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ABSTRACT

The School District of the City of Saginaw (Michigan) operates a compensatory education delivery system in reading and mathematics consisting of two programs, Elementary and Secondary Academic Achievement (A2). The program was designed to provide direct instruction to 2,613 students in grades 1 through 12. The goal of A2 was to improve the pupils' reading and/or mathematics achievement. Instruction occurred primarily in small group settings outside the regular classroom at the elementary level, and in a regular classroom setting with a reduced number of students at the secondary level. The 1988-89 compensatory education delivery system showed an increase over the previous year in terms of the percentage of grade levels meeting the standard in both reading and mathematics. Overall, A2 results present a picture of a much improved program, especially at the elementary level; and the results look better than average when compared statewide. The results of the pre- to post-testing of compensatory education students indicate the overall greatest gains in reading were made at the first grade level, but that all grades attained the performance standard except grade 7. Mathematics gains were also greatest at grade 1, but all grades met the standard except grade 7. The findings of a process evaluation report were combined with the data included in this report to develop 11 recommendations for improving program implementation for 1989-90. Extensive statistical data are included in five tables and two appendices. (PJ)

EVALUATION REPORT

COMPENSATORY EDUCATION PRODUCT EVALUATION:

ELEMENTARY AND SECONDARY ACADEMIC ACHIEVEMENT (A^2)

1988-1989

DEPARTMENT OF EVALUATION SERVICES

- PROVIDING ASSESSMENT, PROGRAM EVALUATION AND RESEARCH SERVICES -

Saginaw Public Schools

Saginaw, Michigan

COMPENSATORY EDUCATION PRODUCT EVALUATION:

ELEMENTARY AND SECONDARY ACADEMIC ACHIEVEMENT (A^2)

1988-1989

An Approved Report of the

DIVISION OF ADMINISTRATION AND PERSONNEL

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July, 1989

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PROGRAM DESCRIPTION

The School District of the City of Saginaw operates a compensatory education delivery system in reading and mathematics consisting of two programs--elementary and secondary Academic Achievement (A^2). . The elementary A^2 is both a push-in program (that operates in the regular classroom in grade one) and a pull-out program (periodically taking students out of regular classrooms) that serves 2,099 students in grades one through six. The secondary A^2 is a self-contained classroom program which involved approximately 503 students in grades seven through nine and twelve. The A^2 programs are funded by both the Federal Education Consolidation and Improvement Act (ECIA) Chapter 1 and Article 3 of the State School Aid Act.

Summarized in the chart below are demographic characteristics that describe both the elementary and secondary levels of A^2 in greater detail.

DEMOGRAPHIC CHARACTERISTICS OF THE ACADEMIC ACHIEVEMENT PROGRAMS

Program	Grade Levels Served*	Approximate Number of Stds Served**	Number of Full-Time Equivalent Teachers	Number of Full-Time Equivalent Aides	Number of School Sites	Program Setting	Instructional Services
Academic Achievement, Elementary	1-6	2,055	32.0	4.0	23	Push-in (grade 1 in math and Pull-out (grades 1-6)	- Reading - Mathematics
Academic Achievement, Secondary	7-9 & 12	496	11.0	0.0	6	Self-Contained Classroom	- Reading - Mathematics

*Compensatory education services for first and twelfth graders started second semester in mathematics only and reading only respectively.

**Student counts as of February 28, 1989, tracking. Detailed counts by funding source, subject, building and grade can be found in Appendix A as of the February 28, 1989, tracking.

As can be seen from the chart above, the primary purpose of the programs is to improve the reading and mathematics achievement of a designated number of educationally disadvantaged children. The children in the program are screened for entry with the California Achievement Tests--Form E (CAT). Students were determined eligible for the A^2 programs if they scored at or below the 25 percentile on the reading and/or mathematics totals of the CAT*. This year approximately 2,602 pupils are participating in the compensatory education programs.

The broad goals of these programs are to: 1) provide intensive academic instruction to the educationally disadvantaged, 2) involve parents in the program, 3) supply students with incentives for academic achievement, 4) operate staff inservice programs, 5) measure academic growth, and 6) prepare students to effectively meet the academic competition of the general classroom. These goals are the focus of the Compensatory Education Department's activities throughout the 1988-89 school year.

*The use of the 25 percentile or below as an eligibility criteria represents a major change from past practice when students scoring at or below the 40 percentile were accepted as compensatory education participants.

