ
2 Standard Accelerated					-.4203 ᵠ	
3 SMSG-Normal					-.4698 ᵠ	
4 SMSG-Accelerated						
5 UICSM-8						.5742 ᵠ
6 UICSM-7						

Enriched vs. Accelerated   -.5950 ᵠ

Standard vs. Contemporary   -.5578 ᵠ

ᵠ Significant at or beyond the .05 level.

Table B-4b

Analysis of Variance of Raw Scores on Sub-test II (Standard Accelerated) of ETS-II for Pupils in Six Mathematics Programs at the End of Grade Seven.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	222.90	5	44.58	9.17 ^{a}
Within Groups	7138.91	1468	4.86	
TOTAL	7361.81	1473		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched						.8798 ^{a}
2 Standard Accelerated						.9446 ^{a}
3 SMSG-Normal						1.0459 ^{a}
4 SMSG-Accelerated						1.2059 ^{a}
5 UICSM-8						1.3210 ^{a}
6 UICSM-7						

Enriched vs. Accelerated   n.s.

Standard vs. Contemporary   n.s.

---

^{a} Significant at or beyond the .05 level.

Table B-4c

Analysis of Variance of Raw Scores of Sub-test III (SMSG-Normal) of ETS-II for Pupils in Six Mathematics Programs at the End of Grade Seven.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	596.47	5	119.29	55.33 [a]
Within Groups	3165.02	1468	2.16	
TOTAL	3761.49	1473		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched		-.4370 [a]	-1.2085 [a]	-1.8279 [a]	-1.0982 [a]	-.6522 [a]
2 Standard Accelerated			-.7355 [a]	-1.3549 [a]		-.6252 [a]
3 SMSG-Normal				-.6194 [a]		.5563 [a]
4 SMSG-Accelerated					.7297 [a]	1.1757 [a]
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   -.4085 [a]

Standard vs. Contemporary   -.9602 [a]

[a] Significant at or beyond the .05 level.

Table B-4d

Analysis of Variance of Raw Scores on Sub-test IV (SMSG-Accelerated & UICSM-8) of ETS-II for Pupils in Six Mathematics Programs at the End of Grade Seven.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	310.84	5	62.17	45.68^a_v
Within Groups	1997.69	1468	1.36	
TOTAL	2308.53	1473		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched		$-.5665^a_v$	$-.5607^a_v$	-1.2629^a_v	$-.9700^a_v$	-1.0140^a_v
2 Standard Accelerated				$-.6964^a_v$	$-.4035^a_v$	$-.4475^a_v$
3 SMSG-Normal				$-.7022^a_v$	$-.4093^a_v$	$-.4533^a_v$
4 SMSG-Accelerated						
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated $-.6730^a_v$

Standard vs. Contemporary $-.6686^a_v$

___

^a_v Significant at or beyond the .05 level.

Table B-4e

Analysis of Variance of Raw Scores on Sub-test V (UICSM-7) of ETS-II for Pupils in Six Mathematics Programs at the End of Grade Seven.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	395.38	5	79.08	47.31 ϑ
Within Groups	2453.75	1468	1.67	
TOTAL	2489.13	1473		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched		-.8692 ϑ	-.7478 ϑ	-1.0780 ϑ	-.8981 ϑ	-1.5847 ϑ
2 Standard Accelerated						-.7155 ϑ
3 SMSG-Normal						-.8369 ϑ
4 SMSG-Accelerated						-.5067 ϑ
5 UICSM-8						-.6866 ϑ
6 UICSM-7						

Enriched vs. Accelerated   -.7336 ϑ

Standard vs. Contemporary   -.6426 ϑ

ϑ Significant at or beyond the .05 level.

Table B-5a

Analysis of Variance of Residual Scores on Sub-test I (Standard Enriched) of ETS-II for Pupils in Six Mathematics Programs at the End of Grade Seven.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	126.98	5	25.40	17.45 $_\nabla^a$
Within Groups	2136.01	1468	1.46	
TOTAL	2262.99	1473		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched		-.3728 $_\nabla^a$		-.6216 $_\nabla^a$	-.8719 $_\nabla^a$	
2 Standard Accelerated					-.4991 $_\nabla^a$	
3 SMSG-Normal					-.4951 $_\nabla^a$	
4 SMSG-Accelerated						
5 UICSM-8						.5653 $_\nabla^a$
6 UICSM-7						

Enriched vs. Accelerated   -.3548 $_\nabla^a$

Standard vs. Contemporary   -.3578 $_\nabla^a$

$_\nabla^a$ Significant at or beyond the .05 level.

Table B-5b

Analysis of Variance of Residual Scores on Sub-test II
(Standard Accelerated) of ETS-II for Pupils in Six Mathematics Programs
at the End of Grade Seven.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	155.33	5	31.07	20.14 [a]
Within Groups	2264.71	1468	1.54	
TOTAL	2420.04	1473		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched					-.3883 [a]	.8644 [a]
2 Standard Accelerated					-.4689 [a]	.8278 [a]
3 SMSG-Normal						.9824 [a]
4 SMSG-Accelerated						1.0458 [a]
5 UICSM-8						1.2967 [a]
6 UICSM-7						

Enriched vs. Accelerated   n.s.

Standard vs. Contemporary   n.s.

[a] Significant at or beyond the .05 level.

Table B-5c

Analysis of Variance of Residual Scores on Sub-test III (SMSG-Normal) of ETS-II for Pupils in Six Mathematics Programs at the End of Grade Seven.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	282.54	5	56.51	30.63 [a]
Within Groups	2707.98	1468	1.85	
TOTAL	2990.52	1473		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched			-.7389 [a]	-1.2191 [a]	-.6854 [a]	
2 Standard Accelerated			-.7945 [a]	-1.2747 [a]	-.7410 [a]	
3 SMSG-Normal				-.4802 [a]		
4 SMSG-Accelerated					.5337 [a]	-9612 [a]
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   n.s.

Standard vs. Contemporary   -.7531 [a]

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[a] Significant at or beyond the .05 level.

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Table B-5d

Analysis of Variance of Residual Scores on Sub-test IV (SMSG-Accelerated & UICSM-8) of ETS-II for Pupils in Six Mathematics Programs at the End of Grade Seven.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	156.01	5	31.20	23.67 $\S$
Within Groups	1934.84	1468	1.32	
TOTAL	2090.85	1473		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched				-.9092 $\S$	-.6798 $\S$	-.7367 $\S$
2 Standard Accelerated				-.6655 $\S$	-.4361 $\S$	-.4930 $\S$
3 SMSG-Normal				-.6159 $\S$	-.3865 $\S$	-.4434 $\S$
4 SMSG-Accelerated						
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated	-.4958 $\S$
Standard vs. Contemporary	-.5330 $\S$

$\S$ Significant at or beyond the .05 level.

Table B-5e

Analysis of Variance of Residual Scores on Sub-test V (UICSM-7) of ETS-II for Pupils in Six Mathematics Programs at the End of Grade Seven

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	187.34	5	37.47	25.11 θ
Within Groups	2190.48	1468	1.49	
TOTAL	2377.82	1473		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched		-.4307 θ	-.3746 θ	-.6112 θ	-.5537 θ	-1.2379 θ
2 Standard Accelerated						-.8072 θ
3 SMSG-Normal						-.8633 θ
4 SMSG-Accelerated						-.6267 θ
5 UICSM-8						-.6842 θ
6 UICSM-7						

Enriched vs. Accelerated -.5211 θ

Standard vs. Contemporary -.4791 θ

θ Significant at or beyond the .05 level.

Means and Standard Deviations of the Seven Independent Variables and the Three Criterion Measures (ETS-I, ETS-II and the TMT's) for Pupils in Each of the Six Mathematics Programs at the End of Grade Seven.

	Standard Enriched (N=465)		Standard Accelerated (N=279)		SMSG-Normal (N=213)		SMSG-Accelerated (N=165)		UICSM-8 (N=212)		UICSM-7 (N=143)		Total (N=1477)	
Variables	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1. Verbal IQ	125.73	9.44	132.64	8.78	131.87	9.06	133.05	7.34	130.64	8.13	130.70	1.40	129.92	9.15
2. STEP Reading	49.93	6.01	52.09	6.11	52.26	5.70	53.28	5.15	51.27	5.71	52.20	5.73	51.46	5.20
3. STEP Arithmetic	29.62	5.65	32.97	5.37	32.88	5.53	33.30	4.68	32.36	5.96	32.17	5.34	31.78	5.69
4. Total Attitudes	38.65	9.58	40.06	8.79	38.46	9.27	39.21	10.26	37.61	8.90	36.51	9.54	38.60	9.41
5. Attitudes:Category V	11.59	4.51	12.22	1.32	11.09	4.19	11.78	4.50	10.98	4.25	10.59	4.38	11.48	4.35
6. SES	3.42	1.42	2.88	1.32	2.94	1.33	2.77	1.49	2.50	1.30	2.52	1.49	2.96	1.43
7. Self-Rating	47.88	9.72	50.29	10.54	50.83	9.59	51.83	9.80	51.70	10.04	52.00	9.81	50.15	10.04
8. ETS-I	12.71	3.75	15.03	3.93	15.15	4.41	16.33	4.17	15.33	4.00	15.00	4.01	14.53	4.14
9. ETS-II	13.12	4.00	16.16	4.00	16.68	5.02	18.75	4.35	17.99	4.78	16.36	3.78	15.89	4.70
10. TMT's	18.87	3.75	16.88	3.73	17.54	3.85	19.21	4.01	18.26	3.72	16.29	3.76	18.04	3.85

Table B-7a

Means, Ranks and Standard Deviations of Raw and Residual Scores on
the Developed Mathematical Abilities Test (ETS-I) and the Mathematics Achievement Test (ETS-II)
for Classes in the Standard Enriched Program at the End of Grade Seven.

Class	N	ETS-I Raw			ETS-I Residual			ETS-II Raw			ETS-II Residual		
		X̄	Rank	S.D.	X̄	Rank	S.D.	X̄	Rank	S.D.	X̄	Rank	S.D.
1	26	13.2692	10	2.91	-0.5339	10	2.89	14.9615	14	3.88	0.1160	12	3.28
2	31	12.6451	6	4.18	-1.3330	4	3.59	13.4193	7	3.42	-1.8671	6	2.91
3	36	13.1388	9	4.87	0.6225	14	3.37	13.9444	11	4.34	0.2395	13	3.37
4	33	13.6666	12	3.46	-0.5686	9	3.31	13.6363	9	4.67	0.9047	14	3.31
5	42	12.8333	8	3.81	-0.9168	8	3.25	12.8809	5	4.27	-2.5686	4	3.30
6	44	13.4090	11	3.91	-1.4917	2	3.07	13.9545	12	4.31	-2.6778	3	4.41
7	42	12.6904	7	4.17	-0.9239	7	2.91	13.5238	8	3.56	-1.4949	9	3.31
8	31	10.8709	1	3.53	0.2003	12	3.15	12.0000	4	3.13	-0.1666	11	3.07
9	37	11.7027	3	3.37	0.4855	13	3.34	11.4054	1	4.79	-0.3600	10	3.11
10	28	13.6785	13	3.96	-1.2550	5	2.90	14.0000	13	4.27	-2.3803	5	3.27
11	24	14.2916	14	3.90	-0.0578	11	3.42	13.7916	10	4.09	-1.8274	7	3.51
12	27	12.5185	5	3.03	-1.4399	3	2.66	13.4074	6	3.33	-1.6737	8	2.99
13	32	11.5312	2	2.87	-1.8650	1	2.57	11.4687	2	2.79	-3.2704	1	3.02
14	32	12.0625	4	2.51	-1.1556	6	2.65	11.6875	3	2.92	-2.7653	2	2.48
Total	465	12.713		3.75	-0.7309		3.26	13.118		4.00	-1.446		3.50

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Table B-7b

Means, Ranks and Standard Deviations of Raw and Residual Scores on the Developed Mathematical Abilities Test (ETS-I) and the Mathematics Achievement Test (ETS-II) for Classes in the Standard Accelerated Program at the End of Grade Seven.

