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ABSTRACT

Through the Section 41, State Bilingual Education program and the E.C.I.A. Chapter 1, Migrant Education program, Saginaw public schools provide supplemental instruction and specialized services in 24 elementary and 6 secondary schools. In 1990-91, the bilingual program served 773 students, mostly Hispanic and some Laotian, while the migrant program served 749 children of migrant workers. Because these student populations overlap, the two programs operate as one. Product evaluation of the programs focused on student test performance. Students in grades 1-12 were pre- and post-test with the California Achievement Tests on a spring to spring basis. The local performance standard for the program was that post-test mean normal-curve-equivalent scores for each grade would improve over pre-test scores. For the bilingual program, the performance standard was attained by 58-75% of grade levels in basic and advanced reading and mathematics skills. For the migrant program, the performance standard was attained by 50% of grade levels in basic and advanced reading skills, 33% in basic mathematics skills, and 58% in advanced mathematics skills. The performance standard was attained in all areas by grades 3, 5, 8, and 12 in the bilingual program, and by grade 3 in the migrant program. Recommendations are made for improving the programs. Appendices contain identification and eligibility procedures for program participants, enrollment and test scores by grade and school, and a paper by H. M. Levin on accelerated schools as a strategy for at-risk students. (SV)

EVALUATION REPORT

STATE BILINGUAL AND ECIA
CHAPTER 1 MIGRANT PRODUCT
EVALUATION REPORT

1990-91

DEPARTMENT OF EVALUATION SERVICES

- PROVIDING ASSESSMENT, PROGRAM EVALUATION AND RESEARCH SERVICES -

SCHOOL DISTRICT OF THE CITY OF SAGINAW

Saginaw, Michigan

STATE BILINGUAL AND ECIA CHAPTER 1 MIGRANT PRODUCT EVALUATION REPORT

1990-91

An Approved Report of the

Department of Evaluation, Testing, and Research

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July, 1991

TABLE OF CONTENTS

LIST OF TABLES

Table **Page**

Table **Page**

PROGRAM DESCRIPTION

The Section 41, State Bilingual Education program and the E.C.I.A. Chapter 1, Migrant Education program are programs designed to meet the special educational needs of State Bilingual and Migrant students in the School District of the City of Saginaw. These programs were operated by the school district during the 1990-91 school year.

The State Bilingual and Migrant programs operated at 24 elementaries, four junior highs, and both high schools. (See Appendix A for the number of State Bilingual/Migrant students participating by building as of October 22, 1990 and January 14, 1991 computer runs prior to February tracking). Instruction was provided primarily on a pull-out basis, with each student receiving approximately thirty minutes of supplemental instruction per week.

STATE BILINGUAL PROGRAM

The State Bilingual program served approximately 773 students during the 1990-91 school year. The vast majority of the students were Hispanic, with a small number of Laotian students completing the program population.

Instruction was provided to K-6 students in reading. Students in grades 7-12 also received instruction in the basic skills, as well as counseling and support services.

MIGRANT PROGRAM

The Migrant program provided supplemental reading instruction for the children of Migrant workers. A total of 749 students K-12 participated in the program.

The Bilingual program served students whose primary language was other than English, or who came from a home environment where a language other than Eng'' was regularly used. The Migrant Education program served students

whose families follow the crops or fishing industry for a livelihood, and as a result the students have experienced educational discontinuity. Although the pro-gram philosophies differ, the student populations overlap because, in most circumstances, a student in the Migrant program comes from an environment where English was not the primary language spoken in the home. In view of this fact, these two programs operate as one, the staff serving the students were the same, and all materials and activities were shared by the programs. (See Appendix B for a complete description of the students eligibility criteria.)

Both process and product evaluations were undertaken for the State Bilingual and Migrant programs. This year's process evaluation was accomplished by a 16-item questionnaire that focused on the following: 1) combined operational aspects; 2) Migrant specific operational details from the program proposal; 3) Bilingual specific operational details from the program proposals, and 4) suggestions for program improvement related to both programs All 13 staff members received the questionnaire at the Friday, February 1, 1991 staff meeting. Respondents were to return the completed questionnaire no later than February 8, 1991. The results of these process surveys (N=13) were presented in a separate report published and disseminated earlier in the year.

The product evaluation, which is the focus of this report, addresses the results of student test performance. The California Achievement Tests (CAT) Form E and F normed the Spring of 1985 served as the evaluation instruments for grades K-12 (Form E for all grades except grades 9 and 10). This was the twelfth year that norm referenced tests approved by the Michigan Department of Education were used for program evaluation. The locally adopted performance standard used to evaluate program success was that: mean post-test normal

curve equivalent (NCE) scores will evidence improvement over pre-test NCE scores. Attainment of this standard means that student rates of learning have exceeded their normal rates. The reader should bear in mind that most of these students have not learned at normal rates in the past.

Students in grades K-12 were pre- and post-tested with the CAT on a spring-to-spring basis to determine their achievement in reading and mathematics as required by the funding sources. A new feature this year is the inclusion of advanced skills for reading (reading comprehension scores) and mathematics (mathematics concepts and application scores) in the product evaluation review. These two subtests are part of the total reading or mathematics scores. As in past evaluation reports, the total reading and total mathematics scores will serve as the measure of basic skills progress. All testing was performed on-level, that is, students took a test at a level of difficulty appropriate for their grade.

This is the second year that the product evaluation was further refined to look specifically at the elementary level (grades 1-6) reading comprehension objectives instructed over the course of the programs. These reading objectives, which are measured on the CAT, are stated in the chart below. The chart gives the grade(s) at which they are taught/measured.

	GRADE					
	1	2	3	4	5	6
LITERAL COMPREHENSION						
33 Stated Main Idea The student will identify the main idea stated in a passage.	X					
INFERENTIAL COMPREHENSION						
36 Central Thought The student will infer the central thought of a passage, such as the main idea, the author's purpose or viewpoint, or the tone or mood.		X	X	X	X	X
37 Interpreting Events The student will interpret a passage by drawing conclusions, identifying cause and effect relationships, or predicting outcomes.	X	X	X	X	X	X
CRITICAL COMPREHENSION						
39 Writing Techniques The student will interpret figurative or persuasive language or interpret structural techniques of writing.				X	X	X

The locally agreed upon standard was that program participants will equal or exceed district-wide Spring, 1990 mastery levels on these selected CAT reading objectives (see Appendix C for the specific mastery levels by objective and grade).

PRODUCT EVALUATION RESULTS

Overall achievement results in reading and mathematics for basic as well as advanced skills will be presented for each program. Grade level results by subject area for each program will be presented and discussed. Finally the combined results of the two programs will be presented relative to the elementary reading comprehension objectives specified earlier. Where relatively few students were tested at any grade level and for a building, the results should be viewed with caution.

OVERALL ACHIEVEMENT FOR STATE BILINGUAL

Reading Basic Skills

Table 1 below contains the grade level results for the State Bilingual program in basic reading skills.

TABLE 1. ATTAINMENT OF THE PERFORMANCE STANDARD* IN TOTAL READING (BASIC SKILLS) IN TERMS OF NORMAL CURVE EQUIVALENT (NCE) FOR STATE BILINGUAL PROGRAM PARTICIPANTS TESTED SPRING TO SPRING, GRADES 1-12, 1990-91.

Grade	Number of Students Tested	Normal Curve Equivalent			Performance Standard* Attained
		Pre Mean	Post Mean	Mean Gain/ Loss	
1	178	43.4	42.9	-0.5	No
2	97	45.0	45.5	0.5	Yes
3	15	36.0	41.6	5.6	Yes
4	17	38.8	37.0	-1.8	No
5	15	37.6	40.2	2.6	Yes
6	9	38.3	37.2	-1.1	No
7	24	32.7	31.9	-0.8	No
8	20	31.0	33.9	2.9	Yes
9	19	32.8	40.1	7.3	Yes
10	9	34.3	35.2	0.9	Yes
11	2	20.5	22.5	2.0	Yes
12	4	39.2	43.2	4.0	Yes

*Post-test normal curve equivalent (NCE) score will evidence improvement over pre-test NCE score.

Students in grades 2, 3, 5, and 8-12 demonstrated positive NCE gains between 0.5 to 7.3 NCE units. Students in grades 1, 4, 6, and 7 did not attain the standard. Thus eight of the 12 (66.7%) grades attained the performance standard in basic reading skills.

Reading Advanced Skills

Table 2 below contains the results by grade for State Bilingual participants advanced reading skills.

TABLE 2. ATTAINMENT OF THE PERFORMANCE STANDARD* FOR READING COMPREHENSION (ADVANCED SKILLS) IN NORMAL CURVE EQUIVALENT (NCE) SCORES FOR STATE BILINGUAL PROGRAM PARTICIPANTS SPRING TO SPRING, GRADES 1-12, 1990-91.

Grade	Number of Students Tested	Normal Curve Equivalent			Performance Standard* Attained
		Pre Mean	Post Mean	Mean Gain/ Loss	
1	178	46.1	44.7	-1.4	No
2	97	46.5	47.5	1.0	Yes
3	15	39.1	45.2	6.1	Yes
4	17	41.2	38.6	-2.6	No
5	15	39.5	43.7	4.2	Yes
6	9	39.7	43.1	3.4	Yes
7	24	39.0	36.2	-2.8	No
8	20	37.9	41.5	3.6	Yes
9	19	37.2	44.0	6.8	Yes
10	9	38.3	39.4	1.1	Yes
11	2	33.0	26.0	-7.0	No
12	4	43.2	49.2	6.0	Yes

*Post-test normal curve equivalent (NCE) score will evidence improvement over pre-test NCE score.

As can be seen in Table 2 above, students in grades 2, 3, 5, 6, 8, 9, 10 and 12 demonstrated positive NCE gains from 1.0 to 6.8 NCE units. State Bilingual students in grades 1, 4, 7 and 11 did not attain the standard and demonstrated losses between -1.4 and -7.0 NCE units in advanced reading skills. Overall, eight of the 12 (66.7%) grades attained the performance standard in

advanced reading skills.

Mathematics Basic Skills

Grade level results are presented in Table 3 below.

TABLE 3. ATTAINMENT OF THE PERFORMANCE STANDARD* IN TOTAL MATHEMATICS (BASIC SKILLS) IN TERMS OF NORMAL CURVE EQUIVALENT (NCE) SCORES FOR STATE BILINGUAL PROGRAM PARTICIPANTS TESTED SPRING TO SPRING, GRADE 2-12, 1990-91.

Grade	Number of Students Tested	Normal Curve Equivalent			Performance Standard* Attained
		Pre Mean	Post Mean	Mean Gain/ Loss	
2	97	56.0	54.5	-1.5	No
3	16	46.2	55.3	9.1	Yes
4	17	37.0	40.1	3.1	Yes
5	16	46.8	54.5	7.7	Yes
6	9	39.4	51.3	11.9	Yes
7	24	45.0	40.3	-4.7	No
8	20	46.1	43.9	-2.2	No
9	19	38.3	43.4	5.1	Yes
10	16	45.6	43.3	-2.3	No
11	2	46.0	48.0	2.0	Yes
12	3	53.0	57.3	4.3	Yes

*Post-test normal curve equivalent (NCE) score will evidence improvement over pre-test NCE score.

Students tested met the performance standard for advanced mathematics skills at all grades except 2, 7, 8 and 10. Sixth grade students demonstrated the greatest positive NCE gain of 11.9 NCE units while eleventh graders had the smallest positive gain of 2.0 NCE points. Overall, seven of the 12 (58.3%) grades attained the performance standard.

Mathematics Advanced Skills

Table 4 below presents grade level results for State Bilingual participants in advanced mathematics skills.

TABLE 4. ATTAINMENT OF THE PERFORMANCE STANDARD* FOR MATHEMATICS CONCEPTS AND APPLICATIONS (ADVANCED SKILLS) IN NORMAL CURVE EQUIVALENT (NCE) SCORES FOR STATE BILINGUAL PROGRAM PARTICIPANTS TESTED SPRING TO SPRING, GRADES 1-12, 1990-91.

Grade	Number of Students Tested	Normal Curve Equivalent			Performance Standard* Attained
		Pre Mean	Post Mean	Mean Gain/ Loss	
1	177	45.4	51.2	5.8	Yes
2	97	56.8	54.7	-2.1	No
3	16	42.5	48.8	6.3	Yes
4	17	36.5	38.4	1.9	Yes
5	16	42.6	49.6	7.0	Yes
6	9	38.1	46.6	8.5	Yes
7	24	42.2	37.4	-4.8	No
8	20	42.8	40.5	-2.3	No
9	19	37.8	43.8	6.0	Yes
10	16	43.1	43.3	0.2	Yes
11	2	35.5	43.0	7.5	Yes
12	3	48.3	55.0	6.7	Yes

*Post test normal curve equivalent (NCE) score will evidence improvement over pre test NCE score.

Students on the mathematics concepts and applications subtest attained the performance standard in all grades except grade 2 7 and 8. Sixth grade students demonstrated the greatest positive gain of 8.5 NCE units and the tenth graders showed the smallest positive gain of 0.2 NCE units. Overall nine of the 12 (75%) grades attained the performance standard.

OVERALL ACHIEVEMENT FOR MIGRANT

Reading Basic Skills

Grade level results for Migrant students are presented in Table 5 below.

TABLE 5. ATTAINMENT OF THE PERFORMANCE STANDARD* IN TOTAL READING (BASIC SKILLS) IN TERMS OF NORMAL CURVE EQUIVALENT (NCE) SCORES FOR MIGRANT PROGRAM PARTICIPANTS TESTED SPRING TO SPRING, GRADES 1-12, 1990-91.

Grade	Number of Students Tested	Normal Curve Equivalent			Performance Standard* Attained
		Pre Mean	Post Mean	Mean Cain/ Loss	
1	88	41.4	43.4	2.0	Yes
2	57	38.5	40.7	2.2	Yes
3	46	46.9	48.9	2.0	Yes
4	51	44.4	43.0	-1.4	No
5	55	42.8	41.1	-1.7	No
6	46	42.6	41.7	-0.9	No
7	41	39.3	35.5	-3.8	No
8	39	40.5	40.9	0.4	Yes
9	37	43.1	42.8	-0.3	No
10	15	37.7	33.7	-4.0	No
11	6	39.8	38.5	-1.3	No
12	9	43.8	47.0	3.2	Yes

*Post-test normal curve equivalent (NCE) score will evidence improvement over pre-test NCE score.

Students tested obtained the performance standard at grades 1, 2, 3, 7, 8 and 12. Grades 4, 5, 6, 9, 10 and 11 failed to meet the standard. Thus, six of 12 (50%) grades attained the performance for basic reading skills.

Reading Advanced Skills

Table 6 below presents grade level results for Migrant students in advanced reading skills.

TABLE 6. ATTAINMENT OF THE PERFORMANCE STANDARD* FOR READING COMPREHENSION (ADVANCED SKILLS) IN NORMAL CURVE EQUIVALENT (NCE) SCORES FOR MIGRANT PROGRAM PARTICIPANTS TESTED SPRING TO SPRING, GRADES 1-12, 1990-91.