PROCEDURES FOR EVALUATION

Both process and product evaluations were undertaken for the compensatory education delivery system. This year's process evaluation was accomplished by means of a questionnaire, observation, and interview concerning various elements of the programs of interest to the director of the programs. All compensatory education teachers were surveyed by questionnaire and each principal or assistant principal at the compensatory education buildings wwas interviewed. In addition, each elementary compensatory education teacher was observed during an entire compensatory education session. The questionnaires were distributed to the secondary respondents through inter-office mail on January 27, 1989, and to the elementary respondents at an inservice session on January 30, 1989. The completed questionnaires were to be returned via inter-office mail by February 10, 1989. The interviews and observations started February 1, 1989 and were completed by February 24, 1989. The results of these process activities 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--Form E (CAT) normed Spring, 1985 for grades 1-9 and 12 served as the evaluation instruments. These tests were administered on a pre-test basis in the Spring, 1988 and on a post-test basis in Spring, 1989 for grades 2-9 and 12. Grade 1 participants were pre-tested in the Fall, 1988 and post-tested in Spring, 1989.

Mean pre- to post-test score comparisons were used to evaluate the effectiveness of the delivery system. The agreed upon standard as an improvement

of post-test over pre-test percentile scores. The reading and then the mathematics results for the entire compensatory education's delivery system will be presented.

PRESENTATION AND ANALYSIS OF DATA: PRODUCT

The primary goal of compensatory education was to increase reading and mathematics achievement. The data presented in this section will indicate the extent to which this goal was achieved. Reading and then mathematics data by grade are presented below. Following this is a comparison of the 1988-89 year's results to last year's state-wide reading and mathematics results for Chapter 1.

The achievement results by school for the entire program and each funding source separately are presented in Appendix B.

Product Data: Reading

The pre- and post-test results for reading are presented in Table 1.

TABLE 1. ATTAINMENT OF THE PERFORMANCE STANDARD IN READING IN PERCENTILE SCORES FOR COMPENSATORY EDUCATION PARTICIPANTS, GRADES 1-9 AND 12, 1988-89.

Comparisons by Grade	# of Stds Pre- to Post-Tested	Percentile			Performance Standard* Attained
		Pre Mean	Post Mean	Mean Gain	
1	367	8	18	10	Yes
2	306	13	19	6	Yes
3	259	14	22	8	Yes
4	185	14	20	6	Yes
5	192	16	19	3	Yes
6	162	18	20	2	Yes
7	80	12	10	- 2	No
8	116	8	12	4	Yes
9	133	8	15	7	Yes
12	11	13	21	8	Yes

*Post-test percentile scores will evidence improvement over pre-test percentile scores.

A study of the reading results show that students met the performance standard at all grades except 7. At the seventh grade level, the scores indicated an average loss of -2 percentile points respectively between pre- and post-testings. At grade one, the largest gain (10 percentile points) was recorded. At the sixth grade level the smallest positive percentile gain (2 points) can be seen. See Appendix B for the test results by building and funding source.

Product Data: Mathematics

Table 2 below presents the attainment of the performance standard for fall to spring data in grade 1 and spring to spring data in grades 2-9 in mathematics.

TABLE 2. ATTAINMENT OF THE PERFORMANCE STANDARD IN MATHEMATICS IN PERCENTILE SCORES FOR COMPENSATORY EDUCATION PARTICIPANTS, GRADES 1-9, 1988-89.

Comparisons by Grade	# of Stds Pre- to Post-Tested	Percentile			Performance Standard* Attained
		Pre Mean	Post Mean	Mean Gain	
1	359	9	37	28	Yes
2	162	13	27	14	Yes
3	176	13	30	17	Yes
4	154	15	25	10	Yes
5	117	14	25	11	Yes
6	65	10	29	19	Yes
7	27	18	17	- 1	No
8	82	12	14	2	Yes
9	41	5	18	13	Yes

*Post-test percentile scores will evidence improvement over pre-test percentile scores.

A review of mathematics results reveals that students met the performance standard in all grades again except 7. At the seventh grade level, the

scores indicated an average loss of -1 percentile point between pre- and post-testings. The gain score at the first grade level, indicated the largest improvement (28 percentile points) between pre- and post-testings. At the eighth grade, the smallest positive percentile gain (2 points) was observed. See Appendix B for the test results by building and funding source.