Class	N	ETS-I Raw			ETS-I Residual			ETS-II Raw			ETS-II Residual		
		$\bar{X}$	Rank	S.D.	$\bar{X}$	Rank	S.D.	$\bar{X}$	Rank	S.D.	$\bar{X}$	Rank	S.D.
1	33	15.0000	7	4.53	-0.2168	7	3.53	16.6666	8	3.85	0.0364	7	2.61
2	27	14.3703	2	3.83	-0.4806	5	3.01	15.1481	3	3.62	-1.0819	4	3.07
3	30	15.2666	8	4.04	0.7036	9	4.17	16.7333	9	3.12	0.6500	8	2.48
4	30	17.6666	10	4.26	2.8193	10	2.89	19.5333	10	4.01	2.7849	10	2.93
5	26	13.3076	1	3.74	-1.7920	1	4.27	15.2307	4	3.89	-0.2368	5	4.28
6	24	15.5000	9	2.92	-0.5620	4	2.73	13.5000	1	2.96	-3.6964	1	3.25
7	30	14.6666	4.5	4.23	-1.1892	2	4.08	16.6333	7	4.04	-1.6383	3	3.84
8	23	14.9565	6	3.82	0.7027	8	2.70	16.5652	6	3.89	1.7525	9	3.13
9	24	14.6666	4.5	3.34	-0.4225	6	3.10	14.8750	2	3.99	-1.8241	2	3.15
10	32	14.6250	3	3.12	-1.0544	3	3.17	15.7500	5	4.24	-1.2328	6	3.52
Total	279	15.028		3.93	-0.1492		3.55	16.157		4.00	-0.		3.67

Table B-7c

Means, Ranks and Standard Deviations of Raw and Residual Scores on the
Developed Mathematical Abilities Test (ETS-I) and the Mathematics Achievement Test (ETS-II)
for Classes in the SMSG-Normal Program at the End of Grade Seven.

Class	N	ETS-I Raw $\bar{X}$	Rank	S.D.	ETS-I Residual $\bar{X}$	Rank	S.D.	ETS-II Raw $\bar{X}$	Rank	S.D.	ETS-II Residual $\bar{X}$	Rank	S.D.
1	30	14.4333	3	3.95	-0.4272	3	3.28	16.2666	3	5.11	1.1308	6	4.53
2	24	12.5416	1	3.95	-0.8834	1	3.09	13.8333	2	4.54	-2.5891	1	3.20
3	30	13.0333	2	3.62	-0.7906	2	3.35	13.5666	1	4.88	-0.1782	3	3.20
4	24	15.9583	6	3.87	0.9095	7	3.68	17.9166	7	4.37	0.9610	5	4.06
5	23	15.7391	5	3.95	0.9041	6	2.89	17.9130	6	4.58	1.4503	8	3.44
6	24	15.5416	4	4.40	0.2830	4	3.84	17.1250	4	3.90	1.1367	7	3.21
7	30	16.5666	7	3.80	0.8971	5	2.95	17.7000	5	3.68	-0.2140	2	3.34
8	28	17.3571	8	5.57	1.3467	8	3.59	19.3214	8	6.04	0.3783	4	4.19
Total	213	15.145		4.41	0.2801		3.38	16.676		5.02	0.255		3.84

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Table B- 7d

Means, Ranks and Standard Deviations of Raw and Residual Scores on the Developed Mathematical Abilities Test (ETS-I) and the Mathematics Achievement Test (ETS-II) for Classes in the SMSG-Accelerated Program at the End of Grade Seven.

Class	N	ETS-I Raw			ETS-I Residual			ETS-II Raw			ETS-II Residual		
		$\bar{X}$	Rank	S.D.	$\ddot{X}$	Rank	S.D.	$\ddot{X}$	Rank	S.D.	$\ddot{X}$	Rank	S.D.
1	27	17.7037	4	3.11	1.9837	5	3.27	19.2962	3	3.31	1.9509	4	3.01
2	31	14.9677	2	3.96	0.3453	2	3.42	17.0645	2	3.20	1.2478	1	3.19
3	26	18.0000	5	3.42	2.4764	6	2.87	20.7692	6	3.69	3.7497	6	3.08
4	28	18.0714	6	3.09	1.1698	4	3.08	20.0357	5	3.68	1.5881	3	3.44
5	22	15.3636	3	3.81	0.5891	3	2.22	19.3181	4	4.50	3.0293	5	2.99
6	31	14.1935	1	5.33	0.1671	1	3.41	16.7096	1	5.72	1.4437	2	3.39
Total	165	16.327		4.17	1.1219		3.24	18.751		4.36	2.168		3.28

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Table B-7e

Means, Ranks and Standard Deviations of Raw and Residual Scores on the Developed Mathematical Abilities Test (ETS-I) and the Mathematics Achievement Test (ETS-II) for Classes in the UICSM-8 Program at the End of Grade Seven.

Class	N	ETS-I Raw			ETS-I Residual			ETS-II Raw			ETS-II Residual		
		X	Rank	S.D.	X	Rank	S.D.	X	Rank	S.D.	X	Rank	S.D.
1	29	14.5172	3	3.77	-0.4627	3	2.43	16.5862	3	4.26	0.1030	3	3.21
2	23	11.7826	1	2.86	-1.0690	2	2.22	13.3478	1	2.74	-0.5942	2	3.07
3	24	17.2500	7	3.50	1.3506	5	2.66	19.7916	6	3.95	2.0933	5	3.26
4	27	12.6296	2	3.61	-2.4114	1	3.16	15.5185	2	2.94	-0.9635	1	2.26
5	25	17.4400	8	3.75	1.9478	8	4.38	21.6400	7	3.96	4.6831	7	4.28
6	26	16.6307	6	3.96	1.9282	7	3.19	22.4230	8	5.45	6.1762	8	4.00
7	29	16.1724	5	3.27	1.9256	6	2.99	17.8620	5	3.51	2.3040	6	2.95
8	29	15.9655	4	3.65	1.0334	4	3.06	16.9310	4	3.91	0.4823	4	3.07
Total	212	15.330		4.00	0.5303		3.39	17.995		4.78	1.785		3.70

Table B-7f

Means, Ranks and Standard Deviations of Raw and Residual Scores on
the Developed Mathematical Abilities Test (ETS-I) and the Mathematics Achievement Test (ETS-II)
for Classes in the UICSM-7 Program at the End of Grade Seven.

Class	N	ETS-I Raw			ETS-I Residual			ETS-II Raw			ETS-II Residual		
		$\bar{X}$	Rank	S.D.	$\bar{X}$	Rank	S.D.	$\bar{X}$	Rank	S.D.	$\bar{X}$	Rank	S.D.
1	28	14.9642	3	4.4595	0.6893	4	3.23	15.1785	1	3.7322	-0.5382	2	1.99
2	29	13.9310	2	4.0260	-0.8722	1	3.16	15.7586	3	3.9519	-0.4687	3	3.18
3	25	13.8000	1	4.3969	-0.7584	2	4.07	15.3600	2	3.6501	-0.5922	1	2.42
4	31	16.0967	5	3.2593	0.6093	3	2.63	17.0322	4	2.9606	0.0279	4	2.52
5	30	15.9333	4	3.5905	1.3139	5	2.96	18.2000	5	3.9251	2.2855	5	3.13
Total	143	15.000		4.01	0.1964		3.28	16.363		3.7838	0.182		3.81

Table B-8

Correlations of Selected Pupil Variables at the End of the Seventh Grade in All Six Programs Combined (N=1477).

Correlation Matrix

Variables	1	2	3	4	5	6	7	8	9	10
1. IQ	—	0.49	0.43	0.14	0.06	-0.18	0.06	0.36	0.40	0.22
2. Reading Achievement		—	0.29	0.08	0.01	-0.14	0.04	0.30	0.28	0.16
3. Arithmetic Achievement			—	0.17	0.23	-0.15	0.06	0.52	0.52	0.37
4. Total Attitudes				—	0.82	-0.7	-0.23	0.20	0.20	0.18
5. Category V, Attitudes					—	-0.03	-0.29	0.22	0.24	0.24
6. SES, Father's Occupation [a]						—	0.04	-0.17	-0.19	0.10
7. Appraisal of Self-Ability [b]							—	0.05	0.06	-0.05
8. Developed Mathematical Abilities								—	0.62	0.38
9. Mathematics Achievement									—	0.38
10. Teacher-Made Test I										—

[a] Ratings go from a high of 1 to a low of 7.

[b] Ratings go from a high of 1 to a low of 5 on each of the 25 items in the scale.

Table B-8a

Correlations of Selected Pupil Variables at the End of the
Seventh Grade in Standard-Enriched Classes

Correlation Matrix

Variables	1	2	3	4	5	6	7	8	9	10
1. IQ	-	2.53	0.44	0.09	0.05	-0.11	0.08	0.31	0.34	0.25
2. Reading Achievement		-	0.34	-0.03	-0.05	-0.07	0.06	0.26	0.23	0.18
3. Arithmetic Achievement			-	0.16	0.25	-0.13	0.06	0.51	0.49	0.46
4. Total Attitudes				-	0.84	-0.12	-0.25	0.08	0.17	0.13
5. Category V, Attitudes					-	-0.07	-0.27	0.15	0.25	0.21
6. SES, Father's Occupation b						-	0.14	-0.04	-0.07	-0.15
7. Appraisal of Self-Ability b							-	0.04	0.00	-0.06
8. Developed Mathematical Abilities								-	0.54	0.36
9. Mathematics Achievement									-	0.40
10. Teacher-Made Test I										-

b Ratings go from a high of 1 to a low of 7.

b Ratings go from a high of 1 to a low of 5 on each of the 25 items in the scale.

Table B-8b

Correlations of Selected Pupil Variables at the End
of the Seventh Grade in Standard-Accelerated Classes.

Correlation Matrix

Variables	1	2	3	4	5	6	7	8	9	10
1. IQ	-									
2. Reading Achievement	0.36	-								
3. Arithmetic Achievement	0.26	0.09	-							
4. Total Attitudes	0.11	0.09	0.09	-						
5. Category V, Attitudes	0.01	-0.04	0.16	0.80	-					
6. SES, Father's Occupation ᵇ	-0.08	-0.15	-0.00	0.00	0.01	-				
7. Appraisal of Self-Ability ᵇ	-0.01	-0.04	0.10	-0.26	-0.34	0.05	-			
8. Developed Mathematical Abilities	0.12	0.24	0.37	0.22	0.18	-0.17	0.03	-		
9. Mathematics Achievement	0.18	0.18	0.41	0.17	0.24	-0.09	-0.01	0.44	-	
10. Teacher-Made Test I	0.32	0.21	0.48	0.13	0.21	-0.06	-0.01	0.38	0.35	-

a/ Ratings go from a high of 1 to a low of 7.

b/ Ratings go from a high of 1 to a low of 5 on each of the 25 items in the scale.

Table B-8c

Correlations of Selected Pupil Variables at the End of the Seventh Grade in SMSG-Normal Classes.

Variables	1	2	3	4	5	6	7	8	9	10
1. IQ	-									
2. Reading Achievement	0.54	-								
3. Arithmetic Achievement	0.45	0.32	-							
4. Total Attitudes	0.25	0.25	0.22	-						
5. Category V, Attitudes	0.12	0.08	0.23	0.82	-					
6. SES, Father's Occupation [a]	0.19	0.15	0.13	0.12	0.06	-				
7. Appraisal of Self-Ability [b]	0.01	0.01	0.01	0.19	0.12	0.11	-			
8. Developed Mathematical Abilities	0.47	0.33	0.55	0.35	0.33	0.30	0.07	-		
9. Mathematics Achievement [a]	0.47	0.31	0.56	0.30	0.32	0.07	0.06	0.65	-	
10. Teacher-Made Test I	0.28	0.17	0.42	0.21	0.25	0.12	0.07	0.53	0.54	-

Correlation Matrix

[a] Ratings go from a high of 1 to a low of 7.