Grade	Number of Students Tested	Normal Curve Equivalent			Performance Standard* Attained
		Pre Mean	Post Mean	Mean Gain/ Loss	
1	87	45.4	45.4	0.0	No
2	57	39.8	43.8	4.0	Yes
3	46	50.8	51.0	0.2	Yes
4	51	45.9	45.6	-0.3	No
5	55	43.3	43.7	0.4	Yes
6	46	45.3	46.2	0.9	Yes
7	41	43.0	36.9	-6.1	No
8	39	44.3	43.5	-0.8	No
9	37	44.5	45.6	1.1	Yes
10	15	38.6	35.6	-3.0	No
11	6	47.8	45.6	-2.2	No
12	9	46.4	47.7	1.3	Yes

*Post-test normal curve equivalent (NCE) score will evidence improvement over pre-test NCE score.

Migrant students attained the performance standard in all grades except 1, 4, 7, 8, 10 and 11. The greatest positive gain of 4.0 NCE units occurred in grade 2 and the smallest gain was observed in grade 3 of 0.2 NCE units. Overall, six of 12 (50%) attained the performance standard in advanced reading skills.

Mathematics Basic Skills

Grade level results are presented in Table 7 below.

TABLE 7. ATTAINMENT OF THE PERFORMANCE STANDARD* IN TOTAL MATHEMATICS (BASIC SKILLS) IN TERMS OF NORMAL CURVE EQUIVALENT (NCE) SCORES FOR MIGRANT PROGRAM PARTICIPANTS TESTED SPRING TO SPRING, GRADES 2-12, 1990-91.

Grade	Number of Students Tested	Normal Curve Equivalent			Performance Standard* Attained
		Pre Mean	Post Mean	Mean Gain/ Loss	
2	56	55.5	54.5	-1.0	No
3	46	54.8	56.8	2.0	Yes
4	51	52.3	49.8	-2.5	No
5	55	50.9	54.5	3.6	Yes
6	46	52.9	57.2	4.3	Yes
7	40	53.3	40.8	-12.5	No
8	38	50.9	46.8	-4.1	No
9	35	51.6	51.4	-0.2	No
10	27	48.7	47.0	-1.7	No
11	6	46.8	51.0	4.2	Yes
12	5	52.0	51.6	-0.4	No

*Post-test normal curve equivalent (NCE) score will evidence improvement over pre-test NCE score.

Students tested obtained the performance standard at grades 3, 5, 6 and 11. Overall, four of the twelve grades (33.3%) attained the performance standard.

Mathematics Advanced Skills

Grade level results for Migrant students are presented in Table 8 below in the area of advanced mathematics skills.

TABLE 8. ATTAINMENT OF THE PERFORMANCE STANDARD* FOR MATHEMATICS CONCEPTS AND APPLICATIONS (ADVANCED SKILLS) IN NORMAL CURVE EQUIVALENT (NCE) SCORES FOR MIGRANT PROGRAM PARTICIPANTS TESTED SPRING TO SPRING, GRADES 1-12, 1990-91.

Grade	Number of Students Tested	Normal Curve Equivalent			Performance Standard* Attained
		Pre Mean	Post Mean	Mean Gain/ Loss	
1	86	42.7	54.3	11.6	Yes
2	56	52.5	54.3	1.8	Yes
3	46	55.4	56.7	1.3	Yes
4	51	51.7	49.3	-2.4	No
5	55	49.3	53.0	3.7	Yes
6	46	48.8	53.0	4.2	Yes
7	40	50.5	41.2	-9.3	No
8	38	51.2	47.5	-3.7	No
9	35	50.6	49.3	-1.3	No
10	27	48.2	44.4	-3.8	No
11	6	39.8	52.0	12.2	Yes
12	5	52.2	53.0	0.8	Yes

*Post test normal curve equivalent (NCE) score will evidence improvement over pre-test NCE score.

Migrant participants obtained the performance standard in all grades except 4, 7, 8, 9 and 10. Overall, seven of 12 (58.3%) grades attained the performance standard in the advanced mathematics area.

OVERALL ACHIEVEMENT FOR STATE BILINGUAL AND MIGRANT PROGRAMS

Table 9 below presents in summary form the attainment of the performance standard by program, subject, and grade. As these data indicate, the State Bilingual students attained the performance standard in grades 3, 5, 8 and 12 in both subjects for both basic and advanced skills. The Migrant program attained the performance standard in grade 3 in both subjects for both basic and advanced skills. Overall the State Bilingual program seemed slightly more effective in basic/advanced mathematics with 69.6% (16 of 23) grades attaining the standard than in basic/advanced reading with 66.7% (16 of 24). The Migrant program showed equal performance in mathematics with 45.8% (11 of 24) grade attainments as well as in reading with 47.8% (11 of 23) grades attaining the standard.

TABLE 9. ATTAINMENT°STATUS* FOR BASIC AND ADVANCED SKILLS IN READING AND MATHEMATICS BY PROGRAM BY GRADE, 1990-91.

GRADE LEVEL	STATE BILINGUAL				MIGRANT			
	Reading		Mathematics		Reading		Mathematics	
	Basic	Advanced	Basic	Advanced	Basic	Advanced	Basic	Advanced
1	No	No	-	Yes	Yes	No	-	Yes
2	Yes	Yes	No	No	Yes	Yes	No	Yes
3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	No	No	Yes	Yes	No	No	No	No
5	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
6	No	Yes	Yes	Yes	No	Yes	Yes	Yes
7	No	No	No	No	No	No	No	No
8	Yes	Yes	No	No	Yes	No	No	No
9	Yes	Yes	Yes	Yes	No	Yes	No	No
10	Yes	Yes	No	Yes	No	No	No	No
11	Yes	No	Yes	Yes	No	No	Yes	Yes
12	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Total**								
Yes	8 (66.7%)	8 (66.7%)	7 (63.6%)	9 (75.0%)	5 (41.7%)	6 (50.0%)	4 (36.4%)	7 (58.3%)
No	4 (33.3%)	4 (33.3%)	4 (36.4%)	3 (25.0%)	7 (58.3%)	6 (50.0%)	7 (63.6%)	5 (41.7%)

*A "yes" attainment status means the average post-test NCE score was greater than the average pre-test NCE score.

**Total frequency distribution of attainment of performance by subject/skill, program, and grade.

The achievement results, which have been presented, were also tabulated by building. These data are presented in Appendix D.

OBJECTIVE LEVEL ACHIEVEMENT FOR STATE BILINGUAL AND MIGRANT PROGRAMS

Table 10 below presents the attainment level of the performance criterion for the elementary reading comprehension objectives by grade.

TABLE 10. SUMMARY OF THE PERCENT OF 1990-91 STATE BILINGUAL/MIGRANT STUDENTS BY GRADE ATTAINING SELECTED CAT READING OBJECTIVES AS COMPARED TO AGREED UPON CRITERION PER GRADE LEVEL.*

GRADE	NUMBER TESTED	READING OBJECTIVE								
		33 Stated Main Idea**/ 36 Central Thought			37 Interpreting Events			39 Writing Techniques		
		Criteria %	1990-91 %	Criteria Achieved?	Criteria %	1990-91 %	Criteria Achieved?	Criteria %	1990-91 %	Criteria Achieved?
1	185	27	38	Yes	26	28	Yes	NA***	NA	NA
2	141	56	53	No	59	58	No	NA	NA	NA
3	67	60	74	Yes	63	68	Yes	NA	NA	NA
4	72	31	23	No	34	48	Yes	28	8	No
5	65	48	44	No	50	41	No	36	34	No
6	55	48	49	Yes	58	56	No	31	29	No

*State Bilingual/Migrant program participants will equal or exceed agreed upon mastery levels per grade. (See Appendix C for memo establishing NCE mastery criteria.)

**Objective 33 (stated main idea) applies only to grade one and Objective 36 (central thought) is applicable to grades two through six.

***NA = Not Applicable.

As these data indicate, the combined program participants attained the district-wide criteria across all objectives measured in first and third grades. The criteria was partially attained in grades 4 and 6 (1 of 3 objectives; 33.3% and 1 of 3 objectives; 33.3% respectively). Participants failed to show mastery at district-wide attainment criteria for any of the objectives at grades 2 and 5. Overall the State Bilingual/Migrant students across all reading objectives showed 40.0% (6 of 15) of them attaining the district-wide criteria.

Failure to attain the district-wide criterion ranged from -1% (grade 2 - Objective 37 Interpreting Events) to -20% (grade 4 - Objective 39 Writing Techniques). See Appendix E for the objective attainment results by building and grade.

SUMMARY

The 1990-91 school year was the twelfth year that students in the State Bilingual and Migrant programs were assessed in reading and mathematics, using a norm referenced test. This is the fifth year that the new California Achievement Test (CAT) Form E/F normed in the Spring of 1985 has been used for program evaluation purposes.

The locally adopted performance standard for the overall program was that grade level post-test mean NCE scores would evidence improvement over pre-test scores.

The State Bilingual results show an increase from the previous year in the percent of grade levels meeting the performance standard in both reading and mathematics. For the State Bilingual program the 2.5% point decrease in reading was from 69.2% meeting the standard last year (9 of 13 observations) to 66.7% meeting the same performance standard this year (16 of 24 observations), however, observations were increased with the addition of the advanced skill area (this is true for all subject areas and program comparisons). The increase of 8.1% points in mathematics was from 61.5% (8 of 13 observations) to 69.6% (16 of 23 observations).

The Migrant results, on the other hand, shows an increase from the previous year in the percent of grade levels meeting the performance standard in reading and a decrease in mathematics. The 7.3% point increase in reading came about from 5 of 13 observations (38.5%) meeting the standard last year to 11 of 24 observations (45.8%) meeting the standard this year. The 13.7% point decrease in mathematics was from 61.5% (8 of 13 observations) meeting the standard last year to 47.8% (11 of 23 observations) meeting the standard this year.

A new evaluative feature added last year at the elementary level (grades 1-6) was the use of reading data by objective from CAT to measure progress. Three key reading objectives (main idea, interpreting events, and writing techniques) were to be mastered at equal or higher levels than mastery levels specified at the September 17, 1990 staff meeting (see Appendix C). Overall, the State Bilingual/Migrant students across all three reading objectives showed 40.0% (6 of 15 observations) mastery of the district wide criteria.

The recommendations that follow are based upon process and product evaluation results.

RECOMMENDATIONS

The recommendations that follow are based on this year's process and product evaluations and are intended to help bring about State Bilingual/Migrant program improvements in the following school year. These recommendations take nothing away from the current program that continues to address the multitude of needs of the disadvantaged language minority student. This year being no exception.

The recommended ideas and techniques offered below stem from a perceived problem and are just one of many ways to improve the performance of the program. As solutions are sought for optimum program operations, a dialogue/discussion should be undertaken to determine the best and most workable way to solve the perceived problem. The staff and evaluator should be brought into these discussions as has been the practice in the past so that all involved feel part of the proposed new operation of the program.

1. Reduce variations in the program between building sites by having the supervisor and State Bilingual/Migrant staff analyze the building results presented in Appendix D and E. Hopefully, a plan can be formulated to reduce (or control) these variations in program impact.

2. Increased monitoring of a number of program functions by the program supervisor seems essential. These functions include:

   -- Scheduling conflicts,
   - Record keeping at both instructional and support service sites,
   - Classroom instructional practices,
   -- Pupil absenteeism, and
   -- Caseloads of staff.

3. A set of district supported inservice offerings to regular education staff should be designed such that they enhance the awareness of staff regarding LEP students, increase the strategies available to deal effectively with multi-cultural issues in student learning, allow teachers a greater understanding of cultural differences and how these differences may be used to achieve greater academic attainment, etc.

4. The Manager of Federal Programs with help from the Supervisor of Bilingual/Migrant Education and the Director of Evaluation, Testing, and Research should undertake a search for funding both the in-service activities to regular education staff and the new programming efforts for "at-risk" State Bilingual/Migrant students that involve accelerated learning for these students (as suggested by Henry Levin of the Center for Educational Research of Stanford University and others). (See Appendix F for an article by Dr. Levin entitled "Accelerated Schools:" A New Strategy for At-Risk Students.) This effort should search beyond Federal and State funds into the district's general education fund and local/community/business/industry support.

5. Due to the small number of students at each of our school sites and the limited number of State Bilingual/Migrant staff members, it may be more economically feasible if a centralized site for State Bilingual/Migrant services at the elementary, junior high, and high school levels is established. These centralized sites would hopefully use site-based decision making where one of the primary goals/objectives would be to bring about greater academic achievement in LEP and Migrant students from a multi-cultural background. Hopefully, school-wide Chapter 1 funds and general fund support would be allocated to these sites to help alleviate the inadequate resources to carry out the mission of Bilingual/Migrant education in providing much needed additional assistance to disadvantaged language minority students.

APPENDICES

APPENDIX A

1990-91 COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Total Migrant

COUNT OF PROGRAM PARTICIPANTS

Building	K	1	2	3	4	5	6	Total
E. Baillie	-	-	2	-	-	-	1	3
Coulter	1	4	3	3	3	1	3	18
Emerson	2	6	4	3	6	4	-	25
Fuerbringer	2	1	'	1	1	-	2	8
N. Haley	2	3	3	5	3	1	2	19
Handley	-	1	-	1	-	-	-	2
Heavenrich	1	1	1	2	1	1	-	7
Herig	5	5	2	1	2	1	1	17
Houghton	2	2	5	4	3	2	2	20
Jerome	4	2	4	2	2	3	3	20
Jones	-	1	1	-	4	3	2	11
Kempton	-	-	-	-	1	-	-	1
Longfellow	3	4	2	6	6	3	1	25
Longstreet	2	1	-	1	-	-	-	4
J. Loomis	4	6	9	4	2	10	8	43
Merrill Park	3	2	2	1	1	4	-	13
C. Miller	1	3	2	2	2	4	3	17
J. Moore	4	7	3	3	3	3	1	24
Morley	-	2	1	1	1	1	1	7
J. Rouse	6	15	7	9	14	5	8	64
Salina	2	2	4	1	3	4	-	16
Stone	3	10	9	4	2	5	5	38
Webber Ele.	11	22	4	6	10	6	10	69
Zilwaukee	-	-	2	-	-	-	1	3
TOTAL	58	100	71	60	70	62	54	474

*Count as of January 14, 1991 computer run that included all participants.

APPENDIX A

1990-91 COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: **Total Migrant**

COUNT OF PROGRAM PARTICIPANTS

Building	7	8	9	Total
Central Junior	9	7	6	22
North Intermediate	13	23	18	54
South Intermediate	11	13	15	39
Webber Junior	25	9	16	50
TOTAL	58	52	55	165

*Count as of January 14, 1991 computer run that included all participants.