State-Wide Product Data: Reading

The average gain in normal curve equivalents (NCE's) in reading for all Chapter 1 students state-wide for 1987-88 are presented in Table 3 below. This table also shows NCE gains for Saginaw's Chapter 1 students in reading for 1988-89. A NCE is very similar to a percentile rank with the additional advantage of being based on an equal interval scale. Federal and State educational officials are increasing requiring outcome standards for compensatory education students be expressed in NCE units and expressing state-wide results in these units.

TABLE 3. COMPARISON OF AVERAGE NORMAL CURVE EQUIVALENT (NCE) GAINS IN READING FOR 1987-88 STATE-WIDE CHAPTER 1 STUDENTS TO 1988-89 SAGINAW CHAPTER 1 STUDENTS BASED ON SPRING TO SPRING TESTING.

Grade	State-Wide Results, 1987-88			Saginaw Results, 1988-89			Saginaw Exceeds State-Wide Gain?
	Pupils Tested	Normal Curve Equivalents		Pupils Tested	Normal Curve Equivalents		
		Post-Test Average	Average Gain		Post-Test Average	Average Gain	
2	9,556	37.6	4.0	298	31.5	5.9	Yes
3	8,436	37.0	3.5	252	33.8	7.1	Yes
4	6,641	37.4	3.2	185	32.1	4.4	Yes
5	5,564	36.3	2.4	185	31.2	1.8	No
6	3,675	35.2	3.0	162	31.7	2.0	No
7	2,028	33.3	2.0	71	21.6	-2.9	No
8	1,634	31.7	1.3	99	23.6	4.0	Yes
9	406	30.2	0.0	80	27.3	9.2	Yes
12	28	17.4	2.8	11	33.0	7.0	Yes
Total	37,968	36.7	3.2	1,343	30.7	4.5	Yes

A review of these reading results shows that Saginaw's A^2 Chapter 1 program in 6 of the 9 (66.7%) grade level comparisons exceeded state-wide results. Saginaw failed to exceed state-wide results in grades 5, 6, and 7. Over the nine grade levels combined, Saginaw exceeded state-wide results by 1.3 NCE units. Thus on average in reading Saginaw seems to be doing better than state-wide Chapter 1 programs for the most recently reported school year (1987-88).

State-Wide Product Data: Mathematics

The state-wide and Saginaw Chapter 1 mathematics gains in NCE units are presented in Table 4 below.

TABLE 4. COMPARISON OF AVERAGE NORMAL CURVE EQUIVALENT (NCE) GAINS IN MATHEMATICS FOR 1987-88 STATE-WIDE CHAPTER 1 STUDENTS TO 1988-89 SAGINAW CHAPTER 1 STUDENTS BASED ON SPRING TO SPRING TESTING.

Grade	State-Wide Results, 1987-88			Saginaw Results, 1988-89			Saginaw Exceeds State-Wide Gain?
	Pupils Tested	Normal Curve Equivalents Post-Test Average	Normal Curve Equivalents Average Gain	Pupils Tested	Normal Curve Equivalents Post-Test Average	Normal Curve Equivalents Average Gain	
2	3,493	41.3	5.1	160	37.1	9.6	Yes
3	3,591	38.1	2.1	173	38.8	10.9	Yes
4	3,496	37.0	3.3	159	36.6	8.3	Yes
5	3,563	37.3	3.6	110	35.5	8.0	Yes
6	2,516	37.5	4.9	68	37.7	10.3	Yes
7	1,101	37.6	1.8	27	28.9	- 1.6	No
8	927	32.7	1.6	83	25.0	1.4	No
9	126	29.5	-1.9	41	29.7	13.5	Yes
Total	18,813	37.9	3.5	821	35.3	8.5	Yes

A study of the mathematics results shows that Saginaw's A^2 Chapter 1 program surpassed the state-wide Chapter 1 program in 6 of 8 (75.0%) grade level comparisons. Saginaw failed to exceed state-wide results in mathematics in grades 7 and 8. Over the eight grade levels combined, Saginaw surpassed state-wide results by 5.0 NCE units. Thus on average in mathematics Saginaw seems to be performing much better than state-wide Chapter 1 programs for the most recently reported school year (1987-88).