[b] Ratings go from a high of 1 to a low of 5 on each of the 25 items in the scale.

Table B-8d

Correlations of Selected Pupil Variables at the End of the Seventh Grade in SMSG-Accelerated Classes.

Variables	1	2	3	4	5	6	7	8	9	10
1. IQ	-									
2. Reading Achievement	0.45	-								
3. Arithmetic Achievement	0.26	0.24	-							
4. Total Attitudes	0.08	0.12	0.19	-						
5. Category V, Attitudes	-0.03	0.02	0.26	0.81	-					
6. SES, Father's Occupation [a]	-0.17	-0.17	-0.14	-0.17	-0.11	-				
7. Appraisal of Self-Ability [b]	0.03	0.05	0.02	-0.14	-0.17	-0.24	-			
8. Developed Mathematical Abilities	0.25	0.15	0.51	0.22	0.23	-0.31	-0.02	-		
9. Mathematics Achievement	0.29	0.26	0.46	0.19	0.21	0.24	-0.04	0.52	-	
10. Teacher-Made Test I	0.20	0.19	0.32	0.19	0.19	0.39	0.04	0.54	0.48	-

(Correlation Matrix)

[a] Ratings go from a high of 1 to a low of 7.

[b] Ratings go from a high of 1 to a low of 5 on each of the 25 items in the scale.

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Correlations of Selected Pupil Variables at the End of the
Seventh Grade in UICSM-8 Classes.

Correlation Matrix

Variables	1	2	3	4	5	6	7	8	9	10
1. IQ	-									
2. Reading Achievement	0.45	-								
3. Arithmetic Achievement	0.36	0.29	-							
4. Total Attitudes	0.20	0.10	0.16	-						
5. Category V, Attitudes	0.21	0.09	0.25	0.81	-					
6. SES, Father's Occupation [a]	-0.14	-0.05	-0.14	-0.05	-0.03	-				
7. Appraisal of Self-Ability [b]	-0.11	-0.06	-0.12	-0.26	-0.31	0.05	-			
8. Developed Mathematical Abilities	0.35	0.24	0.46	0.26	0.35	-0.15	-0.21	-		
9. Mathematics Achievement	0.38	0.18	0.43	0.24	0.32	-0.23	-0.07	0.66	-	
10. Teacher-Made Test I	0.39	0.22	0.40	0.32	0.37	-0.04	-0.03	0.53	0.61	-

[a] Ratings go from a high of 1 to a low of 7.

[b] Ratings go from a high of 1 to a low of 5 on each of the 25 items in the scale.

Correlations of Selected Pupil Variables at the End of the Seventh Grade in UICSM-7 Classes.

Correlation Matrix

Variables	1	2	3	4	5	6	7	8	9	10
1. IQ	-									
2. Reading Achievement	0.39	-								
3. Arithmetic Achievement	0.39	0.20	-							
4. Total Attitudes	0.22	0.12	0.27	-						
5. Category V, Attitudes	0.07	0.06	0.30	0.82	-					
6. SES, Father's Occupation a)	-0.13	-0.14	-0.11	0.03	0.04	-				
7. Appraisal of Self-Ability b)	0.04	0.04	0.08	-0.27	-0.32	0.03	-			
8. Developed Mathematical Abilities	0.23	0.30	0.54	0.29	0.33	0.01	0.11	-		
9. Mathematics Achievement	0.24	0.26	0.55	0.42	0.41	-0.06	0.14	0.57	-	
10. Teacher-Made Test I	0.35	0.21	0.49	0.28	0.35	-0.07	0.03	0.49	0.53	-

a) Ratings go from a high of 1 to a low of 7.

b) Ratings go from a high of 1 to a low of 5 on each of the 25 items in the scale.

Table B-9

Intercorrelations of ETS-II Sub-tests with Total Score and
Selected Variables at the End of Grade Seven

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. IQ	--												
2. Reading Achievement	.4921	--											
3. Mathematics Achievement	.4291	.2942	--										
4. Total Attitudes	.1413	.0763	.1664	--									
5. Category V – Self-Interest	.0631	-.0070	.2280	.8208	--								
6. SES	-.1772	-.1393	-.1519	-.0717	-.0322	--							
7. Ability Self-Rating	.0576	.0431	.0649	-.2312	-.2914	.0484	--						
8. ETS-II Total Score	.4022	.2756	.5193	.1967	.2389	-.1916	.0571	--					
9. Sub-test I	.3018	.2021	.3926	.1356	.1617	-.1581	.0616	.6108^a	--				
10. Sub-test II	.2236	.1262	.3533	.1469	.2107	-.0688	.0171	.3175^a	.3315	--			
11. Sub-test III	.3237	.2427	.3885	.2412	.1582	-.1118	.0286	.6686^a	.3506	.3098	--		
12. Sub-test IV	.211?	.1305	?616	.0999	.1064	-.1673	.0559	.3454^a	.3087	.2238	.3196	--	
13. Sub-test V	.2730	.2081	.3361	.1356	.1670	-.1600	.0327	.6643^a	.3423	.2813	.3271	.3055	--

a Correlations between total ETS-II score and sub-test scores were derived from a longitudinal analysis based on 803 pupils.

APPENDIX C

Table C-1

Regression Analyses of <u>Developed Mathematical Abilities (ETS-I)</u>
and <u>Mathematics Achievement (ETS-II)</u> Test Scores at the
End of Grade Eight Based on the Total Population (N=1271)

Independent Variable	ETS-I β-Weight	ETS-II β-Weight
IQ	0.1008	0.0825
Reading Achievement	0.0689	0.0326
Mathematics Achievement	0.3352	0.2409
Attitudes: Total	-0.0435	-0.0267
Attitudes: Self-Interest	0.2282	0.1529
Socio-Economic Status	-0.2511	-0.3305
Self-Ability Rating	0.0288	0.0228

		ETS-I	ETS-II
Constant	=	-11.2144	-5.3627
Standard Error of Estimate	=	3.7387	3.6937
R-Square	=	0.3654	0.2476
Multiple-R	=	0.6044	0.4976

Table C-2

Regression Analyses of the <u>Mathematics Achievement Test (ETS-II)</u> Subtest Scores at the End of Grade Eight Based on the Total Population (N=1271).

Independent Variable	Beta-Weights of Subtests					
	I	II	III	IV	V	VI
IQ	-.0024	.0028	.0000	-.0020	.0007	.0001
Reading Achievement	.0340	-.0178	-.0019	.0417	.0046	.0415
Math Achievement	.0319	.0512	.0638	.0344	.0262	.0343
Attitudes: Total	.0119	-.0109	-.0033	.0094	-.0033	.0064
Attitudes: Self-Interest	.0037	.0276	.0162	-.0042	.0101	.0101
Socio-Economic Status	-.0157	-.0668	.0362	-.1012	-.0190	-.0892
Self-Ability Rating	.0013	.0038	-.0015	.0011	-.0001	.0017
Constant =	-0.8238	0.6424	0.7302	-0.8709	0.9475	1.1642
Standard Error of Estimate =	1.1340	0.9074	1.4877	1.1703	1.0727	1.7522
R-Square =	0.1541	0.4803	0.1376	0.1759	0.0598	0.0609
Multiple-R =	0.3925	0.6931	0.3710	0.4194	0.2444	0.2467

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Table C-3

Regression Analyses of the Teacher-Made Test Scores by Program at the End of Grade Eight.

Independent Variable	Beta-Weights of Programs					
	I	II	III	IV	V	VI
IQ	-.0104	.0267	.0695	.0292	.1386	.0989
Reading Achievement	.0532	.1247	.0914	.0572	-.0035	.0847
Math Achievement	.2552	.1700	.2066	.2488	.1336	.0687
Attitudes: Total	-.0902	-.0625	-.0337	.0374	.0440	-.0898
Attitudes: Self-Interest	.2797	.3075	.2707	-.0222	.0753	.3748
Socio-Economic Status	.0343	.0151	-.1952	-.5553	.1602	-.6823
Self-Ability Rating	-.0130	-.0006	.0216	-.0074	.0322	.0083

		I	II	III	IV	V	VI
Constant	=	10.6403	~0.5293	-7.2993	0.2639	-9.4332	-6.1345
Standard Error of Estimate	=	3.1568	3.5776	3.4621	3.4140	3.4873	4.1859
R-Square	=	0.2443	0.1693	0.2984	0.2201	0.2138	0.1957
Multiple-R	=	0.4943	0.4114	0.5463	0.4692	0.4624	0.4423
N	=	321	248	202	160	212	128

Table C-4a

Analysis of Variance of Raw Scores on Sub-test I
(Standard Enriched) for Pupils in Six Mathematics Programs
at the End of Grade Eight.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	28.33	5	5.67	3.73 [a]
Within Groups	1927.07	1265	1.52	
TOTAL	1955.40	1270		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched			-.3845 [a]			
2 Standard Accelerated						
3 SMSG-Normal						
4 SMSG-Accelerated						
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   n.s.

Standard vs. Contemporary   n.s.

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[a] Significant at or beyond the .05 level.

Table C-4b

Analysis of Variance of Raw Scores on Sub-test II (Standard Accelerated) for Pupils in Six Mathematics Programs at 'he End of Grade Eight.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	44.46	5	8.89	10.20 [a]
Within Groups	⁓ 1100.62	126.5	0.87	
TOTAL	1145.08	12 70		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched		-.3876 [a]		-.4213 [a]		
2 Standard Accelerated					.3047 [a]	.5220 [a]
3 SMSG-Normal						
4 SMSG-Accelerated					.3384 [a]	.5357 [a]
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   n.s.

Standard vs. Contemporary   n.s.

---

[a] Significant at or beyond the .05 level.

Table C-4c

Analysis of Variance of Raw Scores on Sub-test III (SMSG-Normal) for Pupils in Six Mathematics Programs at the End of Grade Eight.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	53.66	5	10.73	7.61 [a]
Within Groups	1781.29	1265	1.41	
TOTAL	1834.95	1270		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched			-.6125 [a]		-.4168 [a]	
2 Standard Accelerated			-.4027 [a]			
3 SMSG-Normal						
4 SMSG-Accelerated						
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   n.s.

Standard vs. Contemporary   n.s.

---

[a] Significant at or beyond the .05 level.

Table C-4d

Analysis of Variance of Raw Scores on Sub-test IV (SMSG-Accelerated) for Pupils in Six Mathematics Programs at the End of Grade Eight.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	319.56	5	63.91	41.56 ᶿ
Within Groups	1942.18	126.5	1.54	
TOTAL	2261.74	12.70		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched			-.3872 ᶿ	-.9650 ᶿ	-1.1530 ᶿ	-1.0047 ᶿ
2 Standard Accelerated			-.4423 ᶿ	-1.0201 ᶿ	-1.2081 ᶿ	-1.0598 ᶿ
3 SMSG-Normal				-.6228 ᶿ	-.7658 ᶿ	-.6175 ᶿ
4 SMSG-Accelerated						
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   -.5773 ᶿ

Standard vs. Contemporary   -.9035 ᶿ

ᶿ Significant at or beyond the .05 level.

Table C-4e

Analysis of Variance of Raw Scores on Sub-test V (UICSM-8) for Pupils in Six Mathematics Programs at the End of Grade Eight.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	57.16	5	11.43	9.62 ϑ
Within Groups	1500.32	1265	1.19	
TOTAL	1557.48	1270		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched					-.3884 ϑ	-.5560 ϑ
2 Standard Accelerated						
3 SMSG-Normal				-.4280 ϑ	-.4920 ϑ	-.6596 ϑ
4 SMSG-Accelerated						
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   -.4161

Standard vs. Contemporary   n.s.