1990-91 COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: **Total Migrant**

COUNT OF PROGRAM PARTICIPANTS

Building	10	11	12	Total
Arthur Hill	42	26	22	90
North Intermediate	14	2	4	20
TOTAL	56	28	26	110

*Count as of January 14, 1991 computer run that included all participants.

APPENDIX A

1990-91 COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Total State Bilingual

COUNT OF PROGRAM PARTICIPANTS

Building	K	1	2	3	4	5	6	Total
E. Baillie	-	1	4	-	2	-	1	8
Coulter	2	2	1	2	1	2	1	11
Emerson	8	12	4	2	-	-	-	26
Fuerbringer	6	7	4	1	-	-	-	18
N. Haley	9	4	5	1	2	1	-	22
Handley	6	-	1	-	-	-	-	7
Heavenrich	-	8	3	1	-	1	-	13
Herig	11	12	11	-	1	-	1	36
Houghton	4	8	6	1	-	-	-	19
Jerome	15	14	9	3	2	2	3	48
Jones	4	5	4	1	-	2	-	16
Kempton	9	6	3	1	-	-	-	19
Longfellow	17	10	3	-	-	-	2	32
Longstreet	3	4	1	2	-	1	-	11
J. Loomis	10	12	8	-	-	1	1	32
Merrill Park	8	13	12	1	1	-	-	35
C. Miller	8	2	2	-	-	1	-	13
J. Moore	9	22	16	1	2	2	-	52
Morley	1	1	4	2		-	-	8
J. Rouse	17	27	12	2	3	1	2	64
Salina	3	3	2	-	1	2	-	11
Stone	17	16	7	-	-	2	1	43
Webber Ele.	23	34	10	1	4	2	-	74
Zilwaukee	3	2	2	1	1	-	-	9
TOTAL	193	225	134	23	20	20	12	627

*Count as of January 14, 1991 computer run that included all participants.

APPENDIX A

1990-91 COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: **Total State Bilingual**

COUNT OF PROGRAM PARTICIPANTS

Building	7	8	9	Total
Central Junior	5	3	2	10
North Intermediate	12	16	15	43
South Intermediate	10	4	4	18
Webber Junior	8	3	7	18
TOTAL	35	26	28	89

*Count as of January 14, 1991 computer run that included all participants.

1990-91 COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: **Total Migrant**

COUNT OF PROGRAM PARTICIPANTS

Building	10	11	12	Total
Arthur Hill	29	7	14	50
North Intermediate	5	1	-	6
TOTAL	34	8	14	56

*Count as of January 14, 1991 computer run that included all participants.

APPENDIX B

IDENTIFICATION AND ELIGIBILITY PROCEDURES FOR STATE BILINGUAL AND MIGRANT STUDENTS

State Bilingual

The first step in the procedures is that of a student identification. Potential students are identified by means of a Home Language Survey. The survey is designed to determine if: 1) the native or first language is other than English or; 2) a language other than English is regularly used in the student's home or environment. Students in grades K-2 eligible for the program on the basis of the Home Language Survey and parental permission. Students in grades 3-12 go through a more extensive eligibility system which is described below.

In addition to the Home Language Survey, students in grades 3-12 are also tested on one or two instruments for program eligibility. For students who are new or have never been in the Bilingual program, the first is a test of oral English proficiency. In Saginaw, the Language Assessment Battery (LAB) test is used for this purpose and is usually administered in the fall of each year. If the student scores at or below the 40th percentile, then the student is eligible. However, if the student scores above the 40th percentile, then the student is given an English reading achievement test. The California Achievement Test (CAT) is used for this purpose. If the student scores at or below the 40th percentile, then the student is eligible for the program. Finally, parental permission is needed for program participation.

APPENDIX B

Students in grades 3-12 who were in the Bilingual program the previous year go through a somewhat different eligibility procedure. These students are subject to a program exit criterion which is based on the student's post-test English reading achievement score. If the student's post-test score remains at or below the 40th percentile, the student is ineligible. However, eligibility is based on either the oral English language proficiency test score or the English reading achievement test score. In addition, a score that is used for eligibility is to be the result of a test administration no earlier than the spring of the preceding school year. It is, therefore, possible for a student to exceed the 40th percentile on the reading achievement test and become eligible when retested with the oral English proficiency test. The final eligibility requirement is that students:

> ... shall be enrolled in the Bilingual instruction program for three years or until the child achieves a level of proficiency in English language skills sufficient to receive an equal educational opportunity in the regular school program, whichever comes first.[1]

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[1] Administrator's Manual for Bilingual Education Programs in Michigan 1979-80 Bilingual Education Office, Michigan Department of Education, February, 1979, Appendix A, page 4.

APPENDIX B

Migrant

Eligibility for the Migrant program is based solely on whether a student is one of three Migrant designations. The district does, however, attempt to serve those students with the greatest academic need, and nearly all Migrant students scored at or below the 40th percentile on an English reading achievement test.

The three designations of Migrant students are:

1) Interstate: Student has moved within the last year across state boundaries.

2) Intrastate: Student has moved within the last year across school district boundaries within the state.

3) Five Year Settled Out: Student has remained within a school district for at least five years.

APPENDIX C

SCHOOL DISTRICT OF THE CITY OF SAGINAW

DEPARTMENT OF EVALUATION, TESTING & RESEARCH

TO: Raul A. Rio

FROM: Richard N. Claus

RE: CAT Objectives Mastery Standard for State Bilingual/Migrant Program

DATE: September 18, 1990

As per our agreement yesterday at you staff meeting, the State Bilingual/Migrant Program will equal or exceed the mastery levels given below on selected CAT objectives as part of the data reported internally.

CAT Reading Objectives	Percentage Mastery By Grade					
	1	2	3	4	5	6
33/36	27	56	60	31	48	48
37	26	59	63	34	50	58
39				28	36	31

RNC/mes

CC: Barry E. Quimper

TABLE D.1. MEAN NORMAL CURVE EQUIVALENT GAIN BY BUILDING AND GRADE FOR ALL 1-6 STATE BILINGUAL PUPILS IN TOTAL READING (BASIC SKILLS) BASED ON APRIL-MAY, 1990 PRE-TESTING AND APRIL-MAY, 1991 POST-TESTING ON CAT (SPRING TO SPRING)

BUILDING	GRADE 1 Normal Curve Equivalents				GRADE 2 Normal Curve Equivalents				GRADE 3 Normal Curve Equivalents				GRADE 4 Normal Curve Equivalents				GRADE 5 Normal Curve Equivalents				GRADE 6 Normal Curve Equivalents			
	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss
E. Ballie	2	29.5	36.5	7.0	3	39.6	41.0	1.4	0				2	40.0	40.0	0.0	0				1	29.0	15.0	-14.0
Coulter	0				1	41.0	13.0	-28.0	2	40.5	38.0	-2.5	1	45.0	48.0	3.0	1	44.0	40.0	-4.0	1	46.0	47.0	1.0
Emerson	11	36.0	32.2	-3.8	1	30.0	36.0	6.0	0				(				0				0			
Fuerbringer	4	42.0	35.5	-6.5	2	33.0	48.0	15.0	1	29.0	47.0	18.0	(				0				0			
Haley	3	30.3	43.0	12.7	3	35.0	33.3	-1.7	1	45.0	49.0	4.0	2	44.5	37.0	-7.5	1	46.0	53.0	7.0	0			
Handley	0				0				0				0				0				0			
Heavenrich	6	46.1	32.5	-13.6	3	20.6	18.0	-2.6	0				0				1	23.0	36.0	13.0	0			
Herig	10	55.1	53.5	-1.6	10	58.9	52.5	-6.4	0				1	15.0	13.0	-2.0	0				1	35.0	42.0	7.0
Houghton	7	42.5	54.1	11.6	4	44.2	57.5	13.3	1	32.0	45.0	13.0	1	35.0	34.0	-1.0	0				0			
Jerome	13	53.9	42.9	-11.0	6	54.0	63.0	9.0	2	48.5	62.0	13.5	1	46.0	46.0	0.0	2	38.5	41.0	2.5	1	24.0	32.0	8.0
Jones	2	33.5	31.5	-2.0	1	27.0	35.0	8.0	0				0				0				0			
Kempton	1	40.0	65.0	25.0	1	77.0	64.0	-13.0	1	33.0	31.0	-2.0	0				0				0			
Longfellow	7	38.7	27.8	-10.9	5	30.3	36.3	6.0	0				0				0				2	41.5	39.0	-2.5
Longstreet	3	49.0	47.3	-1.7	0				1	32.0	36.0	4.0	0				0				0			
Loomis	9	46.7	39.7	-7.0	6	41.6	41.1	-0.5	0				0				1	22.0	27.0	5.0	1	35.0	36.0	1.0
M. Park	13	38.0	39.8	1.8	10	47.7	45.0	-2.7	1	26.0	34.0	8.0	1	61.0	43.0	-18.0	0				0			
C. Miller	2	25.0	47.5	22.5	2	33.5	56.5	23.0	0				1	13.0	42.0	29.0	1	30.0	42.0	12.0	0			
J. Moore	17	48.5	55.8	7.3	12	55.0	53.3	-1.7	1	17.0	32.0	15.0	1	24.0	25.0	1.0	1	34.0	44.0	10.0	0			
Morley	1	19.0	38.0	19.0	3	49.3	53.6	4.3	1	32.0	38.0	6.0	0				0				0			
J. Rouse	20	52.4	40.6	-11.8	9	37.0	45.1	8.1	1	43.0	41.0	-2.0	5	45.0	39.6	-5.4	1	42.0	40.0	-2.0	1	46.0	47.0	1.0
Saline	2	16.5	5.5	-11.0	2	46.0	34.0	-12.0	0				1	35.0	33.0	-2.0	2	39.0	37.0	-2.0	0			
Stone	15	26.8	43.0	16.2	5	32.6	34.0	1.4	0				0				2	43.0	44.5	1.5	1	47.0	38.0	-9.0
Webber El.	29	44.6	44.6	0.0	10	46.6	39.7	-6.9	1	38.0	33.0	-5.0	1	44.0	32.0	-12.0	2	41.5	38.0	-3.5	0			
Zilwaukee	1	78.0	90.0	12.0	0				1	36.0	39.0	3.0	1	38.0	40.0	2.0	0				0			
TOTAL	178	43.4	42.9	-0.5	97	45.0	45.5	0.5	15	36.0	41.6	5.6	17	38.8	37.0	-1.8	15	37.6	40.2	2.6	9	38.3	37.2	-1.1

APPENDIX D

TABLE D.2. MEAN NORMAL CURVE EQUIVALENT GAIN BY BUILDING AND GRADE FOR ALL 1-6 STATE BILINGUAL PUPILS IN READING COMPREHENSION (ADVANCED SKILLS) BASED ON APRIL-MAY, 1990 PRE-TESTING AND APRIL-MAY, 1991 POST-TESTING ON CAT (SPRING TO SPRING)

BUILDING	GRADE 1 Normal Curve Equivalents				GRADE 2 Normal Curve Equivalents				GRADE 3 Normal Curve Equivalents				GRADE 4 Normal Curve Equivalents				GRADE 5 Normal Curve Equivalents				GRADE 6 Normal Curve Equivalents			
	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss
E. Baillio	2	20.0	39.5	9.5	3	40.3	41.0	0.7	0				2	40.5	40.5	0.0	0				1	32.0	19.0	-13.0
Coulter	0				1	46.0	32.0	-14.0	2	45.0	48.0	3.0	1	52.0	42.0	-10.0	1	48.0	41.0	-7.0	1	53.0	56.0	3.0
Emerson	11	35.8	38.5	2.7	1	26.0	26.0	0	0				0				0				0			
Fuerbringer	4	47.2	36.0	-11.2	2	37.5	53.0	15.5	1	34.0	52.0	18.0	0				0				0			
Haley	3	27.3	38.0	10.7	3	58.3	33.3	-5.0	1	50.0	48.0	-2.0	2	50.0	32.5	-17.5	1	51.0	66.0	15.0	0			
Handley	0				0				0				0				0				0			
Heavenrich	6	50.1	39.8	-10.3	3	27.3	13.3	-14.0	0				0				1	23.0	40.0	17.0	0			
Herig	10	48.6	57.5	8.9	10	59.1	55.5	-3.6	0				1	13.0	22.0	9.0	0				1	29.0	45.0	16.0
Houghton	7	49.5	53.4	3.9	4	46.7	64.5	17.8	1	36.0	42.0	6.0	1	34.0	35.0	1.0	0				0			
Jerome	13	53.5	44.4	-9.1	6	54.0	62.1	8.1	2	59.0	68.0	9.0	1	48.0	49.0	1.0	2	43.5	44.5	1.0	1	15.0	33.0	18.0
Jones	2	33.5	27.0	-6.5	1	23.0	38.0	15.0	0				0				0				0			
Kempton	1	45.0	62.0	17.0	1	78.0	67.0	-11.0	1	27.0	27.0	0.0	0				0				0			
Longfellow	7	45.7	30.4	-15.3	5	31.6	37.6	6.0	0				0				0				2	44.5	43.0	-1.5
Longstreet	3	40.3	52.3	12.0	0				1	32.0	42.0	10.0	0				0				0			
Loomis	9	53.4	42.6	-10.8	6	38.3	42.1	3.8	0				0				1	25.0	32.0	7.0	1	34.0	44.0	10.0
M. Park	13	40.0	43.3	3.3	10	51.4	49.4	-2.0	1	34.0	40.0	6.0	1	77.0	34.0	-43.0	0				0			
C. Miller	2	27.5	46.0	18.5	2	37.5	60.5	23.0	0				1	1.0	41.0	40.0	1	25.0	50.0	25.0	0			
J. Moore	17	54.8	54.5	-0.3	12	55.2	54.3	-0.9	1	19.0	34.0	15.0	1	30.0	38.0	8.0	1	27.0	34.0	7.0	0			
Morley	1	10.0	52.0	42.0	5	54.6	56.6	2.0	1	29.0	42.0	13.0	0				0				0			
J. Rouse	20	53.7	40.8	-12.9	9	39.8	46.5	6.7	1	44.0	40.0	-4.0	5	42.6	44.6	2.0	1	44.0	44.0	0.0	1	53.0	61.0	8.0
Saline	2	17.0	16.5	-0.5	2	48.5	37.0	-11.5	0				1	42.0	36.0	-6.0	2	40.5	39.0	-1.5	0			
Stone	15	33.0	42.8	9.8	5	34.4	35.4	1.0	0				0				2	46.0	49.0	3.0	1	53.0	44.0	-9.0
Webber El.	29	49.4	46.7	-2.7	10	48.1	41.9	-6.2	1	40.0	38.0	-2.0	1	48.0	34.0	-14.0	2	45.0	42.0	-3.0	0			
Zilwaukee	1	74.0	90.0	16.0	0				1	34.0	42.0	8.0	1	48.0	46.0	-2.0	0				0			
TOTAL	178	46.1	44.7	-1.4	97	46.5	47.5	1.0	15	39.1	45.2	6.1	17	41.2	38.6	-2.6	15	39.5	43.7	4.2	9	39.7	43.1	3.4