ϑ Significant at or beyond the .05 level.

Table C-4f

Analysis of Variance of Raw Scores on Sub-test VI (UICSM-7) for Pupils in Six Mathematics Programs at the End of Grade Eight.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	487.16	5	97.43	45.30 ⊌
Within Groups	2717.02	1265	2.15	
TOTAL	3204.18	1270		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched				-.9986 ⊌	-1.4090 ⊌	-1.2006 ⊌
2 Standard Accelerated				-1.1654 ⊌	-1.5758 ⊌	-1.3674 ⊌
3 SMSG-Normal				-.8220 ⊌	-1.2324 ⊌	-1.0240 ⊌
4 SMSG-Accelerated						
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   -.7821

Standard vs. Contemporary -1.0296

⊌ Significant at or beyond the .05 level.

Table C-5a

Analysis of Variance of Residual Scores on Sub-test I (Standard Enriched) for Pupils in Six Mathematics Programs at the End of Grade Eight

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	28.65	5	5.73	4.18 $\lor$
Within Groups	1729.54	1265	1.37	
TOTAL	1758.19	1270		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched						
2 Standard Accelerated			.3889 $\lor$			
3 SMSG-Normal						
4 SMSG-Accelerated						
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   n.s.

Standard vs. Contemporary n.s.

$\lor$ Significant at or beyond the .05 level.

Table C-5b

Analysis of Variance of Residual Scores
on Sub-test II (Standard Accelerated) for Pupils in Six Mathematics
Programs at the End of Grade Eight.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	23.04	5	4.61	5.76 [a]
Within Groups	1010.96	1265	.80	
TOTAL	1034.00	1270		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched						
2 Standard Accelerated						.4300 [a]
3 SMSG-Normal						
4 SMSG-Accelerated						.4688 [a]
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   -.2895 [a]

Standard vs. Contemporary   n.s.

[a] Significant at or beyond the .05 level.

Table C-5c

Analysis of Variance of Residual Scores
on Sub-test III(SMSG-Normal) for Pupils in Six Mathematics
Programs at the End of Grade Eight.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	64.45	5	12.89	10.15 θ
Within Groups	1612.31	1265	1.27	
TOTAL	1676.76	1270		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched		.3375 θ	-.3726 θ			
2 Standard Accelerated			-.7101 θ		-.5036 $\overset{a}{v}$	-.4389 θ
3 SMSG-Normal				.4679 θ		
4 SMSG-Accelerated						
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   n.s.

Standard vs. Contemporary   -.3016 $\overset{a}{v}$

θ Significant at or beyond the .05 level.

Table C-5d

Analysis of Variance of Residual Scores
on Sub-test IV (SMSG-Accelerated) for Pupils in Six Mathematics
Programs at the End of Grade Eight.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	227.81	5	45.56	32.78 $\overset{a}{\vee}$
Within Groups	1755.85	1265	1.39	
TOTAL	1983.66	1270		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched		.4089 $\overset{a}{\vee}$		-.5836 $\overset{a}{\vee}$	-.8367 $\overset{a}{\vee}$	-.6500 $\overset{a}{\vee}$
2 Standard Accelerated			-.5032 $\overset{a}{\vee}$	-.9927 $\overset{a}{\vee}$	-1.2456 $\overset{a}{\vee}$	-1.0589 $\overset{a}{\vee}$
3 SMSG-Normal				-.4895 $\overset{a}{\vee}$	-.7424 $\overset{a}{\vee}$	-.5557 $\overset{a}{\vee}$
4 SMSG-Accelerated						
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   -.3096 $\overset{a}{\vee}$

Standard vs. Contemporary   -.7168 $\overset{a}{\vee}$

$\overset{a}{\vee}$ Significant at or beyond the .05 level.

Table C-5e

Analysis of Variance of Residual Scores
on Sub-test V (UICSM-8) for Pupils in Six Mathematics
Programs at the End of Grade Eight.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	44.16	5	8.83	7.77 [a]
Within Groups	1438.10	1265	1.14	
TOTAL	1482.26	1270		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched						.4093 [s]
2 Standard Accelerated						.4225 [s]
3 SMSG-Normal					.4777 [s]	.6632 [s]
4 SMSG-Accelerated						
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   .2256 [s]

Standard vs. Contemporary   n.s.

[s] Significant at or beyond the .05 level.

Table C-5f

Analysis of Variance of Residual Scores on Sub-test VI (UICSM-7) for Pupils in Six Mathematics Programs at the End of Grade Eight.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	394.61	5	78.92	43.60 ϑ
Within Groups	2293.86	1265	1.81	
TOTAL	2688.47	1270		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched		.5430 ϑ			-1.0747 ϑ	-.8319 ϑ
2 Standard Accelerated				-.9392 ϑ	-1.6177 ϑ	-1.3749 ϑ
3 SMSG-Normal				-.5465 ϑ	-1.2250 ϑ	-.9822 ϑ
4 AMSG-Accelerated					.6785 ϑ	
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   -.4097 ϑ

Standard vs. Contemporary   -.7600 ϑ

ϑ Significant at or beyond the .05 level.

Table C-6a

Means, Ranks, Standard Deviations and Ranges $\forall$ of Raw and Residual Scores on the Developed Mathematical Abilities Test (ETS-I) and the Mathematics Achievement Test (ETS-II) for Students in the Twelve Standard Enriched Classes at the End of Grade Eight.

Class	N	ETS-I Raw				ETS-I Residual			ETS-II Raw				ETS-II Residual		
		X̄	R	S.D.	Range	X̄	Rank	S.D.	X̄	Rank	S.D.	Range	X̄	Rank	S.D.
1	25	16.88	10	4.12	7-23	0.16	10	3.79	17.16	12	4.43	12-27	2.50	12	4.00
2	29	15.31	4	4.62	7-27	-1.76	2	3.28	14.45	7	3.68	8-22	-0.66	6	3.06
3	23	16.70	8	3.88	8-30	-0.43	9	4.45	14.50	8	3.44	9-21	-0.60	7	3.23
4	13	9.53	1	2.72	5-20	-1.24	5.5	5.17	10.73	1	1.94	7-14	0.28	10	3.07
5	38	14.18	2	3.95	6-24	-2.14	1	3.08	13.11	3	3.29	7-21	-1.31	3	2.58
6	29	17.07	12	4.58	11-29	0.38	11	3.55	14.53	9	3.98	8-20	0.05	9	2.92
7	30	16.93	11	4.15	10-25	0.44	12	3.60	14.87	11	3.60	6-22	0.33	11	3.48
8	26	15.76	7	4.58	8-28	-0.92	8	3.07	14.00	6	3.72	8-19	-2.19	1	3.09
9	24	16.74	9	4.84	8-27	-1.45	4	3.82	14.74	10	3.38	7-26	-0.69	5	3.42
10	27	15.59	6	3.84	8-22	-1.72	3	3.36	13.74	5	2.94	8-22	-0.41	8	3.13
11	29	15.52	5	3.30	7-23	-1.04	7	3.66	13.36	4	2.80	8-19	-1.27	4	2.46
12	28	14.86	3	4.00	7-22	-1.24	5.5	3.35	12.86	2	2.70	8-17	-1.63	2	2.22

$\forall$ Ranges are reported only for raw scores.

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Table C-6b

Means, Ranks, Standard Deviations and Ranges V[a] of Raw and Residual Scores on the Developed Mathematical Abilities Test (ETS-I) and the Mathematics Achievement Test (ETS-II) for Students in the Ten Standard Accelerated Classes at the End of Grade Eight.

Class	N	ETS-I Raw				ETS-I Residual			ETS-II Raw				ETS-II Residual		
		$\bar{X}$	Rank	S.D.	Range	$\bar{X}$	Rank	S.D.	$\bar{X}$	Rank	S.D.	Range	$\bar{X}$	Rank	S.D.
1	21	17.88	4	4.29	12-28	-0.90	1	4.09	13.75	3	2.98	7-18	-2.80	2	2.56
2	22	18.20	5	4.16	14-23	-0.14	6	3.19	12.12	1	2.82	6-18	-3.97	1	2.68
3	28	17.61	3	4.24	12-28	-0.51	5	2.96	14.07	4	3.62	10-21	-0.97	8	2.56
4	22	23.32	10	4.33	12-27	3.21	10	3.06	19.09	10	4.44	13-30	1.92	10	3.89
5	25	16.65	2	3.82	10-27	-0.64	4	5.12	14.13	5	3.63	5-22	-1.14	7	3.51
6	28	18.56	6	3.87	12-26	-0.88	2	3.67	14.57	7	2.86	9-20	-2.59	3	3.05
7	21	18.77	7	4.97	9-28	-0.71	3	4.69	14.36	6	3.05	9-23	-2.57	4	2.47
8	22	16.55	1	4.07	10-25	0.06	7	2.70	12.27	2	4.37	5-18	-2.53	5	4.13
9	29	19.10	8	4.21	9-28	-0.05	8.5	3.45	16.83	9	4.13	8-25	0.17	9	3.42
10	30	19.17	9	3.56	12-25	-0.05	8.5	3.46	15.30	8	3.60	9-23	-1.35	6	3.65

a V

a   Ranges are reported only for raw scores.

Table C-6c

Means, Ranks, Standard Deviations and Ranges $\overset{a}{V}$ of Raw and Residual Scores on the Developed Mathematical Abilities Test (ETS-I) and Mathematics Achievement Test (ETS-II) for Students in the Eight SMSG-Normal Classes at the End of Grade Eight.

Class	N.	ETS-I Raw				ETS-I Residual			ETS-II Raw				ETS-II Residual		
		X̄	Rank	S.D.	Range	X̄	Rank	S.D.	X̄	Rank	S.D.	Range	X̄	Rank	S.D.
1	30	18.53	4	4.79	7-28	0.70	7	3.82	15.78	3	4.57	9-33	0.10	5.5	3.74
2	26	13.83	1	4.08	5-20	-1.32	2	3.53	12.29	1	2.46	7-17	-1.25	3	3.16
3	27	15.93	2	4.51	8-23	-1.98	1	3.75	13.37	2	3.20	7-19	-1.75	1	2.43
4	20	18.69	5	2.85	16-29	0.66	6	2.96	15.88	4	3.59	11-25	0.10	5.5	3.85
5	20	18.96	6	3.88	16-21	0.26	3	2.74	16.38	7	3.65	11-20	-0.31	4	2.62
6	22	18.20	3	4.63	11-28	0.29	4	3.59	15.00	5	3.88	9-24	0.47	7	3.43
7	30	21.10	7	3.71	14-27	0.61	5	3.35	16.10	6	3.87	7-25	-1.42	2	3.65
8	27	21.41	8	4.36	13-30	1.31	8	3.52	19.96	8	5.20	10-29	2.65	8	4.53

a Ranges are reported only for raw scores.

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Table C-6d

Means, Ranks, Standard Deviations and Ranges (V) of Raw and Residual Scores on the Developed Mathematical Abilities Test (ETS-I) and the Mathematics Achievement Test (ETS-II) for Students in the Six SMSG-Accelerated Classes at the End of Grade Eight.

Class	N	ETS-I Raw				ETS-I Residual			ETS-II Raw				ETS-II Residual		
		X	Rank	S.D.	Range	X	Rank	S.D.	X	Rank	S.D.	Range	X	Rank	S.D.
1	26	20.65	4	3.55	15-26	1.29	4	3.45	18.77	6	3.96	9-25	1.87	5	3.77
2	31	17.17	1	3.89	9-24	-0.43	1	3.57	14.67	1	2.89	9-20	-0.69	1	2.97
3	24	20.96	6	4.71	13-30	1.53	6	4.00	17.48	3	4.94	8-25	0.43	3	4.45
4	27	20.85	5	4.14	13-27	0.74	3	3.87	17.11	2	3.95	11-25	-0.27	2	3.71
5	21	19.48	3	3.40	15-30	1.37	5	1.96	17.67	4	3.20	14-26	1.84	4	2.23
6	31	19.03	2	4.24	11-26	0.25	2	3.65	18.32	5	4.27	11-27	1.89	6	3.74

a ∨ Ranges are reported only for raw scores.

Table C-6e

Means, Ranks, Standard Deviations and Ranges ⊕ of Raw and Residual Scores on the Developed Mathematical Abilities Test (ETS-I) and the Mathematics Achievement Test (ETS-II) for Students in the Eight UICSM-8 Classes at the End of Grade Eight.

Class	N	ETS-I Raw				ETS-I Residual			ETS-II Raw				ETS-II Residual		
		X̄	Rank	S.D.	Range	X̄	Rank	S.D.	X̄	Rank	S.D.	Range	X̄	Rank	S.D.
1	27	18.58	3	4.34	10-26	0.31	3	3.41	17.07	4	4.68	10-28	0.81	4	3.50
2	23	15.04	1	2.98	8-19	-0.41	1	3.27	14.17	1	3.11	7-20	0.19	2	2.62
3	20	21.60	8	3.44	13-28	1.41	6	2.70	21.40	8	2.64	17-26	3.84	8	2.28
4	26	18.19	2	4.09	13-27	-0.28	2	3.40	16.69	3	4.59	8-28	0.58	3	3.81
5	25	20.43	7	4.66	8-29	1.49	8	5.81	19.54	7	4.25	12-26	3.20	7	4.81
6	29	18.65	4	4.57	10-26	0.47	4	3.61	15.50	2	3.87	8-25	-0.50	1	3.48
7	33	18.78	5	3.70	13-30	1.47	7	4.21	17.69	5	3.44	11-25	2.11	5	3.41
8	29	19.31	6	4.28	9-26	1.01	5	3.61	18.72	6	4.08	10-26	2.79	6	3.96

⊕ Ranges are reported only for raw scores.

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Table C-6f

Means, Ranks, Standard Deviations and Ranges [a] of Raw and Residual Scores on the Developed Mathematical Abilities Test (ETS-I) and the Mathematics Achievement Test (ETS-II) for Students in the Five Different Classes at the End of Grade Eight.

Class	N	ETS-I Raw				ETS-I Residual			ETS-II Raw				ETS-II Residual		
		$\bar{X}$	Rank	S.D.	Range	$\bar{X}$	Rank	S.D.	$\bar{X}$	Rank	S.D.	Range	$\bar{X}$	Rank	S.D.
1	22	18.91	4	4.25	7-25	0.86	4	3.56	18.22	4	3.36	14-23	2.15	5	2.94
2	25	18.63	3	4.36	9-28	0.09	3	3.68	15.50	2	3.01	10-22	-0.34	1	2.69
3	24	16.75	1	4.00	10-27	-0.82	1	2.73	17.25	3	3.91	8-25	1.53	3	3.03
4	30	20.76	5	4.61	10-28	2.11	5	3.65	18.59	5	3.73	12-24	2.10	4	3.29
5	27	17.44	2	4.10	8-25	-0.58	2	3.59	15.44	1	3.98	8-23	-0.31	2	3.81

a Ranges are reported only for raw scores.

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Table C-7

Intercorrelations of Selected Variables
and Raw Test Scores -
Grade Eight.

	1	2	3	4	5	6	7	8	9	10
1. IQ	-	.4681	.4156	.1077	.0326	-.1476	.0365	.4105	.3438	.1213
2. Reading Achievement		-	.2620	.0740	.0037	-.1169	.0270	.2857	.2197	.1261
3. Math Achievement			-	.1132	.1822	-.1285	.0583	.5434	.4390	.2445
4. Attitudes: Total				-	.8010	-.0412	-.2568	.1398	.1130	.1993
5. Attitudes: Self-Interest					-	-.0179	-.3161	.1990	.1543	.2437
6. SES						-	.0348	-.1797	-.0331	-.1679
7. Self-Ability Rating							-	.0486	-.0430	-.0841
8. ETS-I Raw								-	.5840	.3611
9. ETS-II Raw									-	.3109
10. TMT Raw										-

N = 1271

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Table C-8a

Intercorrelations of TMI Raw Scores with Selected Variables
Standard Enriched Program
(Grade Eight)

	1	2	3	4	5	6	7	8
1. IQ	-	.4919	.4451	.0545	.0161	-.0956	.0911	.1643
2. Reading Achievement		-	.2447	-.0604	-.0597	-.0152	.0868	.1768
3. Mathematics Achievement			-	.1003	.2022	-.1047	.0761	.4473
4. Total Attitudes				-	.8183	-.0446	-.3248	.2332
5. Category V - Self-Interest					-	-.0657	-.3080	.0909
6. SES						-	.0969	-.0258
7. Ability Self-Rating							-	-.0386
8. TMI								-

N = 321

Table C-8b

Intercorrelations of TMT Raw Scores with Selected Variables
Standard Accelerated Program
Grade Eight

		1	2	3	4	5	6	7	8
1.	IQ	--							
2.	Reading Achievement	.3464	--						
3.	Math Achievement	.2652	.0767	--					
4.	Total Attitudes	.1232	.1063	.0586	--				
5.	Category V - Self-Interest	-.0082	-.0243	.1135	.7971	--			
6.	SES	-.0660	-.1475	-.0147	-.0038	-.0090	--		
7.	Ability Self-Rating	-.0416	-.0557	.1276	-.2865	-.3284	.0420	--	
8.	TMT Score	.1698	.2127	.2911	.1549	.2257	.0335	-.0487	--

N = 248

Table C-8c

Intercorrelations of TMT Raw Scores with Selected Variables
SMSG-Normal Program
Grade Eight

		1	2	3	4	5	6	7	8
1.	IQ	--	.5536	.4660	.2229	.0851	-.1346	.0209	.3821
2.	Reading Achievement		--	.3422	.2431	.0790	-.1264	.0178	.3270
3.	Mathematics Achievement			--	.2012	.2073	-.0989	.0419	.4545
4.	Total Attitudes				--	.8007	-.1206	-.1537	.2643
5.	Category V - Self-Interest					--	-.0691	-.2615	.2825
6.	SES						--	.1239	-.1342
7.	Ability Self-Rating							--	.0014
8.	TMT								

N = 202

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Table C-8d

Intercorrelations of Raw TMT Scores with Selected Variables
SMSG-Accelerated Program
Grade Eight

	1	2	3	4	5	6	7	8
1. IQ	--	.4159	.2720	.0579	-.0435	-.1611	.0129	.2127
2. Reading Achievement		--	.2224	.0965	-.0020	-.1544	.0311	.2102
3. Mathematics Achievement			--	.1305	.2333	-.1302	.0030	.3721
4. Total Attitudes				--	.7836	-.1603	-.1149	.1696
5. Category V - Self-Interest					--	-.1006	-.2107	.1485
6. SES						--	.0573	-.2953
7. Ability Self-Rating							--	-.0336
8. TMT								

N = 160

Table C-8e

Intercorrelations of Raw TMT Scores with Selected Variables
UICSM-8 Program
Grade Eight

	1	2	3	4	5	6	7	8
1. IQ	--	.4351	.3817	.1900	.1779	-.1688	-.1359	.3820
2. Reading Achievement		--	.2676	.1066	.0836	-.0360	-.0759	.1847
3. Mathematics Achievement			--	.1521	.2299	-.1185	-.1535	.3270
4. Total Attitudes				--	.7818	-.0364	-.2634	.2230
5. Category V - Self-Interest					--	-.0105	-.3363	.2276
6. SES						--	.0675	-.0004
7. Ability Self-Rating							--	-.0364
8. TMT								--

N = 212

Table C-8f

Intercorrelations of TMT Raw Scores with Selected Variables
UICSM-7 Program
Grade Eight.

	1	2	3	4	5	6	7	8
1. IQ	--	.3847	.3826	.2267	.0563	-.1471	.0226	.2481
2. Reading Achievement		--	.1722	.1586	.0853	-.1704	.0147	.2245
3. Mathematics Achievement			--	.2404	.2631	-.1378	.0536	.2405
4. Total Attitudes				--	.7974	.0069	-.3053	.1679
5. Category V - Self-Interest					--	-.0002	-.3777	.2408
6. STS						--	-.0122	-.2696
7. Ability Self-Rating							--	-.0480
8. TMT								

N = 128

Table C-9

Intercorrelations of __ETS-II__ Sub-Tests with Total Score and Selected Variables at the End of Grade Eight.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. I.Q.		.4680	.4156	.1067	-.0319	-.1474	.0376	.3449	.1471	.2087	.2116	.2436	.1538	.2124
2. Reading Achievement			.2619	.0737	.0034	-.1164	.0279	.2238	.0966	.1315	.0723	.1626	.0723	.2034
3. Mathematics Achievement				.1127	.1820	-.1284	.0592	.4402	.2887	.2533	.2917	.2790	.1810	.2231
4. Total Attitudes					.8005	-.0417	-.2574	.1095	.1099	.0676	.0341	.0748	.0147	.0662
5. Category V – Self-Interest						-.0181	-.3161	.1520	.1399	.1239	.0730	.0850	.0636	.0511
6. S...							.0324	.1718	-.0604	-.0974	-.0501	-.1573	-.0829	-.1285
7. Ability Self-Rating								.0459	.0184	.0272	.0480	.0455	.0031	.0166
8. ETS-II Total Score									.5560	.4339	.5725	.6649	.4789	.6623
9. Sub-Test I										.1560	.2486	.1978	.1274	.1739
10. Sub-Test II											.1332	.1493	.1148	.1394
11. Sub-Test III												.2675	.1340	.1877
12. Sub-Test IV													.1909	.3644
13. Sub-Test V														.1564
14. Sub-Test VI														

APPENDIX D

Table D-1

Regression Analyses $\overset{a}{V}$ of the Developed Mathematical Abilities Test (ETS-I)
and the Mathematics Achievement Test (ETS-II) Scores
at the End of Grade Nine

	Tests	
	ETS-I	ETS-II
Independent Variables	β-weight	β-weight
IQ	0.0765	0.0725
Reading Achievement	0.0150	0.0329
Math. Achievement	0.3029	0.2771
Total	-0.0237	-0.0288
Attitudes		
Category V (Math-Interest)	0.2583	0.2199
Socio-Economic Status	-0.1105	-0.3393
Ability Self-Rating	0.0450	0.0412

Constant	=	-7.4482	-7.1897
Standard Error of Estimate	=	3.6147	4.4126
R-Square	=	0.3165	0.2224
Multiple R	=	0.5626	0.4716

$\overset{a}{V}$ Regression based on the total population N =868

Table D-2

Regression Analyses of the Mathematics Achievement
Test (ETS-II) Sub-test Scores
at the End of Grade Nine.

Independent Variables	Sub-tests Beta - Weights					
	I	II	III	IV	V	VI
1. IQ	.0102	.0101	.0065	.0108	.0185	.0149
2. Reading Achievement	-.0023	.0069	.0072	.0028	.0162	.0021
3. Mathematics Achievement	.0262	.0762	.0321	.0468	.0525	.0588
4. Total Attitudes	-.0010	-.0033	.0037	-.0093	-.0062	.0101
5. Self-Interest - Category V	.0346	.0540	.0176	.0257	.0388	.0454
6. Socio-Economic Status	-.0252	-.0819	-.0450	-.0231	-.1576	-.0411
7. Ability Self-Rating	.0013	.0097	.0012	.0051	.0163	.0090
Constant =	-.0858	-2.4281	.6896	-1.2252	-2.4752	-1.9924
Standard Error of Estimate =	1.5844	1.2803	1.1952	1.5252	1.3777	1.2583
R-Square =	.0423	.1198	.0461	.0764	.1243	.1016
Multiple R =	.2057	.3462	.2147	.2764	.3525	.3187

Regression based on a total population of 843 since the Standard Accelerated Class which followed the second year algebra sequence was not included.