TABLE D.3. MEAN NORMAL CURVE EQUIVALENT GAIN BY BUILDING AND GRADE FOR ALL 1-6 STATE BILINGUAL PUPILS IN TOTAL MATH (BASIC SKILLS) BASED ON APRIL-MAY, 1990 PRE-TESTING AND APRIL-MAY, 1991 POST-TESTING ON CAT (SPRING TO SPRING)

BUILDING	GRADE 1 Normal Curve Equivalents				GRADE 2 Normal Curve Equivalents				GRADE 3 Normal Curve Equivalents				GRADE 4 Normal Curve Equivalents				GRADE 5 Normal Curve Equivalents				GRADE 6 Normal Curve Equivalents			
	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss
E. Baillio	0				3	51.0	68.0	17.0	0				2	45.0	51.0	6.0	0				1	36.0	43.0	7.0
Coulter	0				2	51.5	53.0	1.5	2	51.0	68.5	17.5	1	49.0	42.0	-7.0	2	30.0	41.5	11.5	1	43.0	76.0	33.0
Emerson	0				1	17.0	7.0	-10.0	0				0				0				0			
Fuerbringer	0				2	53.0	58.0	5.0	1	42.0	65.0	23.0	0				0				0			
Haley	0				5	62.0	62.6	0.6	1	74.0	62.0	-12.0	2	26.0	32.0	6.0	1	48.0	78.0	30.0	0			
Handley	0				0				0				0				0				0			
Heavenrich	0				5	36.0	21.0	-15.0	0				0				1	48.0	45.0	-3.0	0			
Herig	0				10	57.7	58.3	0.6	0				1	7.0	7.0	0.0	0				1	31.0	63.0	32.0
Houghton	0				4	70.7	66.7	-4.0	1	48.0	55.0	7.0	1	10.0	10.0	0.0	0				0			
Jerome	0				5	48.2	70.6	22.4	2	42.0	54.0	12.0	1	72.0	53.0	-19.0	2	46.5	52.5	6.0	1	7.0	41.0	34.0
Jones	0				1	48.0	46.0	-2.0	0				0				0				0			
Kempton	0				1	72.0	50.0	-22.0	1	23.0	48.0	25.0	0				0				0			
Longfellow	0				5	35.3	38.0	2.7	0				0				0				2	47.5	47.0	-0.5
Longstreet	0				0				1	47.0	33.0	-14.0	0				0				0			
Loomis	0				5	49.4	67.8	18.4	0				0				1	26.0	45.0	19.0	1	41.0	39.0	-2.0
M. Park	0				9	57.4	45.7	-11.7	1	36.0	45.0	9.0	1	53.0	41.0	-12.0	0				0			
C. Miller	0				2	65.5	71.5	6.0	0				1	20.0	45.0	25.0	1	54.0	87.0	33.0	0			
J. Moore	0				12	58.2	56.2	-2.0	1	74.0	87.0	13.0	1	44.0	50.0	6.0	1	38.0	32.0	-6.0	0			
Morley	0				5	69.6	71.3	1.7	2	29.0	30.5	1.5	0				0				0			
J. Rouse	0				10	57.1	47.7	-9.4	1	33.0	60.0	27.0	3	42.0	44.6	2.6	1	55.0	58.0	3.0	1	53.0	50.0	-3.0
Salina	0				2	58.5	66.5	8.0	0				1	44.0	55.0	11.0	2	57.0	60.5	3.5	0			
Stone	0				5	53.8	41.0	-12.8	0				0				2	45.5	59.0	13.5	1	49.0	56.0	7.0
Webber El.	0				10	62.8	56.3	-6.5	1	58.0	54.0	-4.0	1	26.0	34.0	8.0	2	61.5	50.0	-11.5	0			
Zilwaukee	0				1	52.0	36.0	-16.0	1	61.0	71.0	10.0	1	36.0	45.0	9.0	0				0			
TOTAL	0				97	56.0	54.5	-1.5	16	46.2	55.3	9.1	17	37.0	40.1	3.1	16	46.8	54.5	7.7	9	39.4	51.3	11.9

APPENDIX D

TABLE D.4. MEAN NORMAL CURVE EQUIVALENT GAIN BY BUILDING AND GRADE FOR ALL 1-6 STATE BILINGUAL PUPILS IN MATHEMATICS CONCEPTS AND APPLICATIONS (ADVANCED SKILLS) BASED ON APRIL-MAY, 1990 PRE-TESTING AND APRIL-MAY, 1991 POST-TESTING ON CAT (SPRING TO SPRING)

BUILDING	GRADE 1 Normal Curve Equivalents				GRADE 2 Normal Curve Equivalents				GRADE 3 Normal Curve Equivalents				GRADE 4 Normal Curve Equivalents				GRADE 5 Normal Curve Equivalents				GRADE 6 Normal Curve Equivalents			
	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss
-. Bellile	2	32.0	35.0	3.0	5	46.0	62.6	16.6	0				2	39.5	47.0	7.5	0				1	32.0	40.0	8.0
Coulter	0				2	48.5	51.5	3.0	2	53.0	62.5	9.5	1	47.0	35.0	-12.0	2	31.0	37.5	6.5	1	45.0	60.0	15.0
Emerson	11	41.9	44.0	2.1	1	28.0	20.0	-8.0	0				0				0				0			
Fuerbringer	4	60.5	35.5	-25.0	2	47.0	55.5	8.5	1	46.0	56.0	10.0	0				0				0			
Haley	3	32.0	51.0	19.0	5	68.3	58.3	-10.0	1	64.0	64.0	0.0	2	27.5	34.0	6.5	1	55.0	64.0	9.0	0			
Handley	0				0				0				0				0				0			
Heavenrich	6	57.5	31.0	-26.5	5	39.3	18.3	-21.0	0				0				1	33.0	41.0	8.0	0			
Herig	10	46.9	64.8	17.9	10	69.1	58.1	-11.0	0				1	1.0	1.0	0.0	0				1	36.0	50.0	14.0
Houghton	7	47.8	73.5	25.7	4	66.2	63.0	-3.2	1	49.0	60.0	11.0	1	17.0	25.0	8.0	0				0			
Jerome	13	49.9	38.6	-11.3	5	62.4	71.0	8.6	2	47.0	47.0	0.0	1	80.0	53.0	-27.0	2	42.5	54.0	11.5	1	1.0	42.0	41.0
Jones	2	5.5	26.0	20.5	1	39.0	53.0	14.0	0				0				0				0			
Kempton	1	58.0	87.0	29.0	1	87.0	53.0	-34.0	1	15.0	34.0	19.0	0				0				0			
Longfellow		46.7	41.5	-5.2	5	34.3	36.6	2.3	0				0				0				2	44.0	42.0	-2.0
Longstreet	3	35.3	52.3	17.0	0				1	27.0	36.0	9.0	0				0				0			
Loomis	8	43.7	45.0	1.3	5	57.4	70.0	12.6	0				0				1	26.0	40.0	14.0	1	41.0	52.0	11.0
M. Park	13	38.3	48.8	10.5	9	51.1	42.8	-8.3	1	33.0	36.0	3.0	1	53.0	45.0	-8.0	0				0			
C. Miller	2	36.0	52.0	16.0	2	64.5	65.0	0.5	0				1	20.0	35.0	15.0	1	48.0	81.0	33.0	0			
J. Moore	17	49.7	70.5	20.8	12	58.1	57.2	-0.9	1	64.0	75.0	11.0	1	41.0	45.0	4.0	1	50.0	40.0	-10.0	0			
Morley	1	35.0	50.0	15.0	3	64.6	82.0	17.4	2	29.0	33.5	4.5	0				0				0			
J. ouse	20	55.3	50.4	-4.9	10	56.4	51.7	-4.7	1	25.0	44.0	19.0	3	39.3	44.0	4.7	1	48.0	49.0	1.0	1	53.0	42.0	-11.0
Salina	2	8.5	15.0	6.5	2	48.5	69.5	21.0	0				1	41.0	48.0	7.0	2	45.5	55.5	10.0	0			
Stone	15	30.6	51.2	20.6	5	51.4	39.6	-11.8	0				0				2	42.5	48.5	6.0	1	47.0	50.0	3.0
Webber El.	29	49.4	53.9	4.5	10	58.9	56.3	-2.6	1	46.0	38.0	-8.0	1	28.0	35.0	7.0	2	50.0	44.5	-5.5	0			
Zilwaukee	1	66.0	68.0	2.0	1	61.0	41.0	-20.0	1	53.0	53.0	0.0	1	41.0	38.0	-3.0	0				0			
TOTAL	177	45.4	51.2	5.8	97	56.8	54.7	-2.1	16	42.5	48.8	6.3	17	36.5	38.4	1.9	16	42.6	49.6	7.0	9	38.1	46.6	8.5

APPENDIX D

TABLE D.5. MEAN NORMAL CURVE EQUIVALENT GAIN BY BUILDING AND GRADE FOR ALL 7-9 STATE BILINGUAL PUPILS IN TOTAL READING (BASIC SKILLS) AND READING COMPREHENSION (ADVANCED SKILLS) BASED ON APRIL-MAY, 1990 PRE-TESTING AND APRIL-MAY, 1991 POST-TESTING ON CAT (SPRING TO SPRING).

Subject/ School	GRADE 7 Normal Curve Equivalents				GRADE 8 Normal Curve Equivalents				GRADE 9 Normal Curve Equivalents			
	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss
TOTAL READING												
Central	2	39.0	34.0	-5.0	1	41.0	37.0	-4.0	1	33.0	23.0	-10.0
North	7	25.7	28.2	2.5	14	30.3	32.9	2.6	10	32.6	40.1	7.5
South	8	34.3	33.6	-0.7	4	32.0	37.2	5.2	4	35.5	40.5	5.0
Webber	7	36.0	33.1	-2.9	1	27.0	32.0	5.0	4	31.0	44.2	13.2
System	24	32.7	31.9	-0.8	20	31.0	33.9	2.9	19	32.8	40.1	7.3
READING COMPREHENSION												
Central	2	45.5	41.5	-4.0	1	49.0	46.0	-3.0	1	30.0	36.0	6.0
North	7	29.8	36.4	6.6	14	36.7	40.0	3.3	10	35.7	41.9	6.2
South	8	40.1	39.5	-0.6	4	38.7	47.5	8.8	4	46.0	48.0	2.0
Webber	7	45.0	30.7	-14.3	1	40.0	34.0	-6.0	4	34.0	47.2	13.2
System	24	39.0	36.2	-2.8	20	37.9	41.5	3.6	19	37.2	44.0	6.8

APPENDIX D

TABLE D.6. MEAN NORMAL CURVE EQUIVALENT GAIN BY BUILDING AND GRADE FOR ALL 7-9 STATE BILINGUAL PUPILS IN TOTAL MATHEMATICS (BASIC SKILLS) AND MATHEMATICS CONCEPTS AND APPLICATION (ADVANCED SKILLS) BASED ON APRIL-MAY, 1990 PRE-TESTING AND APRIL-MAY, 1991 POST-TESTING ON CAT (SPRING TO SPRING).

Subject/ School	GRADE 7 Normal Curve Equivalents				GRADE 8 Normal Curve Equivalents				GRADE 9 Normal Curve Equivalents			
	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss
TOTAL MATHEMATICS												
Central	2	51.0	39.0	-12.0	1	56.0	50.0	-6.0	1	45.0	42.0	-3.0
North	7	50.5	43.8	-6.7	13	49.2	45.7	-3.5	10	42.1	46.1	4.0
South	8	40.7	44.0	3.3	4	46.2	45.2	-1.0	4	36.5	39.2	2.7
Webber	7	42.8	33.1	-9.7	2	21.0	26.5	5.5	4	29.2	41.2	12.0
System	24	45.0	40.3	-4.7	20	46.1	43.9	-2.2	19	38.3	43.4	5.1
CONCEPTS AND APPLICATIONS												
Central	2	46.5	36.5	-10.0	1	54.0	48.0	-6.0	1	34.0	41.0	7.0
North	7	42.0	35.7	-6.3	13	45.4	41.1	-4.3	10	40.8	47.9	7.1
South	8	40.3	40.2	-0.1	4	43.7	44.5	0.8	4	35.2	41.0	5.8
Webber	7	43.2	36.2	-7.0	2	18.5	25.0	6.5	4	34.2	37.5	3.3
System	24	42.2	37.4	-4.8	20	42.8	40.5	-2.3	19	37.8	43.8	6.0

APPENDIX D

TABLE D.7. MEAN NORMAL CURVE EQUIVALENT GAIN BY BUILDING AND GRADE FOR ALL 10-12 STATE BILINGUAL PUPILS IN TOTAL READING (BASIC SKILLS) AND READING COMPREHENSION (ADVANCED SKILLS) BASED ON APRIL-MAY, 1990 PRE-TESTING AND APRIL-MAY, 1991 POST-TESTING ON CAT (SPRING TO SPRING).

Subject/ School	GRADE 10 Normal Curve Equivalents				GRADE 11 Normal Curve Equivalents				GRADE 12 Normal Curve Equivalents			
	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss
TOTAL READING												
Arthur Hill	7	33.1	32.2	-0.9	2	20.5	22.5	2.0	4	39.2	43.2	4.0
Saginaw High	2	38.5	45.5	7.0	0				0			
System	9	34.3	35.2	0.9	2	20.5	22.5	2.0	4	39.2	43.2	4.0
READING COMPREHENSION												
Arthur Hill	7	39.7	38.1	-1.6	2	33.0	26.0	-7.0	4	43.2	49.2	6.0
Saginaw High	2	33.5	44.0	10.5	0				0			
System	9	38.3	39.4	1.1	2	33.0	26.0	-7.0	4	43.2	49.2	6.0

APPENDIX D

TABLE D.8. MEAN NORMAL CURVE EQUIVALENT GAIN BY BUILDING AND GRADE FOR ALL 10-12 STATE BILINGUAL PUPILS IN TOTAL MATHEMATICS (BASIC SKILLS) AND MATHEMATICS CONCEPTS AND APPLICATION (ADVANCED SKILLS) BASED ON APRIL-MAY, 1990 PRE-TESTING AND APRIL-MAY, 1991 POST-TESTING ON CAT (SPRING TO SPRING).