Table D-3

Regression Analyses β of the Six Teacher-Made Test Scores By Program at the End of Grade Nine.

Independent Variables	I (N=269)	II (N=105)	III (N=114)	IV (N=93)	V (N=142)	VI (N=120)
			Beta - Weights			
1. IQ	.0889	.0721	.0594	.0259	.0776	-.0008
2. Reading Achievement	-.0158	.0015	.0495	-.1521	-.0348	.0606
3. Math Achievement	.3016	.2127	.2723	.5098	.3356	.3323
4. Total Attitudes	-.0363	-.0256	.0501	.0552	.0571	.0590
5. Self-Interest - Category V	.2461	.2452	.4613	.0349	.2792	.2069
6. Socio-Economic Status	.1950	-.0797	.2203	-.6144	-.0064	-.2884
7. Ability Self-Rating	.0103	.0063	.0679	.1098	.0343	.0715
Constant =	-6.6192	-1.7607	-8.9810	3.9111	-4.0470	-4.0828
Standard Error of Estimate =	3.7547	3.4565	3.3900	3.9083	3.3454	3.3938
R-Square =	.2869	.1560	.3599	.2781	.3363	.3744
Multiple R =	.5356	.3950	.5999	.5274	.5799	.6119
N =	269	105	114	93	142	120

β   Regression for each TMT based on population within each program.

β   The Standard Accelerated class which followed the second year algebra sequence was not included in the TMT analysis.

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Table D-4a

Analysis of Variance of Raw Scores on Sub-test I (Standard Enriched) for Pupils in Six Mathematics Programs at the End of Grade Nine

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	51.9103	5	10.3820	6.45 [a]
Within Groups	1348.0850	837	1.6106	
TOTAL	1399.9953	842		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched				-.6607 [a]		
2 Standard Accelerated				-.8756 [a]		-.5977 [a]
3 SMSG-Normal						
4 SMSG-Accelerated						
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   n.s.

Standard vs. Contemporary   -.4112 [a]

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[a] Significant at or beyond the .05 level.

Analysis of Variance of Raw Scores on Sub-test II
(Standard Accelerated) for Pupils in Six Mathematics Programs
at the End of Grade Nine

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	865.2300	5	173.0460	95.85 [a]
Within Groups	1511.0334	837	1.8052	
TOTAL	2376.2634	842		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched		-2.5999 [a]		-.8957 [a]		-2.2737 [a]
2 Standard Accelerated			2.1481 [a]	1.7042 [a]	2.5405 [a]	
3 SMSG-Normal						-1.8219 [a]
4 SMSG-Accelerated					.8363 [a]	-1.3780 [a]
5 UICSM-8						-2.2143 [a]
6 UICSM-7						

Enriched vs. Accelerated   -1.2512 [a]

Standard vs. Contemporary   n.s.

___

[a] Significant at or beyond the .05 level.

Table D-4c

Analysis of Variance of Raw Scores on Sub-test III (SMSG-Normal) for Pupils in Six Mathematics Programs at the End of Grade Nine

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	137.3793	5	27.4758	17.70ᵛ
Within Groups	1299.1717	837	1.5521	
TOTAL	1436.5510	842		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched		.5287 θ	-.7791 θ	-.5561 θ		
2 Standard Accelerated			-1.3078 θ	-1.0848 θ		
3 SMSG-Normal					.8030 θ	1.0983 θ
4 SMSG-Accelerated					.5800 θ	.8753 θ
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   .3307 θ

Standard vs. Contemporary -.3307 θ

θ Significant at or beyond the .05 level.

Table D-4d

Analysis of Variance of Raw Scores on Sub-test IV (SMSG-Accelerated) for Pupils in Six Mathematics Programs at the End of Grade Nine

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	215.5171	5	43.1034	33.19 [a]
Within Groups	1087.0808	837	1.2987	
TOTAL	1302.5979	842		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched		-1.2129 [a]	-.5355 [a]	-.9760 [a]		-1.2986 [a]
2 Standard Accelerated			.6774 [a]		.8415 [a]	
3 SMSG-Normal						-.7631 [a]
4 SMSG-Accelerated					.6046 [a]	
5 UICSM-8						-.9272 [a]
6 UICSM-7						

Enriched vs. Accelerated   -.7682 [a]

Standard vs. Contemporary   -.4278 [a]

[a] Significant at or beyond the .05 level.

Table D-4e

Analysis of Variance of Raw Scores on Sub-test V
(UICSM-8) for Pupils in Six Mathematics Programs
at the End of Grade Nine

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	739.9633	5	147.9926	82.98 ⱽ
Within Groups	1492.6939	837	1.7833	
TOTAL	2232.6572	842		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched			-1.7000 ⱽ	-1.8186 ⱽ	-2.0495 ⱽ	-1.5035ⱽ
2 Standard Accelerated			-1.9631 ⱽ	-2.0817 ⱽ	-2.3126 ⱽ	-1.7666ⱽ
3 SMSG-Normal						
4 SMSG-Accelerated						
5 UICSM-8						.5460 ⱽ
6 UICSM-7						

Enriched vs. Accelerated   -.8265 ⱽ

Standard vs. Contemporary -1.8529 ⱽ

ⱽ Significant at or beyond the .05 level.

Table D-4f

Analysis of Variance of Raw Scores on Sub-test VI (UICSM-7) for Pupils in Six Mathematics Programs at the End of Grade Nine

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	627.6554	5	125.5310	95.27 [a]
Within Groups	1102.8713	837	1.3176	
TOTAL	1730.5267	842		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched		-1.5701 [a]	-.6588 [a]	-.9089 [a]		-2.4022 [a]
2 Standard Accelerated			.9113 [a]	.6012 [a]	1.5476 [a]	-.8321 [a]
3 SMSG-Normal					.6363 [a]	-1.7434 [a]
4 SMSG-Accelerated					.8864 [a]	-1.4933 [a]
5 UICSM-8						-2.3797 [a]
6 UICSM-7						

Enriched vs. Accelerated   -.9796 [a]

Standard vs. Contemporary   -.5210 [a]

---

[a] Significant at or beyond the .05 level.

Table D-5a

Analysis of Variance of Residual Scores on Sub-test I
(Standard Enriched) for Pupils in Six Mathematics Programs
at the End of Grade Nine

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	28.1526	5	5.6305	3.81 ∜
Within Groups	1238.1779	837	1.4793	
TOTAL	1266.3305	842		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched						
2 Standard Accelerated				-.6419 ∜		
3 SMSG-Normal						
4 SMSG-Accelerated						
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   n.s.

Standard vs. Contemporary   n.s.

___

∜ Significant at or beyond the .05 level.

Table D-5b

Analysis of Variance of Residual Scores on Sub-test II (Standard Accelerated) for Pupils in Six Mathematics Programs at the End of Grade Nine

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	439.7460	5	87.9492	49.15 ⱴ
Within Groups	1497.4615	837	1.7890	
TOTAL	1937.2075	842		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched		-1.3240 ⱴ				-1.9429 ⱴ
2 Standard Accelerated			1.3488 ⱴ	.9922 ⱴ	1.1728 ⱴ	-.6189 ᵃⱴ
3 SMSG-Normal						-1.9677 ⱴ
4 SMSG-Accelerated						-1.6111 ⱴ
5 UICSM-8						-1.7917 ⱴ
6 UICSM-7						

Enriched vs. Accelerated   -.9301 ⱴ

Standard vs. Contemporary   n.s.

ⱴ Significant at or beyond the .05 level.

Table D-5c

Analysis of Variance of Residual Scores on Sub-test III (SMSG-Normal) for Pupils in Six Mathematics Programs at the End of Grade Nine

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	85.7739	5	17.1547	11.43 ϑ
Within Groups	1255.8096	837	1.5003	
TOTAL	1341.5835	842		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched			-.5139 ϑ			.4735 ϑ
2 Standard Accelerated			-.9717 ϑ	-.7133 ϑ		
3 SMSG-Normal					.6545 ϑ	.9874 ϑ
4 SMSG-Accelerated						.7290 ϑ
5 UICSM-8						
6 UICSM-7						

Enriched vs. Accelerated   .3727 ϑ

Standard vs. Contemporary   n.s.

ϑ Significant at or beyond the .05 level.

Table D-5d

Analysis of Variance of Residual Scores on Sub-test IV (SMSG-Accelerated) for Pupils in Six Mathematics Programs at the End of Grade Nine

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	108.2445	5	21.6489	16.88 [a]
Within Groups	1073.7293	837	1.2828	
TOTAL	1181.9738	842		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched		-.5355 [a]		-.6083 [a]		-1.0575 [a]
2 Standard Accelerated						-.5220 [a]
3 SMSG-Normal						-.8600 [a]
4 SMSG-Accelerated						
5 UICSM-8						-.8466 [a]
6 UICSM-7						

Enriched vs. Accelerated   -.5274 [a]

Standard vs. Contemporary   -.3527 [a]

---

[a] Significant at or beyond the .05 level.

Table D-5e

Analysis of Variance of Residual Scores on Sub-test V (UICSM-8) for Pupils in Six Mathematics Programs at the End of Grade Nine

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	381.1301	5	76.2260	44.54 $\mathring{V}$
Within Groups	1432.3756	837	1.7113	
TOTAL	1813.5057	842		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched			-1.1376 $\mathring{V}$	-1.1410 $\mathring{V}$	-1.6230 $\mathring{V}$	-1.0341 $\mathring{V}$
2 Standard Accelerated			-1.2841 $\mathring{V}$	-1.2875 $\mathring{V}$	-1.7695 $\mathring{V}$	-1.1805 $\mathring{V}$
3 SMSG-Normal						
4 SMSG-Accelerated						
5 UICSM-8						.5889 $\mathring{V}$
6 UICSM-7						

Enriched vs. Accelerated   -.6294 $\mathring{V}$

Standard vs. Contemporary -1.2998 $\mathring{V}$

$\mathring{V}$ Significant at or beyond the .05 level.

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Table D-5f

Analysis of Variance of Residual Scores on Sub-test VI (UICSM-7) for Pupils in Six Mathematics Programs at the End of Grade Nine

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	403.9277	5	80.7855	56.48 θ
Within Groups	1197.2476	837	1.4304	
TOTAL	1601.1753	842		

Scheffé Tests

PROGRAM	1	2	3	4	5	6
1 Standard Enriched		-.7478 θ				-2.1240 θ
2 Standard Accelerated						-1.3762 θ
3 SMSG-Normal						-1.8694 θ
4 SMSG-Accelerated						-1.7054 θ
5 UICSM-8						-1.8411 θ
6 UICSM-7						

Enriched vs. Accelerated   -.8209 θ

Standard vs. Contemporary   -.5640 θ

θ Significant at or beyond the .05 level.

Table D-6a

Means, Ranks, Standard Deviations and Ranges [a] of Raw and Residual Scores on the Developed Mathematical Abilities Test (ETS-II) [c] for Classes in the Standard Enriched Program and the Mathematics Achievement Test (ETS-I) [b] for Classes in the Standard Enriched Program at the End of Grade Nine.