Subject/ School	GRADE 10 Normal Curve Equivalents				GRADE 11 Normal Curve Equivalents				GRADE 12 Normal Curve Equivalents			
	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss
TOTAL MATHEMATICS												
Arthur Hill	14	44.7	41.6	-3.1	2	46.0	48.0	2.0	3	53.0	57.3	4.3
Saginaw High	2	51.5	55.0	3.5	0				0			
System	16	45.6	43.3	-2.3	2	46.0	48.0	2.0	3	53.0	57.3	4.3
CONCEPTS AND APPLICATION												
Arthur Hill	14	42.3	41.9	-0.4	2	35.5	43.0	7.5	3	48.3	55.0	6.7
Saginaw High	2	48.5	53.0	4.5	0				0			
System	16	43.1	43.3	0.2	2	35.5	43.0	7.5	3	48.3	55.0	6.7

APPENDIX D

TABLE D.9. MEAN NORMAL CURVE EQUIVALENT GAIN BY BUILDING AND GRADE FOR ALL 1-6 MIGRANT PUPILS IN TOTAL READING (BASIC SKILLS) BASED ON APRIL-MAY, 1990 PRE-TESTING AND APRIL-MAY, 1991 POST-TESTING ON CAT (SPRING TO SPRING)

BUILDING	GRADE 1 Normal Curve Equivalents				GRADE 2 Normal Curve Equivalents				GRADE 3 Normal Curve Equivalents				GRADE 4 Normal Curve Equivalents				GRADE 5 Normal Curve Equivalents				GRADE 6 Normal Curve Equivalents			
	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss
E. Baillie	0				1	46.0	27.0	-19.0	0				0				0				1	29.0	15.0	-14.0
Coulter	5	39.6	33.6	-6.0	2	61.5	53.5	-8.0	5	37.3	38.6	1.3	2	41.5	52.0	10.5	1	45.0	43.0	-2.0	2	52.5	53.0	0.5
Emerson	6	40.3	40.3	0.0	4	31.7	32.5	0.8	2	50.0	54.0	4.0	4	57.2	36.2	-21.0	2	52.0	52.0	0.0	0			
Fuerbringer	0				1	37.0	60.0	23.0	1	29.0	47.0	18.0	1	53.0	46.0	-7.0	0				2	52.5	49.5	-3.0
Haley	2	16.0	42.0	26.0	5	39.3	46.3	7.0	5	55.3	51.0	-4.3	5	38.0	35.3	-2.7	1	66.0	61.0	-5.0	2	38.0	39.0	1.0
Handley	1	17.0	58.0	41.0	0				0				0				0				0			
Heavenrich	5	62.6	64.3	1.7	1	10.0	15.0	5.0	1	64.0	28.0	-36.0	2	44.5	37.0	-7.5	1	32.0	27.0	-5.0	0			
Herig	5	54.8	42.2	-12.6	1	33.0	38.0	5.0	1	39.0	36.0	-3.0	2	38.5	41.0	2.5	1	45.0	32.0	-13.0	1	41.0	31.0	-10.0
Houghton	2	23.5	37.5	14.0	4	44.2	57.5	13.3	4	41.2	52.0	10.8	5	49.0	45.0	-4.0	1	66.0	67.0	1.0	2	52.0	64.0	12.0
Jerome	5	36.6	47.3	10.7	4	53.0	56.5	3.5	2	50.5	54.5	4.0	2	38.5	37.5	-1.0	2	35.5	32.0	-3.5	3	36.3	40.0	3.7
Jones	1	44.0	1.0	-43.0	1	1.0	42.0	41.0	0				2	41.5	50.5	9.0	3	25.0	28.3	3.3	2	18.0	54.5	36.5
Kempton	0				0				0				0				1	40.0	38.0	-2.0	0			
Longfellow	5	32.0	18.0	-14.0	2	35.0	32.0	-3.0	4	38.7	38.0	-0.7	4	39.2	45.5	6.3	1	30.0	26.0	-4.0	1	44.0	10.0	-34.0
Longstreet	1	44.0	45.0	1.0	0				1	39.0	37.0	-2.0	0				0				0			
Loomis	7	40.1	40.4	0.3	6	31.8	28.5	-3.3	4	37.5	47.5	10.0	1	15.0	25.0	10.0	10	28.8	29.9	1.1	7	43.5	38.4	-5.1
M. Park	2	27.0	63.5	36.5	3	57.0	46.3	-10.7	0				0				4	55.2	53.5	-1.7	0			
C. Miller	3	47.0	40.3	-6.7	2	38.5	58.0	19.5	1	75.0	58.0	-17.0	1	34.0	41.0	7.0	4	43.7	49.2	5.5	3	29.0	34.6	5.6
J. Moore	4	47.7	33.5	-14.2	1	50.0	50.0	0.0	2	34.5	42.5	8.0	2	29.0	38.5	9.5	4	48.2	37.7	-10.5	1	39.0	42.0	3.0
Morley	2	10.0	33.5	23.5	1	19.0	31.0	12.0	1	37.0	48.0	11.0	0				1	28.0	20.0	-8.0	1	20.0	19.0	-1.0
J. Rouse	10	47.6	43.7	-3.9	5	42.6	43.6	1.0	5	53.6	58.4	4.8	9	44.4	41.8	-2.6	5	60.6	55.0	-5.6	5	50.2	40.4	-9.8
Salina	1	39.0	70.0	31.0	5	28.6	28.6	0.0	1	45.0	39.0	-6.0	5	48.3	46.0	-2.3	4	37.5	36.5	-1.0	0			
Stone	10	27.1	45.8	18.7	9	34.8	34.8	0.0	5	55.3	54.6	-0.7	2	37.5	45.5	8.0	5	51.6	52.6	1.0	4	52.7	47.0	-5.7
Webber El.	18	51.0	48.5	-2.5	5	42.3	41.0	-1.3	7	54.1	54.4	0.3	8	53.6	49.2	-4.4	6	47.5	43.8	-3.7	9	44.5	44.3	-0.2
Zilwaukee	0				0				0				0				0				0			
TOTAL	87	41.4	43.4	2.0	57	38.5	40.7	2.2	46	46.9	48.9	2.0	51	44.4	43.0	-1.4	55	42.8	41.1	-1.7	46	42.6	41.7	-0.9

APPENDIX D

TABLE D.10. MEAN NORMAL CURVE EQUIVALENT GAIN BY BUILDING AND GRADE FOR ALL 1-6 MIGRANT PUPILS IN READING COMPREHENSION (ADVANCED SKILLS) BASED ON APRIL-MAY, 1990 PRE-TESTING AND APRIL-MAY, 1991 POST-TESTING ON CAT (SPRING TO SPRING)

BUILDING	GRADE 1				GRADE 2				GRADE 3				GRADE 4				GRADE 5				GRADE 6			
	Normal Curve Equivalents				Normal Curve Equivalents				Normal Curve Equivalents				Normal Curve Equivalents				Normal Curve Equivalents				Normal Curve Equivalents			
	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss
E. Baillie	0				1	46.0	27.0	-19.0	0				0				0				1	32.0	19.0	-13.0
Coulter	5	38.6	38.6	0.0	2	58.0	55.0	-3.0	5	40.6	49.3	8.7	2	41.5	51.5	10.0	1	53.0	47.0	-6.0	2	62.0	58.5	-3.5
Emerson	6	34.8	45.8	11.0	4	29.7	34.7	5.0	2	58.5	58.0	-0.5	4	50.7	36.5	-14.2	2	57.5	58.0	0.5	0			
Fuerbringer	0				1	41.0	60.0	19.0	1	34.0	52.0	18.0	1	52.0	47.0	-5.0	0				2	56.0	55.0	-1.0
Haley	2	17.0	41.0	24.0	3	41.0	51.0	10.0	3	63.0	54.0	-9.0	3	45.0	39.0	-6.0	1	67.0	57.0	-10.0	2	40.5	42.0	1.5
Handley	1	17.0	62.0	45.0	0				0				0				0				0			
Heavenrich	5	59.0	64.0	5.0	1	23.0	13.0	-10.0	1	67.0	28.0	-39.0	2	44.0	41.5	-2.5	1	40.0	32.0	-8.0	0			
Herig	5	43.4	49.4	6.0	1	30.0	41.0	11.0	1	38.0	38.0	0.0	2	40.5	51.5	11.0	1	44.0	28.0	-16.0	1	42.0	36.0	-6.0
Houghton	2	27.5	38.0	10.5	4	46.7	64.5	17.8	4	45.2	50.2	5.0	3	55.0	47.0	-8.0	1	67.0	63.0	-4.0	2	49.0	61.0	12.0
Jerome	3	35.0	52.0	17.0	4	48.5	55.2	6.7	2	55.0	61.5	6.5	2	45.0	39.5	-5.5	2	34.5	34.0	-0.5	3	34.6	45.0	10.4
Jones	1	45.0	1.0	-44.0	1	1.0	34.0	33.0	0				2	45.0	54.5	9.5	3	25.0	35.6	10.6	2	23.0	64.0	41.0
Kempton	0				0				0				0				1	40.0	47.0	7.0	0			
Longfellow	3	46.3	22.3	-24.0	2	33.5	43.0	9.5	4	42.5	39.0	-3.5	4	44.5	47.0	2.5	1	32.0	31.0	-1.0	1	49.0	45.0	-4.0
Longstreet	1	45.0	54.0	9.0	0				1	40.0	33.0	-7.0	0				0				0			
Loomis	5	50.2	44.0	-6.2	6	29.8	30.6	0.8	4	41.0	47.5	6.5	1	17.0	23.0	6.0	10	28.2	30.3	2.1	7	43.0	40.2	-2.8
M. Park	2	29.0	59.0	30.0	5	65.6	47.6	-18.0	0				0				4	55.7	55.0	-0.7	0			
C. Miller	3	58.0	39.3	-18.7	2	41.5	68.5	27.0	1	77.0	52.0	-25.0	1	36.0	47.0	11.0	4	41.5	51.0	9.5	3	32.0	37.3	5.3
J. Moore	4	60.5	34.0	-26.5	1	52.0	55.0	3.0	2	39.5	51.0	11.5	2	27.5	40.0	12.5	4	47.7	40.2	-7.5	1	36.0	40.0	4.0
Morley	2	8.5	38.0	29.5	1	17.0	44.0	27.0	1	46.0	45.0	-1.0	0				1	34.0	31.0	-3.0	1	19.0	30.0	11.0
J. Rouse	10	55.0	43.5	-11.5	5	46.8	41.2	-5.6	5	57.6	60.4	2.8	9	44.1	45.6	1.5	3	61.0	57.6	-3.4	5	52.4	38.0	-14.4
Salina	1	53.0	66.0	13.0	3	32.3	35.0	2.7	1	46.0	42.0	-4.0	3	48.6	46.6	-2.0	4	40.2	38.7	-1.5	0			
Stone	10	37.8	43.8	6.0	9	37.6	40.5	2.9	5	60.3	57.6	-2.7	2	40.0	48.0	8.0	5	53.8	54.8	1.0	4	60.5	59.2	-1.3
Webber El.	18	54.1	51.8	-2.3	3	42.0	40.0	-2.0	7	55.8	55.2	-0.6	8	56.1	51.7	-4.4	6	45.8	48.1	2.3	9	49.0	48.7	-0.3
Zilwaukee	0				0				0				0				0				0			
TOTAL	87	45.4	45.4	0.0	57	39.8	43.8	4.0	46	50.8	51.0	0.2	51	45.9	45.6	-0.3	55	43.3	43.7	0.4	46	45.3	46.2	0.9

TABLE D.11. MEAN NORMAL CURVE EQUIVALENT GAIN BY BUILDING AND GRADE FOR ALL 1-6 MIGRANT PUPILS IN TOTAL MATH (BASIC SKILLS) BASED ON APRIL-MAY, 1990 PRE-TESTING AND APRIL-MAY, 1991 POST-TESTING ON CAT (SPRING TO SPRING)

BUILDING	GRADE 1				GRADE 2				GRADE 3				GRADE 4				GRADE 5				GRADE 6			
	Normal Curve Equivalents				Normal Curve Equivalents				Normal Curve Equivalents				Normal Curve Equivalents				Normal Curve Equivalents				Normal Curve Equivalents			
	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss
E. Baillie	0				1	51.0	55.0	4.0	0				0				0				1	56.0	43.0	.7.0
Coulter	0				5	46.0	67.3	21.3	5	47.0	64.0	17.0	2	70.0	69.0	-1.0	1	60.0	44.0	-16.0	2	50.5	75.5	25.0
Emerson	0				4	40.7	34.2	-6.5	2	49.5	38.5	-11.0	4	41.7	48.2	6.5	2	67.0	69.0	2.0	0			
Fuerbringer	0				1	55.0	80.0	25.0	1	42.0	65.0	23.0	1	80.0	67.0	-13.0	0				2	61.0	70.5	9.5
Haley	0				3	67.0	66.0	-1.0	3	49.6	61.0	11.4	3	43.0	25.3	-17.7	1	76.0	68.0	-8.0	2	61.5	56.0	-5.5
Handley	0				0				0				0				0				0			
Heavenrich	0				1	53.0	17.0	-36.0	1	62.0	32.0	-30.0	2	46.0	34.0	-12.0	1	50.0	61.0	11.0	0			
Herig	0				1	57.0	66.0	9.0	1	63.0	45.0	-18.0	2	36.5	33.5	-3.0	1	46.0	38.0	-8.0	1	51.0	50.0	-1.0
Houghton	0				4	70.7	66.7	-4.0	4	57.2	59.7	2.5	3	52.6	52.6	0.0	1	99.0	99.0	0.0	2	83.0	90.0	7.0
Jerome	0				3	62.3	75.6	13.3	2	60.0	62.0	2.0	2	34.5	33.5	-1.0	2	43.5	42.5	-1.0	3	42.0	59.6	17.6
Jones	0				1	15.0	58.0	43.0	0				2	50.5	39.0	-11.5	3	45.6	45.0	-0.6	2	42.5	53.5	11.0
Kempton	0				0				0				0				1	44.0	54.0	10.0	0			
Longfellow	0				2	39.5	29.0	-10.5	4	48.7	59.2	10.5	4	43.0	61.7	18.7	1	62.0	62.0	0.0	1	26.0	48.0	22.0
Longstreet	0				0				1	44.0	44.0	0.0	0				0				0			
Loomis	0				6	44.1	54.6	10.5	4	29.5	45.0	15.5	1	20.0	17.0	-3.0	10	56.4	40.8	4.4	7	51.8	47.8	-4.0
M. Park	0				2	67.0	49.0	-18.0	0				0				4	63.7	61.5	-2.2	0			
C. Miller	0				2	80.5	71.5	-9.0	1	93.0	71.0	-22.0	1	56.0	64.0	8.0	4	44.0	65.7	21.7	3	54.0	55.3	1.3
J. Moore	0				1	78.0	66.0	-12.0	2	57.5	80.5	23.0	2	32.5	38.5	6.0	4	58.2	49.2	-9.0	1	46.0	56.0	10.0
Morley	0				1	29.0	66.0	37.0	1	37.0	27.0	-10.0	0				1	34.0	29.0	-5.0	1	39.0	40.0	1.0
J. Rouse	0				5	70.0	57.2	-12.8	5	67.0	58.2	-8.8	9	59.4	53.0	-6.4	3	56.3	69.0	12.7	5	63.4	51.6	-11.8
Salina	0				3	53.6	65.3	11.7	1	93.0	68.0	-25.0	3	64.0	60.0	-4.0	4	45.2	62.2	17.0	0			
Stone	0				9	50.2	39.0	-11.2	3	50.6	62.3	11.7	2	53.5	44.5	-9.0	5	47.4	59.6	12.2	4	59.7	77.7	18.0
Webber El.	0				3	65.6	51.3	-14.3	7	62.5	56.0	-6.5	8	64.3	60.0	-4.3	6	59.6	53.0	-6.6	9	48.1	50.6	2.5
Zilwaukee	0				0				0				0				0				0			
TOTAL	0				56	55.5	54.5	-1.0	46	54.8	56.8	2.0	4	52.3	49.8	-2.5	55	50.9	54.5	3.6	46	52.9	57.2	4.3

APPENDIX D

TABLE D.12. MEAN NORMAL CURVE EQUIVALENT GAIN BY BUILDING AND GRADE FOR ALL 1-6 MIGRANT PUPILS IN MATHEMATICS CONCEPTS AND APPLICATIONS (ADVANCED SKILLS) BASED ON APRIL-MAY, 1990 PRE-TESTING AND APRIL-MAY, 1991 POST-TESTING ON CAT (SPRING TO SPRING)

BUILDING	GRADE 1				GRADE 2				GRADE 3				GRADE 4				GRADE 5				GRADE 6			
	Normal Curve Equivalents				Normal Curve Equivalents				Normal Curve Equivalents				Normal Curve Equivalents				Normal Curve Equivalents				Normal Curve Equivalents			
	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss
E. Balillo	0				1	39.0	46.0	7.0	0				0				0				1	32.0	40.0	8.0
Coulter	0				3	49.0	64.0	15.0	3	51.6	60.3	8.7	2	68.5	61.0	-7.5	1	60.0	44.0	-16.0	2	47.0	66.5	19.5
Emerson	6	50.1	45.6	-4.5	4	30.0	35.7	5.7	2	49.5	36.0	-13.5	4	40.7	47.5	6.8	2	56.0	65.5	9.5	0			
Fuerbringer	0				1	55.0	81.0	26.0	1	46.0	56.0	10.0	1	80.0	68.0	-12.0	0				2	61.5	68.5	7.0
Haley	2	15.5	36.0	22.5	3	70.6	64.6	-6.0	3	44.6	56.6	12.0	3	46.0	31.6	-14.4	1	85.0	73.0	-12.0	2	51.5	44.5	-7.0
Handley	1	41.0	66.0	25.0	0				0				0				0				0			
Heavenrich	3	63.0	60.3	-2.7	1	55.0	20.0	-35.0	1	64.0	41.0	-23.0	2	52.0	34.5	-17.5	1	38.0	55.0	17.0	0			
Herig	5	35.0	64.8	29.8	1	55.0	72.0	17.0	1	72.0	64.0	-8.0	2	32.5	29.5	-3.0	1	46.0	38.0	-8.0	1	50.0	37.0	-13.0
Houghton	2	40.5	61.5	21.0	4	66.2	63.0	-3.2	4	63.0	64.2	1.2	5	58.3	50.0	-8.3	1	99.0	99.0	0.0	2	68.5	79.5	11.0
Jerome	5	19.6	37.3	17.7	5	47.6	69.6	22.0	2	68.0	56.5	-11.5	2	52.0	59.0	7.0	2	42.0	38.5	-3.5	5	35.3	57.6	22.3
Jones	1	10.0	23.0	13.0	1	23.0	46.0	23.0	0				2	50.0	34.5	-15.5	5	40.3	41.0	0.7	2	48.0	52.0	4.0
Kempton	0				0				0				0				1	41.0	62.0	21.0	0			
Longfellow	3	44.6	44.0	-0.6	2	30.5	25.0	-5.5	4	48.0	53.5	5.5	4	49.2	62.2	13.0	1	60.0	53.0	-7.0	1	23.0	48.0	25.0
Longstreet	1	48.0	68.0	20.0	0				1	49.0	47.0	-2.0	0				0				0			
Loomis	6	49.3	46.3	-3.0	6	49.5	59.6	10.1	4	30.7	52.7	22.0	1	23.0	17.0	-6.0	10	37.1	41.1	4.0	7	45.4	47.1	1.7
M. Park	2	36.0	64.5	28.5	2	63.0	47.0	-16.0	0				0				4	65.5	64.0	-1.5	0			
C. Miller	5	59.6	67.0	7.4	2	68.0	71.0	3.0	1	93.0	87.0	-6.0	1	64.0	64.0	0.0	4	47.0	67.2	20.2	5	50.0	49.0	-1.0
J. Moore	4	38.0	58.0	20.0	1	87.0	64.0	-23.0	2	58.5	72.0	13.5	2	35.0	37.5	2.5	4	47.5	47.2	-0.3	1	49.0	41.0	-8.0
Morley	2	19.5	13.0	-6.5	1	17.0	49.0	32.0	1	23.0	24.0	1.0	0				1	31.0	33.0	2.0	1	33.0	45.0	12.0
J. Rouse	10	49.9	52.3	2.4	5	68.4	54.6	-13.8	5	73.6	61.8	-11.8	9	53.6	50.4	-3.2	5	64.0	65.0	1.0	5	57.4	50.6	-6.8
Salina	1	41.0	87.0	46.0	5	48.6	66.0	17.4	1	93.0	69.0	-24.0	3	58.3	56.0	-2.3	4	40.5	54.0	13.5	0			
Stone	10	30.5	48.3	17.8	9	48.0	41.8	-6.2	3	43.3	61.0	17.7	2	51.5	48.5	-3.0	5	47.8	55.8	8.0	4	52.5	73.5	21.0
Webber El.	18	52.0	66.1	14.1	5	62.3	61.0	-1.3	7	57.8	52.7	-5.1	8	62.3	61.7	-0.6	6	55.8	52.5	-3.3	9	48.4	45.6	-2.8
Zilwaukee	3	29.3	49.6	20.3	0				0				0				0				0			
TOTAL	86	42.7	54.3	11.6	56	52.5	54.3	1.8	46	55.4	56.7	1.3	51	51.7	49.3	-2.4	55	49.3	53.0	3.7	46	48.8	53.0	4.2

APPENDIX D

TABLE D.13. MEAN NORMAL CURVE EQUIVALENT GAIN BY BUILDING AND GRADE FOR ALL 7-9 MIGRANT PUPILS IN TOTAL READING (BASIC SKILLS) AND READING COMPREHENSION (ADVANCED SKILLS) BASED ON APRIL-MAY, 1990 PRE-TESTING AND APRIL-MAY, 1991 POST-TESTING ON CAT (SPRING TO SPRING).

Subject/ School	GRADE 7 Normal Curve Equivalents				GRADE 8 Normal Curve Equivalents				GRADE 9 Normal Curve Equivalents			
	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss
TOTAL READING												
Central	6	38.6	33.1	-5.5	5	34.6	27.6	-7.0	3	32.3	25.6	-6.7
North	10	39.0	36.2	-2.8	15	38.7	42.4	3.7	14	43.6	43.9	0.3
South	4	34.5	33.7	-0.8	13	47.3	46.3	-1.0	10	44.3	46.5	2.2
Webber	21	40.5	36.2	-4.3	6	35.1	36.5	1.4	10	44.4	42.7	-1.7
System	41	39.3	35.5	-3.8	39	40.5	40.9	0.4	37	43.1	42.8	-0.3
READING COMPREHENSION												
Central	6	42.1	37.0	-5.1	5	39.2	30.6	-8.6	3	33.0	27.6	-5.4
North	10	39.6	41.2	1.6	15	44.0	45.8	1.8	14	45.8	46.3	0.5
South	4	41.7	37.0	-4.7	13	50.8	49.5	-1.3	10	44.7	49.5	4.8
Webber	21	45.0	34.9	-10.1	6	35.5	35.6	0.1	10	46.1	46.1	0.0
System	41	43.0	36.9	-6.1	39	44.3	43.5	-0.8	37	44.5	45.6	1.1

APPENDIX D

TABLE D.14. MEAN NORMAL CURVE EQUIVALENT GAIN BY BUILDING AND GRADE FOR ALL 7-9 MIGRANT PUPILS IN TOTAL MATHEMATICS (BASIC SKILLS) AND MATHEMATICS CONCEPTS AND APPLICATION (ADVANCED SKILLS) BASED ON APRIL-MAY, 1990 PRE-TESTING AND APRIL-MAY, 1991 POST-TESTING ON CAT (SPRING TO SPRING).

Subject/ School	GRADE 7 Normal Curve Equivalents				GRADE 8 Normal Curve Equivalents				GRADE 9 Normal Curve Equivalents			
	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss
TOTAL MATHEMATICS												
Central	6	49.6	37.5	-12.1	5	41.6	35.2	-6.4	3	38.6	32.3	-6.3
North	9	62.4	49.3	-13.1	15	54.8	54.5	-0.3	12	57.0	56.5	-0.5
South	4	44.0	40.2	-3.8	12	57.3	48.5	-8.8	10	48.2	54.9	6.7
Webber	21	52.2	38.2	-14.0	6	36.3	34.0	-2.3	10	52.6	47.7	-4.9
System	40	53.3	40.8	-12.5	38	50.9	46.8	-4.1	35	51.6	51.4	-0.2
CONCEPTS AND APPLICATIONS												
Central	6	47.0	38.0	-9.0	5	36.0	33.4	-2.6	3	38.6	35.6	-3.0
North	9	58.3	47.1	-11.2	15	56.4	52.5	-3.9	12	55.5	53.8	-1.7
South	4	41.2	42.0	0.8	12	59.1	53.3	-5.8	10	46.9	52.6	5.7
Webber	21	50.0	39.5	-10.5	6	35.5	35.0	-0.5	10	51.9	44.8	-7.1
System	40	50.5	41.2	-9.3	38	51.2	47.5	-3.7	35	50.6	49.3	-1.3

APPENDIX D

TABLE D.15. MEAN NORMAL CURVE EQUIVALENT GAIN BY BUILDING AND GRADE FOR ALL 10-12 MIGRANT PUPILS IN TOTAL READING (BASIC SKILLS) AND READING COMPREHENSION (ADVANCED SKILLS) BASED ON APRIL-MAY, 1990 PRE-TESTING AND APRIL-MAY, 1991 POST-TESTING ON CAT (SPRING TO SPRING).

Subject/ School	GRADE 10 Normal Curve Equivalents				GRADE 11 Normal Curve Equivalents				GRADE 12 Normal Curve Equivalents			
	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss
TOTAL READING												
Arthur Hill	10	38.2	34.9	-3.3	6	39.8	38.5	-1.3	8	46.6	48.8	2.2
Saginaw High	5	36.8	31.4	-5.4	0				1	22.0	32.0	10.0
System	15	37.7	33.7	-4.0	6	39.8	38.5	-1.3	9	43.8	47.0	3.2
READING COMPREHENSION												
Arthur Hill	10	39.1	37.0	-2.1	6	47.8	45.6	-2.2	8	49.1	49.3	0.2
Saginaw High	5	37.8	33.0	-4.8	0				1	25.0	35.0	10.0
System	15	38.6	35.6	-3.0	6	47.8	45.6	-2.2	9	46.4	47.7	1.3

APPENDIX D

TABLE D.16. MEAN NORMAL CURVE EQUIVALENT GAIN BY BUILDING AND GRADE FOR ALL 10-12 MIGRANT PUPILS IN TOTAL MATHEMATICS (BASIC SKILLS) AND MATHEMATICS CONCEPTS AND APPLICATION (ADVANCED SKILLS) BASED ON APRIL-MAY, 1990 PRE-TESTING AND APRIL-MAY, 1991 POST-TESTING ON CAT (SPRING TO SPRING).

Subject/ School	GRADE 10 Normal Curve Equivalents				GRADE 11 Normal Curve Equivalents				GRADE 12 Normal Curve Equivalents			
	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss
TOTAL MATHEMATICS												
Arthur Hill	23	49.1	49.1	0.0	6	46.8	51.0	4.2	5	52.0	51.6	-0.4
Saginaw High	4	46.5	34.7	-11.8	0				0			
System	27	48.7	47.0	-1.7	6	46.8	51.0	4.2	5	52.0	51.6	-0.4
CONCEPTS AND APPLICATION												
Arthur Hill	23	48.6	45.5	-3.1	6	39.8	52.0	12.2	5	52.2	53.0	0.8
Saginaw High	4	46.0	37.7	-8.3	0				0			
.em	27	48.2	44.4	-3.8	6	39.8	52.0	12.2	5	52.2	53.0	0.8

TABLE E. 1. PERCENT OF 1990-91 STATE BILINGUAL/MIGRANT STUDENTS BY BUILDING AND GRADE ATTAINING OBJECTIVE 33 STATED MAIN IDEA*/OBJECTIVE 36 CENTRAL THOUGHT CAT READING OBJECTIVES AS COMPARED TO AGREED UPON CRITERION PER GRADE LEVEL.**

BUILDING	GRADE 1				GRADE 2				GRADE 3				GRADE 4				GRADE 5				GRADE 6			
	Number Tested	Criterion %	90-91 %	Criterion Achieved?	Number Tested	Criterion %	90-91 %	Criterion Achieved?	Number Tested	Criterion %	90-91 %	Criterion Achieved?	Number Tested	Criterion %	90-91 %	Criterion Achieved?	Number Tested	Criterion %	90-91 %	Criterion Achieved?	Number Tested	Criterion %	90-91 %	Criterion Achieved?
E. Baillie	1	27	0	No	2	56	50	No	--	60	--	--	2	31	0	No	--	48	--	--	--	48	--	--
Coulter	3	27	67	Yes	4	56	0	No	3	60	67	Yes	4	31	50	Yes	2	48	100	Yes	3	48	100	Yes
Emerson	15	27	20	No	7	56	14	No	3	60	33	No	3	31	33	Yes	2	48	50	Yes	--	48	--	--
Fuerbringer	5	27	40	Yes	3	56	67	Yes	1	60	100	Yes	1	31	0	No	--	48	--	--	2	48	100	Yes
Nelle Haley	3	27	33	Yes	4	56	56	Yes	5	60	100	Yes	5	31	0	No	2	48	100	Yes	2	48	0	No
Handley	--	27	--	--	--	56	--	--	1	60	100	Yes	--	31	--	--	--	48	--	--	--	48	--	--
Heavenrich	6	27	17	No	3	56	0	No	2	60	50	No	2	31	50	Yes	1	48	0	No	1	48	100	Yes
Herig	13	27	46	Yes	10	56	80	Yes	1	60	100	Yes	2	31	50	Yes	1	48	100	Yes	2	48	50	Yes
Houghton	13	27	31	Yes	4	56	75	Yes	4	60	75	Yes	4	31	0	No	3	48	50	Yes	2	48	100	Yes
Jerome	12	27	17	No	10	56	60	Yes	2	60	100	Yes	4	31	25	No	4	48	0	No	3	48	33	No
Jones	2	27	50	Yes	2	56	0	No	1	60	100	Yes	2	31	50	Yes	5	48	20	No	2	48	50	Yes
Kempton	2	27	100	Yes	3	56	100	Yes	1	60	0	No	--	31	--	--	1	48	100	Yes	--	48	--	--
Longfellow	6	27	33	Yes	6	56	33	No	4	60	75	Yes	4	31	25	No	1	48	0	No	4	48	25	No
Longstreet	3	27	67	Yes	--	56	--	--	2	60	0	No	--	31	--	--	--	48	--	--	--	48	--	--
J. Loomis	10	27	40	Yes	8	56	29	No	4	60	75	Yes	2	31	50	Yes	9	48	11	No	8	48	50	Yes
Merrill Park	11	27	45	Yes	11	56	82	Yes	1	60	100	Yes	2	31	0	No	4	48	75	Yes	--	48	--	--
C. Miller	4	27	50	Yes	3	56	67	Yes	2	60	100	Yes	2	31	0	No	3	48	33	No	3	48	0	No
John Moore	19	27	58	Yes	13	56	62	Yes	2	60	100	Yes	5	31	20	No	5	48	60	Yes	1	48	0	No
Morley	3	27	0	No	4	56	50	No	3	60	50	No	1	31	0	No	1	48	0	No	1	48	0	No
J. Rouse	12	27	17	No	13	56	50	No	10	60	70	Yes	11	31	18	No	5	48	20	No	7	48	57	Yes
Salina	3	27	33	Yes	4	56	0	No	2	60	50	No	2	31	50	Yes	4	48	25	No	--	48	--	--
Stone	12	27	25	No	13	56	46	No	5	60	80	Yes	2	31	50	Yes	5	48	80	Yes	5	48	60	Yes
Webber Ele.	25	27	52	Yes	13	56	77	Yes	7	60	86	Yes	11	31	18	No	7	48	43	No	8	48	50	Yes
Zilwaukee	2	27	50	Yes	--	56	--	--	1	60	100	Yes	1	31	0	No	--	48	--	--	1	48	0	No
TOTAL	185	27	38	Yes	141	56	53	No	67	60	74	Yes	72	31	23	No	65	48	41	No	55	48	49	Yes

*Objective 33 applies only to grade one and Objective 36 is applicable to grades two through six.