Class	N	ETS-I Raw				ETS-I Residual			ETS-II Raw				ETS-II Residual		
		X̄	Rank	S.D.	Range	X̄	Rank	S.D.	X̄	Rank	S.D.	Range	X̄	Rank	S.D.
1	23	17.39	10	4.48	7-26	1.32	11	4.44	14.00	11	3.36	7-19	-0.19	11	3.75
2	29	14.86	6	4.64	6-27	0.72	10	3.74	12.14	6	3.16	6-19	-0.34	10	3.62
3	36	14.41	2	4.73	7-23	-1.08	4	3.63	12.47	7	3.02	8-17	-1.35	7	2.73
4	28	15.64	7	4.59	8-24	-0.26	7	3.54	13.36	10	3.27	8-21	-0.71	9	3.22
5	27	13.44	1	3.50	7-20	-2.57	1	2.88	12.93	9	3.78	7-20	-1.26	8	3.26
6	23	16.43	9	5.21	8-26	-0.76	5	4.50	9.91	1	3.72	6-16	-5.44	1	4.07
7	27	17.48	11	4.69	5-25	0.37	9	4.00	12.56	8	4.45	4-21	-2.93	6	3.91
8	22	14.77	5	3.62	9-22	-1.47	2	3.43	11.23	5	3.64	5-18	-3.44	3	3.74
9	19	15.84	8	3.72	10-23	-0.05	8	3.56	11.21	4	3.58	5-18	-2.99	4	3.50
10	15	14.53	3	3.89	9-20	-1.34	3	3.48	11.07	3	3.94	6-19	-2.97	5	3.70
11	20	14.70	4	2.58	9-20	-0.80	6	2.32	10.40	2	2.37	9-14	-3.45	2	3.20

a Ranges are reported only for raw scores.

b Maximum possible raw score = 30.

c Maximum possible raw score = 40

Table D-6b

Means, Ranks, Standard Deviations and Ranges [a] of Raw and Residual Scores on the Developed Mathematical Abilities Test (ETS-I) [b] and the Mathematics Achievement Test (ETS-II) [c] for Classes in the Standard Accelerated Program at the End of Grade Nine.

Class	N	ETS-I Raw				ETS-I Residual			ETS-II Raw				ETS-II Residual		
		X̄	Rank	S.D.	Range	X̄	Rank	S.D.	X̄	Rank	S.D.	Range	X̄	Rank	S.D.
1	21	16.86	3	4.16	12-25	-1.05	3	3.76	17.33	5	4.85	7-25	1.20	5	4.37
2	20	16.30	2	3.57	11-22	-1.09	2	3.68	15.15	3	4.04	5-21	-0.53	2	3.96
3 [d]	25	18.76	6	3.47	11-23	0.40	6	3.05	15.00	2	3.79	11-21	-1.84	1	4.09
4	21	15.95	1	3.04	10-22	-2.35	1	3.53	14.33	1	3.79	8-22	0.25	4	4.02
5	22	17.86	4	3.56	8-23	-0.31	5	2.88	18.00	6	3.90	12-23	1.68	6	3.42
6	21	18.29	5	3.58	9-23	-0.58	4	3.11	17.05	4	4.40	10-26	0.14	3	4.46

a Ranges are reported only for raw scores.

b Maximum possible raw score = 30

c Maximum possible raw score = 40

d This class followed an algebra rather than geometry sequence.

Table D-6c

Means, Ranks, Standard Deviations and Ranges[a] of Raw and Residual Scores on the
Developed Mathematical Abilities Test (ETS-I)[b] and the Mathematics Achievement Test (ETS-II)[c]
for Classes in the SMSG-Normal Program at the End of Grade Nine.

Class	N	ETS-I Raw				ETS-I Residual			ETS-II Raw				ETS-II Residual		
		X̄	Rank	S.D.	Range	X̄	Rank	S.D.	X̄	Rank	S.D.	Range	X̄	Rank	S.D.
1	20	18.85	4	4.18	12-24	1.09	4	3.62	16.65	3	3.72	10-23	0.42	3	3.15
2	17	18.59	2	4.17	14-29	1.57	5	3.21	14.18	1	4.41	8-27	-1.19	1	3.57
3	22	15.36	1	3.53	11-23	-1.24	1	3.34	15.23	2	3.82	10-23	0.10	2	2.94
4	30	19.33	5	3.39	13-25	0.30	3	2.71	17.83	5	5.01	0-24	0.54	5	4.90
5	25	18.76	3	4.40	11-28	0.09	2	3.71	17.28	4	3.26	12-25	0.44	4	3.28

[a] Ranges are reported only for raw scores.
[b] Maximum possible raw score = 30
[c] Maximum possible raw score = 40

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Table D-6d

Means, Ranks, Standard Deviations and Ranges $\triangledown$ of Raw and Residual Scores on the Developed Mathematical Abilities Test (ETS-I) $\triangledown$ and the Mathematics Achievement Test (ETS-II) $\triangledown$ for Classes in the SMSG-Accelerated Program at the End of Grade Nine.

Class	N	ETS-I Raw				ETS-I Residuals			ETS-II Raw				ETS-II Residuals		
		$\bar{X}$	Rank	S.D.	Range	$\bar{X}$	Rank	S.D.	$\bar{X}$	Rank	S.D.	Range	$\bar{X}$	Rank	S.D.
1	25	20.24	3	3.52	13-27	2.17	4	3.78	19.12	2	4.19	14-31	2.56	4	4.09
2	20	19.80	2	4.76	12-29	1.48	3	3.98	19.20	3	5.13	6-30	2.51	3	4.32
3	21	20.52	4	4.25	13-27	1.41	2	4.21	19.29	4	4.41	12-30	1.77	2	4.31
4	27	18.07	1	4.87	9-28	0.50	1	4.03	14.70	1	4.87	6-25	≈1.11	1	3.61

a $\triangledown$ Ranges are reported only for raw scores.

b $\triangledown$ Maximum possible raw score = 30

c $\triangledown$ Maximum possible raw score = 40

Table D-6e

Means, Ranks, Standard Deviations and Ranges [a] of Raw and Residual Scores on the
Developed Mathematical Abilities Test (ETS-I) [b] and the Mathematics Achievement Test (ETS-II) [c]
for Classes in the UICSM-8 Program at the End of Grade Nine.

Class	N	ETS-I Raw				ETS-I Residuals			ETS-II Raw				ETS-II Residuals		
		X̄	Rank	S.D.	Range	X̄	Rank	S.D.	X̄	Rank	S.D.	Range	X̄	Rank	S.D.
1	25	17.80	3	4.44	11-26	0.11	2	3.46	14.88	3	3.96	6-24	-1.24	2	3.15
2	21	14.76	1	3.59	8-24	-0.12	1	3.07	10.67	1	3.10	5-15	-2.72	1	3.30
3	20	18.95	6	4.81	11-27	1.28	5	3.77	16.40	6	3.73	8-25	0.09	5	3.50
4	21	18.45	4	3.20	11-24	1.49	6	3.16	14.50	2	4.93	4-23	-0.92	3	4.78
5	30	17.47	2	3.66	12-26	0.74	3	3.47	15.83	5	5.11	9-30	0.47	6	4.82
6	25	18.68	5	3.45	11-25	1.22	4	2.97	15.80	4	4.50	11-27	0.01	4	3.88

a Ranges are reported only for raw scores.
b Maximum possible score = 30
c Maximum possible score = 40

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Table D-6f

Means, Ranks, Standard Deviations and Ranges $\vee^a$ of Raw and Residual Scores on the
Developed Mathematical Abilities Test (ETS-I) $\vee^b$ and the Mathematics Achievement Test (ETS-II) $\vee^c$
for Classes in the UICSM-7 Program at the End of Grade Nine.

Class	N	ETS-I Raw				ETS-I Residuals			ETS-II Raw				ETS-II Residuals		
		X̄	Rank	S.D.	Range	X̄	Rank	S.D.	X̄	Rank	S.D.	Range	X̄	Rank	S.D.
1	22	15.09	2	3.39	7-21	-0.84	2	2.75	19.73	3	3.47	13-29	5.22	5	3.60
2	23	18.96	5	3.56	11-29	0.68	5	2.62	20.87	4	4.86	9-31	4.13	3	4.36
3	24	14.75	1	4.37	7-24	-2.05	1	3.50	17.50	1	4.85	10-28	2.25	1	4.21
4	27	18.15	4	3.88	11-27	0.61	4	3.52	21.30	5	4.40	14-28	5.16	4	3.64
5	24	17.04	3	4.05	9-24	-0.07	3	3.67	18.75	2	4.32	11-25	3.37	2	3.96

a Ranges reported only for raw scores.

b Maximum possible score = 30

c Maximum possible score = 40

Table D-7

Intercorrelations of Raw Test Scores
with Selected Variables for the Total Population (N=868)
at the End of Grade Nine.

	1	2	3	4	5	6	7	8	9	10
1. IQ	-	.4948	.4363	.0894	.0300	-.1639	.0549	.3492	.3043	.0319
2. Reading Achievement		-	.3079	.0717	.0065	-.1231	.0295	.2209	.2087	.0510
3. Math Achievement			-	.1257	.2040	-.1572	.0533	.5068	.4202	.1531
4. Total Attitudes				-	.7934	-.0232	-.2499	.1845	.1273	.1532
5. Self-Interest, Category V					-	-.0041	-.3078	.2576	.1825	.1515
6. Socio-Economic Status						-	.0181	-.1215	-.1672	-.0211
7. Ability Self-Rating							-	.0676	.0613	.0036
8. ETS-I								-	.5444	.2926
9. ETS-II									-	.2139
10. TMT										-

Table D-8a

Intercorrelations of Teacher-Made Test (TMT) Raw Scores with Selected Variables for Pupils in the Standard Enriched Program (N=269) at the End of Grade Nine.

	1	2	3	4	5	6	7	8
1. I.Q.	--	.4715	.4022	.0446	-.0150	-.1022	.1075	.3188
2. Reading Achievement		--	.2966	-.0640	-.0746	-.0074	.0832	.1673
3. Math Achievement			--	.0985	.1972	-.1201	.1307	.4827
4. Total Attitudes				--	.8191	-.0635	-.2880	.1596
5. Category V - Self-Interest					--	-.0113	-.2901	.2458
6. Socio-Economic Status						--	.0554	-.0004
7. Ability Self-Rating							--	.0457
8. TMT								

Table D-8b

Intercorrelations of Teacher-Made Test (TMT) Raw Scores with Selected Variables for Pupils in the Standard Accelerated Program (N=105) at the End of Grade Nine.

	1	2	3	4	5	6	7	8
1. I.Q.	--	.4597	.0729	.0670	-.1155	-.2176	-.0233	.1668
2. Reading Achievement		--	.0105	.0775	-.1322	-.2302	-.0635	.0550
3. Math Achievement			--	.1141	.1662	-.1486	.0817	.3194
4. Total Attitudes				--	.7768	.1080	-.1955	.1613
5. Category V - Self-Interest					--	.0625	-.2943	.2070
6. SES						--	.1135	-.0948
7. Ability Self-Rating							--	-.0262
8. TMT								--

Table D-8c

Intercorrelations of <u>Teacher-Made Test (TMT)</u> Raw Scores
with Selected Variables for Pupils in the SMSG-Normal Program (N=114)
at the End of Grade Nine.

	1	2	3	4	5	6	7	8
1. I.Q.	--	.5284	.3236	.1408	.0229	-.0184	.1460	.2841
2. Reading Achievement		--	.1669	.2264	.0756	-.0935	.0857	.2034
3. Math Achievement			--	.1182	.1127	-.0194	.0948	.4474
4. Total Attitudes				--	.8089	-.1244	-.1087	.3035
5. Category V -Self-Interest					--	-.0770	-.2303	.3714
6. SES						--	.0797	.0463
7. Ability Self-Rating							--	.1214
8. TMT								---

Table D-8d

Intercorrelations of <u>Teacher-Made Test (TMT)</u> Raw Scores
with Selected Variables for Pupils in the SMSG-Accelerated Program (N=93)
at the End of Grade Nine.

	1	2	3	4	5	6	7	8
1. I.Q.	--	.4354	.3252	.1231	.0909	-.0688	.0964	.1536
2. Reading Achievement		--	.2726	.1470	.0063	-.1932	.0943	.0383
3. Math Achievement			--	.1338	.1782	-.0768	.0299	.4004
4. Total Attitudes				--	.7598	-.1808	-.1331	.1990
5. Category V - Self-Interest					--	-.1454	-.2276	.1866
6. SES						--	-.0323	-.2256
7. Ability Self-Rating							--	.1847
8. TMT								--

Table D-8e

Intercorrelations of Teacher-Made Test (TMT) Raw Scores with Selected Variables for Pupils in the UICSM-8 Program (N=142) at the End of Grade Nine.