**State Bilingual/Migrant program participants will equal or exceed agreed upon criterion per grade level found in Appendix C.

TABLE E. 2. PERCENT OF 1990-91 STATE BILINGUAL/MIGRANT STUDENTS BY BUILDING AND GRADE ATTAINING OBJECTIVE 37 INTERPRETING EVENTS CAT READING OBJECTIVE AS COMPARED TO AGREED UPON CRITERION PER GRADE LEVEL.*

BUILDING	GRADE 1				GRADE 2				GRADE 3				GRADE 4				GRADE 5				GRADE 6			
	Number Tested	Criterion %	90-91 %	Criterion Achieved?	Number Tested	Criterion %	90-91 %	Criterion Achieved?	Number Tested	Criterion %	90-91 %	Criterion Achieved?	Number Tested	Criterion %	90-91 %	Criterion Achieved?	Number Tested	Criterion %	90-91 %	Criterion Achieved?	Number Tested	Criterion %	90-91 %	Criterion Achieved?
E. Baillie	1	26	0	No	2	59	50	No	--	63	--	--	2	34	0	No	--	50	--	--	--	58	--	--
Coulter	3	26	33	Yes	4	59	67	Yes	3	63	67	Yes	4	34	50	Yes	2	50	50	Yes	3	58	100	Yes
Emerson	15	26	13	No	7	59	29	No	3	63	100	Yes	3	34	33	No	2	50	50	Yes	--	58	--	--
Fuerbringer	5	26	0	No	3	59	100	Yes	1	63	100	Yes	1	34	0	No	--	50	--	--	2	58	100	Yes
Nellie Haley	3	26	0	No	4	59	25	No	5	63	60	No	5	34	60	Yes	2	50	100	Yes	2	58	50	No
Handley	--	26	--	--	--	59	--	--	1	63	100	Yes	--	34	--	--	--	50	--	--	--	58	--	--
Heavenrich	6	26	17	No	3	59	0	No	2	63	0	No	2	34	50	Yes	1	50	0	No	1	58	0	No
Herig	13	26	62	Yes	10	59	70	Yes	1	63	0	No	2	34	50	Yes	1	50	0	No	2	58	50	No
Houghton	13	26	15	No	4	59	100	Yes	4	63	50	No	4	34	50	Yes	3	50	50	Yes	2	58	100	Yes
Jerome	12	26	8	No	10	59	80	Yes	2	63	100	Yes	4	34	25	No	4	50	25	No	3	58	67	Yes
Jones	2	26	0	No	2	59	50	No	1	63	0	No	2	34	100	Yes	5	50	20	No	2	58	50	No
Kempton	2	26	100	Yes	3	59	100	Yes	1	63	0	No	--	34	--	--	1	50	0	No	--	58	--	--
Longfellow	6	26	0	No	6	59	33	No	4	63	75	Yes	4	34	50	Yes	1	50	0	No	4	58	50	No
Longstreet	3	26	33	Yes	--	59	--	--	2	63	50	No	--	34	--	--	--	50	--	--	--	58	--	--
J. Loomis	10	26	30	Yes	8	59	29	No	4	63	50	No	2	34	50	Yes	9	50	11	No	8	58	38	No
Merrill Park	11	26	27	Yes	11	59	73	Yes	1	63	100	Yes	2	34	0	No	4	50	50	Yes	--	58	--	--
C. Miller	4	26	25	No	3	59	100	Yes	2	63	100	Yes	2	34	50	Yes	3	50	33	No	3	58	33	No
John Monroe	19	26	58	Yes	13	59	69	Yes	2	63	100	Yes	5	34	40	Yes	5	50	40	No	1	58	0	No
Morley	3	26	0	No	4	59	75	Yes	3	63	50	No	1	34	0	No	1	50	0	No	1	58	0	No
J. Rouse	12	26	25	No	13	59	58	No	10	63	80	Yes	11	34	45	Yes	5	50	80	Yes	7	58	57	No
Salina	3	26	33	Yes	4	59	25	No	2	63	100	Yes	2	34	50	Yes	4	50	0	No	--	58	--	--
Stone	12	26	25	No	13	59	54	No	5	63	80	Yes	2	34	50	Yes	5	50	80	Yes	5	58	80	Yes
Webber Ele.	25	26	28	Yes	13	59	38	No	7	63	71	Yes	11	34	64	Yes	7	50	57	Yes	8	58	50	No
Zilwaukee	2	26	50	Yes	1	59	--	--	1	63	0	No	1	34	100	Yes	--	50	--	--	1	58	100	Yes
TOTAL	185	26	28	Yes	141	59	58	No	67	63	68	Yes	72	34	48	Yes	65	50	41	No	55	58	56	No

*State Bilingual/Migrant program participants will equal or exceed agreed upon criterion per grade level found in Appendix C.

TABLE E. 3. PERCENT OF 1990-91 STATE BILINGUAL/MIGRANT STUDENTS BY BUILDING AND GRADE ATTAINING OBJECTIVE 39 WRITING TECHNIQUES CAT READING OBJECTIVE AS COMPARED TO AGREED UPON CRITERION PER GRADE LEVEL.*

BUILDING	GRADE 1				GRADE 2				GRADE 3				GRADE 4				GRADE 5				GRADE 6			
	Number Tested	Criterion %	90-91 %	Criterion Achieved?	Number Tested	Criterion %	90-91 %	Criterion Achieved?	Number Tested	Criterion %	90-91 %	Criterion Achieved?	Number Tested	Criterion %	90-91 %	Criterion Achieved?	Number Tested	Criterion %	90-91 %	Criterion Achieved?	Number Tested	Criterion %	90-91 %	Criterion Achieved?
E. Baillie	--	--	--	--	--	--	--	--	--	--	--	--	2	28	0	No	--	36	--	--	--	31	--	--
Coulter	--	--	--	--	--	--	--	--	--	--	--	--	4	28	0	No	2	36	50	Yes	3	31	67	Yes
Emerson	--	--	--	--	--	--	--	--	--	--	--	--	3	28	33	Yes	2	36	50	Yes	--	31	--	--
Fuerbringer	--	--	--	--	--	--	--	--	--	--	--	--	1	28	0	No	--	36	--	--	2	31	0	No
Nellie Haley	--	--	--	--	--	--	--	--	--	--	--	--	5	28	0	No	2	36	100	Yes	2	31	50	Yes
Handley	--	--	--	--	--	--	--	--	--	--	--	--	--	28	--	--	--	36	--	--	--	31	--	--
Heavenrich	--	--	--	--	--	--	--	--	--	--	--	--	2	28	0	No	1	36	0	No	1	31	100	Yes
Herig	--	--	--	--	--	--	--	--	--	--	--	--	2	28	50	Yes	1	36	0	No	2	31	0	No
Houghton	--	--	--	--	--	--	--	--	--	--	--	--	4	28	0	No	3	36	50	Yes	2	31	50	Yes
Jerome	--	--	--	--	--	--	--	--	--	--	--	--	4	28	0	No	4	36	25	No	3	31	33	Yes
Jones	--	--	--	--	--	--	--	--	--	--	--	--	2	28	0	No	5	36	0	No	2	31	50	Yes
Kempton	--	--	--	--	--	--	--	--	--	--	--	--	--	28	--	--	1	36	100	Yes	--	31	--	--
Longfellow	--	--	--	--	--	--	--	--	--	--	--	--	4	28	25	No	1	36	0	No	4	31	0	No
Longstreet	--	--	--	--	--	--	--	--	--	--	--	--	--	28	--	--	--	36	--	--	--	31	--	--
J. Travis	--	--	--	--	--	--	--	--	--	--	--	--	2	28	0	No	9	36	0	No	8	31	38	Yes
Merrill Park	--	--	--	--	--	--	--	--	--	--	--	--	2	28	0	No	4	36	75	Yes	--	31	--	--
C. Miller	--	--	--	--	--	--	--	--	--	--	--	--	2	28	0	No	3	36	67	Yes	3	31	0	No
John Moore	--	--	--	--	--	--	--	--	--	--	--	--	5	28	0	No	5	36	40	Yes	1	31	0	No
Morley	--	--	--	--	--	--	--	--	--	--	--	--	1	28	0	No	1	36	0	No	1	31	0	No
J. Rouse	--	--	--	--	--	--	--	--	--	--	--	--	11	28	18	No	5	36	40	Yes	7	31	29	No
Salina	--	--	--	--	--	--	--	--	--	--	--	--	2	28	0	No	4	36	0	No	--	31	--	--
Stone	--	--	--	--	--	--	--	--	--	--	--	--	2	28	0	No	5	36	80	Yes	5	31	20	No
Webber Ele	--	--	--	--	--	--	--	--	--	--	--	--	11	28	9	No	7	36	29	No	8	31	38	Yes
Zilwaukee	--	--	--	--	--	--	--	--	--	--	--	--	1	28	0	No	--	36	--	--	1	31	0	No
TOTAL	--	--	--	--	--	--	--	--	--	--	--	--	72	28	8	No	65	36	34	No	55	31	29	No

*State Bilingual/Migrant program participants will equal or exceed agreed upon criterion per grade level found in Appendix C.

65

accelerating the education of at-risk students

Accelerated Schools Project, CERAS Building—402 South, School of Education, Stanford University, Stanford, California 94305

Accelerated Schools: A New Strategy for At-Risk Students

Henry M. Levin

A research team from Stanford University is piloting a new approach, the Accelerated Schools Program, to assist at-risk students. Under this program, conventional schools with large at-risk populations can be transformed into accelerated schools. The main features of these schools include:

- *Empowering teachers*
- *Requiring substantial parental involvement*
- *Utilizing the services of businesses, senior citizens, and other community resources*

Ultimately, accelerated schools become total institutions devoted to speeding up, rather than slowing down, the progress of at-risk students, so they can perform at or above grade level by the end of sixth grade.

The At-Risk Crisis

The public schools of Indiana and the nation are becoming increasingly characterized by students considered to be educationally at-risk or disadvantaged. At-risk students lack the home and community resources to fully benefit from conventional schooling practices. Such students are especially concentrated among minority groups, immigrants, non-English-speaking families, single-parent families, and poverty populations. Because of poverty, cultural differences, or linguistic differences, they tend to have low academic achievement and high secondary school dropout rates. These educational deficiencies translate into poor life chances with respect to employment and income as well as political and social participation in American society.

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The challenge of meeting the educational and social needs of at-risk students has become especially prominent because of the rapid growth of these populations. High birth and immigration rates among these groups have increased substantially the numbers and proportions of disadvantaged students in U.S. schools. Recent estimates suggest that about 30% of America's students in primary and secondary schools are disadvantaged and that this proportion will continue to rise sharply in the future (Levin, 1986; Pallas, Natriello, & McDill, 1988). In many major cities—including Indianapolis and Gary—the majority of students are educationally at-risk.

More often than not, at-risk students begin school without the skills needed to succeed in the standard school curriculum. And the longer they stay in school, the farther behind they fall. By sixth grade their achievement is two years behind grade level on average, and by twelfth grade it is four years behind. Even these statistics understate the magnitude of the problem because about half of the at-risk student group fails to complete high school.

Unless we are able to intervene successfully, there are dire consequences in store for the American economy. Because a larger and larger portion of new workers will be unprepared for available jobs, the quality of the labor force will deteriorate considerably. As a result, employers—especially those in regions most affected by disadvantaged labor forces—will experience higher training costs, lagging productivity, and competitive disadvantages.

These economic losses will be accompanied by rising costs of public services for disadvantaged populations. More citizens will have to rely upon public assistance for survival, and increasing numbers of undereducated teens and adults will pursue illegal activities to obtain the income that is not available through legal pursuits (Berlin & Sum, 1988, pp. 28-30). In fact, economic analyses suggest that it is much less expensive to pay now for education than to pay later for crime and welfare (Levin, in press).

Are We on the Right Track?

At present, the most common way to assist the educationally disadvantaged is to provide them with remedial

or compensatory services to improve their educational achievement. But this approach often does not work and may actually contribute to student failure (Levin, 1988) by:

- reducing expectations for at-risk students and their teachers and stigmatizing such students as slow learners;
- slowing down the pace of instruction so that at-risk students fall farther and farther behind their non-disadvantaged peers;
- emphasizing the mechanics of basic skills without providing substance and applications that will keep the at-risk student interested and motivated;
- providing no mechanisms or incentives for closing the achievement gap between disadvantaged and non-disadvantaged students; and
- advancing strategies for at-risk students without adequately involving teachers and parents in the formulation of these strategies.

Educators had hoped that the reform movement of the 1980s, which stressed higher standards for all students (particularly those in high school), would generate new strategies for helping at-risk students. But at-risk programs have tended to rely on remedial or compensatory services. It is not surprising, therefore, that the status of at-risk students has not improved under the latest reforms. Some researchers have even suggested that raising standards without providing additional resources or new strategies to assist disadvantaged students may actually increase the likelihood of their dropping out (McDill, Natriello, & Pallas, 1985).

Thus it seems clear that we need new strategies to improve the educational chances of at-risk students, strategies that focus not on remediating students who have already fallen behind, but on accelerating the progress of students early in their elementary school careers.

Accelerated Schools for At-Risk Students

One alternative to present practice is the Accelerated Schools Program (ASP) at Stanford University. This program is designed to build on the knowledge base that supports a different set of assumptions for helping at-risk students achieve school success (Edmonds, 1979; Levin, 1987, 1988; Slavin, 1987). At its heart is the notion of doing for at-risk students what has been done for many gifted and talented students—striving to accelerate their progress rather than lowering expectations for their advancement.

The goal of ASP is to accelerate learning so that at-risk students are able to close the achievement gap and perform at grade level by the time they leave sixth grade. This approach is also expected to reduce dropouts, drug use, and teenage pregnancies by creating a strong sense of self-worth and educational accomplishment for students who now feel rejected by schools and frustrated about their own abilities.

Accelerated schools are characterized by high expectations on the part of teachers, parents, and students; target dates by which students are expected to meet particular educational requirements; stimulating instructional programs; planning by the educational staff who offer the programs; and the use of all available resources in the community, including parents, senior citizens, and social agencies.

Organizational Approach

The organizational approach of accelerated schools is based on three major principles:

- Unity of purpose
- Empowerment
- Building on strengths

Unity of purpose refers to agreement among parents, teachers, and students on a common set of goals for the school that will be the focal point of everyone's efforts. Clearly, these should focus on bringing children into the educational mainstream so that they can fully benefit from their later schooling experiences and adult opportunities.

Empowerment means expanding the ability of key participants to make important decisions at the school level and in the home to improve the education of students. It is based upon breaking the stalemate among administrators, teachers, parents, and students in which the participants tend to blame each other, as well as other factors "beyond their control," for the poor educational outcomes of disadvantaged students. Unless all of the major actors can be empowered to participate in and take responsibility for the educational process and educational results, it is unlikely that the desired improvements will take place or be sustained.

Central to the accelerated school strategy is the placement of curriculum and instructional decisions in the hands of the instructional staff of the school. Classroom teachers know the children best. They understand their learning needs, styles, and capabilities in ways most administrators and program specialists cannot. If desired changes in student achievement are to be realized, teachers must be given the authority and responsibility to design curriculum and instructional programs in ways that are compatible with their unique classroom perspectives.

To facilitate this process, each accelerated school has an overall steering committee and task forces composed

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of the principal, teachers, other staff, and parents. The principal serves a central function as instructional leader in coordinating and guiding the decisions of teachers and in addressing the logistical needs for translating these decisions into reality. School staff work together to set out a program that is consonant with student needs and the strengths of the district and the staff itself. Information, technical assistance, and training are provided by district personnel. In this way, the reform is a "bottom-up" approach: those who are providing the instruction make the decisions that they will implement and evaluate.

Building on strengths means utilizing all of the learning resources that teachers, administrators, students, parents, and communities can bring to the educational endeavor. In the quest to place blame for the lack of school efficacy in improving the education of the disadvantaged, it is easy to exaggerate weaknesses of the various participants and ignore strengths. But the strengths of these groups are considerable. Parents have a tremendous influence on the education of their children; they love their children deeply and long for them to succeed. Teachers are capable of insights, intuition, and organizational acumen that are lost when schools exclude them from participating in the decisions they must implement. School-based administrators are underutilized because they are placed in "command" roles to meet the directives and standard operating procedures of districts rather than to work creatively with parents, staff, and students.

Instead of perceiving disadvantaged students as lacking the learning behaviors associated with middle-class students, the ASP views them as having unique assets that can be used to accelerate their learning. These often include an interest in oral and artistic expression, a capacity for involvement in intrinsically interesting tasks, and an ability to learn to write before attaining competence in decoding skills which are prerequisite to reading. In addition, at-risk students can serve as enthusiastic and effective learning resources for other students through peer tutoring and cooperative learning approaches (Slavin, 1983).

Finally, communities have a number of resources including youth organizations, senior citizens, businesses, and religious groups that could become major assets for the children attending an accelerated school.

Main Features of Accelerated Schools

- Changes the entire structure of the school instead of simply grafting remedial classes onto a school with a conventional agenda
- Empowers teachers to plan the school's educational programs
- Requires substantial parental involvement (parents are expected to sign an agreement detailing their obligations to their children)
- Utilizes the services of businesses, college students, senior citizens, and other community resources
- Uses an extended-day program with emphasis on language and problem solving
- Stresses acceleration rather than remediation, intending to bring students to grade level by the end of sixth grade

Curriculum and Instructional Strategies

The instructional program is based upon an accelerated curriculum designed to bring all children to grade level or higher in core curricular areas (i.e., scoring at the 50th percentile or above on norm-referenced standardized achievement tests in reading comprehension, language, mathematics, etc.). The program involves a heavily language-based approach across the curriculum, even in mathematics, with an early introduction to writing and reading for meaning. Students learn to apply their new academic skills in interesting ways to everyday problems and events—a practice that demonstrates the usefulness of what is being taught and introduces a problem-solving orientation.

Accelerated schools also use an extended-day program that includes rest periods, physical activities, arts, and a time for independent assignments or homework. During this period, volunteers—college students and senior citizens—work one-on-one with students to provide individual learning assistance. Students also engage in peer tutoring and cooperative learning, both of which are especially effective with disadvantaged students (Slavin & Madden, 1989). Since many of the students are "latch-key" children, the extension of the school day is attractive to parents.

Parent Involvement

Parent involvement is a central focus of the Accelerated Schools Program. Research on parental and family involvement supports the important role that families can play in raising the educational accomplishments of their students (Epstein, 1987). The accelerated school builds on parental involvement in several ways.

First, parents or guardians are expected to affirm an agreement that clarifies the goals of the accelerated school and the obligations of parents, students, and school staff. The agreement is explained to parents and translated, if necessary. Parental obligations include:

- ensuring that their children go to bed at a reasonable hour and attend school regularly and punctually;

- setting high educational expectations for their children;
- talking to them regularly about the importance of school;
- taking an interest in their children's activities and the materials that the children bring home;
- encouraging their children to read on a daily basis;
- ensuring that independent assignments are addressed; and
- responding to queries from the school.

The importance of the parental role is emphasized through the dignity of an agreement that is accepted by all parties. Students and school staff also have appropriate obligations, with the understanding that the accelerated school will only succeed if all three parties work together.

Second, parents may participate in the governance structure of the school through membership on task forces and the steering committee.

Finally, parents are given frequent opportunities to interact with the school program and school staff through an "open door" policy and a parent lounge, as well as to receive training for providing active assistance to their children. Such training includes not only the skills for working with a child, but also many of the academic skills necessary to understand what the child is doing. In this respect, accelerated schools may find it necessary to work closely with agencies that offer adult basic education to provide parents with the necessary academic foundation. The parental dimension can improve the capacity and effort of the child, increase the time devoted to academic learning, and provide additional instructional resources in the home.

Evaluation

Student progress is evaluated by an assessment system that periodically monitors performance to assure that students are on the appropriate learning trajectory. The system emphasizes acquisition of higher order thinking and reasoning skills in core curricular areas and assesses proficiencies in other areas (e.g., arts, social skills) as well. These periodic assessments are used to provide feedback and to guide the use of interventions and new practices. In addition, the schools conduct evaluations of other areas of operation, including parental involvement, staff decision-making, and implementation of new programs.

A Total Learning Environment

The Accelerated Schools Program does not simply graft compensatory or remedial classes onto schools with a conventional agenda. Rather, it transforms the school into a total learning environment for accelerating the educational progress of the disadvantaged. The stress is on the school as a whole rather than on a particular grade curriculum, approach to teacher training, or other more limited strategy.

Parents believe that this approach has a high probability of ultimate success because it emphasizes the instrumental goal of bringing students to grade level or above by the completion of sixth grade; it elicits a renewed commitment on the part of administrators, teachers, parents, and students; it stresses acceleration of learning, critical thinking, and high expectations; it relies on a professional model of school governance which is attractive to educators; it benefits from instructional strategies that have shown good results for the disadvantaged within existing models of compensatory education; and it draws upon all of the resources available to the community, including parents, college students, and senior citizens.

Present Status of Accelerated Schools

Since 1987, the Accelerated Schools Program at Stanford University has been collaborating with two elementary schools that have very high concentrations of disadvantaged students. These two schools are in San Francisco and Redwood City, California. Through these pilot programs, ASP staff have begun to translate and implement the principles of accelerated schooling while simultaneously learning how to collaborate most effectively with practitioners. It is important to remember that a conventional school cannot be transformed overnight; ASP staff estimate that this process takes about six years. This means that neither pilot school has implemented the full program at this time. Each school has set initial priorities and is working to implement these while undertaking additional priorities as the initial ones are addressed.

In the first year and a half of operation, the pilot schools have experienced notable gains in parental involvement, student behavior, and staff decision-making and responsibility. The evaluation model for the schools has been designed to look sequentially at: (a) changes in the decision process and staff interactions, as well as outcomes of the decision process; (b) implementation of decisions; and (c) results of implementation for students, parents, and staff. Evaluations of initial gains in achievement will be available in the Autumn of 1989.

Since the Fall of 1988, the Commissioner of Education for the State of Missouri has been sponsoring a statewide system of pilot accelerated schools in six districts including St. Louis and Kansas City. The Illinois State Board of Education has initiated a statewide network of 24 pilot accelerated schools to begin functioning in the Fall of 1989, and Salt Lake City has made commitments to three accelerated schools this year. In these cases, ASP staff have been providing training and technical assistance, although responsibility for the schools has been undertaken by the local educational agencies with state support in Missouri and Illinois.

The potential for accelerated schools to address the needs of at-risk students is a matter that should be considered by state and local educational policymakers. The transformation of existing schools to accelerated ones, however, is not a trivial change. Such metamorphosis requires careful planning, analysis of requirements for support and technical assistance, and a willingness to shift many of the major educational decisions to staff and parents at school sites. And like any other changes, this transformation will have its costs. Costs can be divided into two types, the costs of implementing the accelerated school process and the costs of improvements in instruction. Implementation of the accelerated school process requires resources for release-time for teachers and consultant and materials expenses for training and facilitation. The transformation necessitates creative scheduling of meetings and the use of all staff development times and faculty meetings for accelerated school activities. In addition, approximately $5,000-10,000 a year is needed for substitutes to provide adequate time for teachers to participate in the accelerated school process. About another $5,000 a year is required for training personnel, materials, and other costs of retreats. Thus, for about $30 per student a school with 500 students can initiate the accelerated school process. Of course, any changes that emerge from the process may have additional resource requirements, particularly those that would require additional staff.

Accelerated Schools in Action

Illinois Network of Accelerated Schools
c/o Dr. Lyndon Wharton
Illinois State Board of Education
100 North First St.
Springfield, IL 62777–0001
This network includes 24 schools that will initiate their programs in the 1989–90 school year. Copies of their newsletter can be obtained by writing:
INAS Newsletter
Illinois State Board of Education
PD & D (E-233)
100 North First St.
Springfield, IL 62777–0001

Missouri Accelerated Schools
c/o Ms. Joan Solomon
Missouri Department of Elementary
and Secondary Education
P.O. Box 480
Jefferson City, MO 65102
This group includes 6 pilot schools that began operation in the 1988–89 school year.

Salt Lake City Accelerated Schools
c/o Dr. Mary Jean Johnson
Assistant Superintendent of Instruction
Salt Lake City School District
440 East 100 South
Salt Lake City, UT 84111
This group includes 3 elementary and 1 middle school that began operation during the 1988–89 school year.

Stanford Accelerated Schools Program
c/o Henry M. Levin
CERAS 402
Stanford University
Stanford, CA 94305
These 2 schools include the Daniel Webster School in San Francisco and the Hoover School in Redwood City, California. They have been in operation since the 1987–88 school year and are the basis for experimentation and testing of the accelerated school model.

Conclusion

The Stanford Accelerated Schools Program is not the only approach to acceleration. Comer (1980) and Madden, Slavin, Karweit, and Livermon (1989) have achieved extraordinary results using principles that are similar to the ASP, and the Reading Recovery Program developed by Marie Clay has demonstrated the potential to accelerate initial reading performance of at-risk students (Boehnlein, 1987; Clay, 1979).

But one must be cautious of the "quick fixes" and the mechanical packaged approaches to curriculum and instruction that have characterized educational reform for the disadvantaged. These have not shown long-term results that are educationally meaningful. If we are to stem the emerging tide of educational, economic, political, and social problems attached to rising numbers of at-risk students, we must change the structure of schools rather than just focus on providing new "teacher-proof" curriculum or staff development packages. At Stanford the ASP staff believes that a major theme underlying those changes is the motto: "Don't Remediate: ACCELERATE."

References

Berlin, G., & Sum, A. (1988). *Toward a more perfect union: Basic skills, poor families and our economic future* (Occasional Paper 3. Ford Foundation Project on Social Welfare and the American Future). New York: Ford Foundation.

Boehnlein, M. (1987). Reading intervention for high-risk first graders. *Educational Leadership, 44*(6), 32-37.

Clay, M. M. (1979). *Reading: The patterning of complex behavior.* Exeter, NH: Heinemann.

Comer, J. P. (1980). *School power.* New York: The Free Press.

Edmonds, R. (1979). Effective schools for the urban poor. *Educational Leadership, 37*(1), 15-24.

APPENDIX F

Epstein, J. (1987). Parent involvement: What the research says to administrators. *Education and Urban Society, 19*(2), 119-136.

Levin, H. M. (1986). *Educational reform for disadvantaged students: An emerging crisis.* Wes. Haven, CT: NEA Professional Library.

Levin, H. M. (1987). Accelerated schools for disadvantaged students. *Educational Leadership, 44*(6), 19-21.

Levin, H. M. (1988). Accelerating elementary education for disadvantaged students. In Council of Chief State School Officers (Ed.), *School success for students at risk* (pp. 209-225). Orlando, FL: Harcourt Brace Jovanovich.

Levin, H. M. (in press). Financing the education of at-risk students. *Educational Evaluation and Policy Analysis.*

Madden, N. A., Slavin, R. E., Karweit, N. L., & Livermon, B. J. (1989). Success for all: Restructuring the urban elementary school. *Educational Leadership, 46*(5), 14-20.

McDill, E. L., Natriello, G., & Pallas, A. M. (1985). Raising standards and retaining students: The impact of the reform recommendations on potential dropouts. *Review of Educational Research, 55,* 415-434.

Pallas, A. M., Natriello, G., & McDill, E. L. (1988, April). *Who falls behind: Defining the "at-risk" population—current dimensions and future trends.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans.

Slavin, R. E. (1983). *Cooperative learning.* New York: Longman.

Slavin, R. E. (1987). Making Chapter I make a difference. *Phi Delta Kappan, 69*(2), 110-119.

Slavin, R. E., & Madden, N. A. (1989). What works for students at risk: A research synthesis. *Educational Leadership, 46*(5), 4-13.