	1	2	3	4	5	6	7	8
1. I.Q.	--	.4936	.4024	.1538	.1484	-.0940	-.1250	.3203
2. Reading Achievement		--	.3726	.1347	.1291	-.0395	-.1279	.1963
3. Math Achievement			--	.1970	.3609	-.1141	-.1781	.5331
4. Total Attitudes				--	.7454	-.0568	-.2735	.1688
5. Category V - Self-Interest					--	-.0473	-.3389	.3331
6. SES						--	.0778	-.0634
7. Ability Self-Rating							--	-.0624
8. TMT								--

Table D-8f

Intercorrelations of Teacher-Made Test (TMT) Raw Scores with Selected Variables for Pupils in the UICSM-7 Program (N=120) at the End of Grade Nine.

	1	2	3	4	5	6	7	8
1. I.Q.	--	.3926	.3923	.2268	.0577	-.1742	-.0168	.2452
2. Reading Achievement		--	.1530	.1542	.0662	-.1545	.0173	.1994
3. Math Achievement			--	.2495	.2418	-.1299	.0586	.5181
4. Total Attitudes				--	.8073	-.0065	-.3076	.3660
5. Category V - Self-Interest					--	.0248	-.3855	.3555
6. SES						--	.0042	-.1571
7. Ability Self-Rating							--	.0688
8. TMT								--

Table D-9

Intercorrelations of ETS-II Raw Sub-test Scores with Selected Variables for the Total Population (N=8868) at the End of Grade Nine.

	Independent Variables							Sub-tests					
	1	2	3	4	5	6	7	8	9	10	11	12	13
1. I.Q.	--												
2. Reading Achievement	.4953	--											
3. Math Achievement	.4394	.3025	--										
4. Total Attitudes	.0940	.0667	.1232	--									
5. Category V - Self-Interest	.0393	-.0076	.2061	.7943	--								
6. SES	-.1539	-.1082	-.1478	-.0209	-.0017	--							
7. Ability Self-Rating	.0459	.0318	.0482	-.2480	-.3032	.0196	--						
8. Sub-test I	.1251	.0629	.1669	.1005	.1299	-.0540	-.0146	--					
9. Sub-test II	.1916	.1346	.3154	.1126	.1554	-.1145	.0346	.1259	--				
10. Sub-test III	.1329	.1031	.1855	.0918	.1034	-.0791	-.0059	.1804	.0093	--			
11. Sub-test IV	.1791	.1147	.2589	.0242	.0652	-.0680	.0449	.2842	.1783	.3870	--		
12. Sub-test V	.2365	.1796	.2800	.0582	.0831	-.1821	.0899	-.0526	.0886	.2721	.1581	--	
13. Sub-test VI	.2030	.1247	.2920	.0622	.1106	-.0855	.0526	.1830	.4388	.0924	.3568	.2071	--

Table D-10

Analysis of Covariance of Ninth Grade
Total Attitude Scores Adjusted by
Seventh Grade Attitude Scores.

A. Analysis of Variance of Ninth Grade Scores Before Correction

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	2940.60	5	588.12	6.05 $\frac{a}{v}$
Within Groups	84246.60	866	97.28	
TOTAL	87187.20	871		

B. Analysis of Variance of Seventh Grade Scores

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	3298.90	5	659.78	5.73 $\frac{a}{v}$
Within Groups	99756.60	866	115.19	
TOTAL	103055.50	871		

C. Individual Program Mean Corrections

Program	b-weights
1	-.0376
2	-.1511
3	-.1508
4	-.0287
5	-.0459
6	-.1415

$\frac{a}{v}$ Significant at or beyond the .05 level

Table D- 11

Analysis of Covariance of Ninth Grade
Category I Scores Adjusted by
Seventh Grade Category I Scores.

A. Analysis of Variance of Ninth Grade Scores Before Correction.

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	91.13	5	18.23	3.70 $\frac{a}{V}$
Within Groups	4264.84	866	4.92	
TOTAL	4355.97	871		

B. Analysis of Variance of Seventh Grade Scores

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	62.69	5	12.54	1.93
Within Groups	5621.12	866	6.49	
TOTAL	5683.81	871		

C. Individual Program Mean Corrections

Program	b-weights
1	.0309
2	.0365
3	-.1199
4	-.1189
5	-.0148
6	.0770

$\frac{a}{V}$ Significant at or beyond the .05 level

Table D-12

Analysis of Covariance of Ninth Grade
Category II Scores Adjusted by
Seventh Grade Category II Scores.

A. Analysis of Variance of Ninth Grade Scores Before Correction

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	150.47	5	30.09	5.43 ∨
Within Groups	4799.57	866	5.54	
TOTAL	4950.04	871		

B. Analysis of Variance of Seventh Grade Scores

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	35.92	5	7.18	1.19
Within Groups	5238.22	866	6.05	
TOTAL	5274.14	871		

C. Individual Program Mean Corrections

Program	b-weights
1	.0607
2	.0558
3	-.1203
4	-.0295
5	-.0534
6	.0256

$^a_\lor$ Significant at or beyond the .05 level

Table D-13

Analysis of Covariance of Ninth Grade
Category III Scores Adjusted by
Seventh Grade Category III Scores.

A. Analysis of Variance of Ninth Grade Scores Before Correction:

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	57.23	5	11.45	2.15
Within Groups	4610.50	866	5.32	
TOTAL	4667.73	871		

B. Analysis of Variance of Seventh Grade Scores

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	107.02	5	21.40	3.65 $\frac{a}{\nabla}$
Within Groups	5081.74	866	5.87	
TOTAL	5188.76	871		

C. Individual Program Mean Corrections

Program	b-weights
1	-.0572
2	-.0504
3	-.0702
4	-.0369
5	.0167
6	.0990

$\frac{a}{\nabla}$ Significant at or beyond the .05 level

Table D-14

Analysis of Covariance of Ninth Grade Category IV Scores Adjusted by Seventh Grade Category IV Scores.

A. Analysis of Variance of Ninth Grade Scores Before Correction

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	156.71	5	31.34	11.42 [a]
Within Groups	2377.23	866	2.75	
TOTAL	2533.94	871		

B. Analysis of Variance of Seventh Grade Scores

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	38.92	5	7.78	2.73 [a]
Within Groups	2472.76	866	2.86	
TOTAL	2511.68	871		

C. Individual Program Mean Corrections

Program	b-weights
1	.0427
2	-.1201
3	-.1338
4	-.0393
5	-.0293
6	.1231

[a] Significant at or beyond the .05 level

Table D-15

Analysis of Covariance of Ninth Grade
Category V Scores Adjusted by
Seventh Grade Category V Scores.

A. Analysis of Variance of Ninth Grade Scores Before Correction

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	320.45	5	64.09	3.04 $\frac{a}{v}$
Within Groups	18233.27	866	21.05	
TOTAL	18553.72	871		

B. Analysis of Variance of Seventh Grade Scores

SOURCE OF VARIANCE	SUMA OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	1145.81	5	229.16	10.38 $\frac{a}{v}$
Within Groups	19123.70	866	22.08	
TOTAL	20269.51	871		

C. Individual Program Mean Corrections

Program	b-weights
1	-.1021
2	-.1369
3	-.1765
4	-.0497
5	-.0168
6	.0732

$\frac{a}{v}$ Significant at or beyond the .05 level

Table D-16

Analysis of Covariance of Ninth Grade
Category VI Scores Adjusted by
Seventh Grade Category VI Scores.

A. Analysis of Variance of Ninth Grade Scores Before Correction

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	11.66	5	2.33	0.91
Within Groups	2227.01	866	2.57	
TOTAL	2238.67	871		

B. Analysis of Variance of Seventh Grade Scores

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	34.64	5	6.93	2.04
Within Groups	2935.95	866	3.39	
TOTAL	2970.59	871		

C. Individual Program Mean Corrections

Program	b-weights
1	-.0737
2	.0428
3	.0626
4	-.1283
5	.0609
6	.0614

Table D-17

Analysis of Covariance of Ninth Grade
Total Self-Rating Scores Adjusted by
Seventh Grade Total Self-Rating Scores.

A. Analysis of Variance of Ninth Grade Scores Before Correction

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	1630.40	5	326.08	3.25 $\frac{a}{V}$
Within Groups	86697.90	865	100.23	
TOTAL	88328.30	870		

B. Analysis of Variance of Seventh Grade Scores

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	3158.90	5	631.78	6.41 $\frac{a}{V}$
Within Groups	85236.30	865	98.54	
TOTAL	88395.20	870		

C. Individual Program Mean Corrections

Program	b-weights
1	-.0458
2	.0353
3	.1283
4	-.0999
5	.1878
6	-.0585

$\frac{a}{V}$ Significant at or beyond the .05 level.

Table D-18

Analysis of Covariance of Ninth Grade
Self-Rating of Mathematical Ability Scores Adjusted by
Seventh Grade Self-Rating of Mathematical Ability Scores

A. Analysis of Variance of Ninth Grade Scores Before Correction

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	12.34	5	2.47	2.63 $\frac{a}{V}$
Within Groups	810.73	865	0.94	
TOTAL	823.07	870		

B. Analysis of Variance of Seventh Grade Scores

SOURCE OF VARIANCE	SUMS OF SQUARES	d.f.	EST. MEAN SQUARES	F
Among Means	57.03	5	11.41	11.41 $\frac{a}{V}$
Within Groups	864.81	865	1.00	
TOTAL	921.84	870		

C. Individual Program Mean Corrections

Program	b-weights
1	-.0547
2	-.0238
3	-.1128
4	-.1936
5	.1098
6	-.1205

$\frac{a}{V}$ Significant at or beyond the .05 level

Table D-19

Adjusted Means,[a] Ranks and Standard Deviations of Total Attitude
Scores and Scores on Each of Six Attitude Categories for Pupils
in the Six Mathematics Programs at the End of Grade Nine.

Program	N	Category I			II			III			IV			V			VI			Total Score		
		X̄	Rank	S.D.	X̄	Rank	S.D.	X̄	Rank	S.D.	X̄	Rank	S.D.	X̄	Rank	S.D.	X̄	Rank	S.D.	X̄	Rank	S.D.
1.St. Enr.	266	5.70	4	1.91	5.62	3	2.41	7.84	4	2.27	4.90	6	1.54	11.02	5	4.77	2.99	2.5	1.41	38.08	5	9.56
2.St. Acc.	130	5.86	5	1.67	6.06	5	2.18	7.91	5	2.24	4.79	4	1.54	11.62	6	3.98	3.16	5	1.62	39.39	6	8.67
3.SMSG-Nor.	113	5.18	2	1.77	6.11	6	2.19	7.60	3	7.59	4.20	3	1.64	10.06	3	4.66	2.99	2.5	1.57	36.17	3	9.59
4.SMSG-Acc.	89	5.88	6	4.23	6.01	4	2.23	8.01	6	2.57	4.82	5	1.72	10.94	4	4.60	3.19	6	2.10	37.60	4	11.67
5.UICSM-8 [b]	156	5.33	3	1.89	5.37	2	2.51	7.45	2	2.20	4.12	2	1.92	9.75	1	4.62	2.82	1	1.51	34.80	2	9.31
6.UICSM-7	116	4.93	1	1.99	4.82	1	2.43	7.20	1	2.42	3.78	1	1.76	9.93	2	4.66	3.08	4	1.70	33.72	1	11.18

[a] Means were adjusted by seventh grade attitude scores. See Tables D-10 - D-16, Appendix D.

[b] The UICSM-8 class which followed the incorrect sequence is included.