SUMMARY AND CONCLUSIONS

The Chapter 1 and Article 3 Academic Achievement (A^2) programs were designed to provide direct instructional services in reading and mathematics to some 2,602 students in grades one through twelve. The main intent of the A^2 programs were to improve the pupil's reading and/or mathematics achievement. Instruction occurred primarily in small group settings outside of the regular classroom (pull-out) or push in (that operated in the regular classroom in grade one mathematics) for A^2 at the elementary level, and in a regular classroom setting with a reduced number of students for A^2 at the secondary level. As noted earlier, this year the program changed significantly by focusing in on lower scoring students (25th percentile or below rather than 40th percentile or below plus beginning to implement a push-in mathematics at grade one).

The results of the pre- to post-testing of compensatory education students indicate the overall the greatest gains in reading were made at the first grade level, but that all grades attained the performance standard except grade 7. Mathematics gains were again the greatest at grade one, but that all grades met the standard except again at grade 7.

The 1988-89 compensatory education delivery system showed an increase from the previous year in terms of the percentage of grade levels meeting the standard in both reading and mathematics (66.7% vs. 90.0% in reading and 66.7% vs. 88.9% in mathematics for 1987-88 and 1988-89 respectively). Overall, A^2 results present a picture of a much improved program (especially at the elementary level) given even a hard student population.

The results of the A^2 program when compared to state-wide results in reading and mathematics look better than average results state-wide. Even with a lower achieving population of compensatory education pupils it appears

that the A^2 program has surpassed its own achievement results plus those of the Chapter 1 program state-wide. All this appears to have come about in a year of transition that focused in more on the lower scoring reading and mathematics students.

As mentioned earlier, a process evaluation report was completed this year and is available from the Department of Evaluation, Testing and Research. The findings from that report as well as those cited above were used in helping develop the recommendations that follow.

RECOMMENDATIONS

Based on this year's process and product evaluations the following recommendations are offered in an effort to improve the implementation of the A^2 program for 1989-90.

- Plan out the school year's curriculum during the summer preceding the school year. Have in place and ready-to-go all of the activities that will occur during the year and be sure that all of the necessary information has been fully communicated to all parties concerned.

- Select, identify, and/or develop a selection instrument for students without standardized test results. A pilot testing of the new selection instrument should be undertaken to determine its technical adequacy.

- Develop a more systematic plan for communication and coordination of instructional matters on a regular basis. This plan should include methods to document communication between teachers, between principals and director, and between principals and teachers. This would also include methods of coordination of activities and objectives.

- Examine the amount of time teachers spend on instruction, preparation, and paperwork to determine if time is being spent effectively and consistently. Within this examination, consider possible ways to streamline the paperwork and/or centralize the development of instructional materials.

- Develop a system to allow input from the principals. This may include monthly conferences between principals and the program director and/or principal in-service sessions with the director.

- Initiate ways to further involve the parents. This may include such activities as teacher helpers, pamphlets, newsletters, and/or calendars.

- Incorporate secondary personnel more fully into the program. For example, provide consistent materials across all sites, conducting at least three or four in-service sessions for them, and/or have compensatory education personnel explain the purpose of their program and how it relates to regular education programs at the secondary level.

- Promote the communication of new teaching strategies by the compensatory education teachers back to the regular teachers through sharing during building staff meetings.

- Reduce variations in the program between building sites by having the director and compensatory education staff analyze the building results presented in Appendix B. Hopefully, a plan can be formulated to reduce (or control) these variations in program impact.

- In future years, consider initiating push-in sections at other grade levels, being sure to provide a consistent curriculum and inservice experience on team teaching to both compensatory and regular education teachers.

- Allow for the thoughtful inclusion of Instructional Theory Into Practice (ITIP) with Math Their Way and other inservice programs. The advice and recommendations of ITIP staff should be sought to implement this program as well as other inservice programs that impact directly on instructional practices.

APPENDICES

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Chapter 1, Total

Building	K	1	2	3	4	5	6	Total
E. Baillie	0	52	12	21	19	14	13	131
Coulter	0	32	10	5	10	7	8	72
Emerson	0	40	31	28	18	18	18	153
Fuerbringer	0	30	15	11	10	7	3	76
N. Haley	0	20	22	12	11	10	13	88
Handley	0	0	0	0	0	0	0	0
Heavenrich	0	36	21	22	22	18	15	134
Herig	0	18	4	5	2	6	9	44
Houghton	0	16	12	8	11	8	5	60
Jerome	0	13	24	7	9	6	10	69
Jones	0	29	22	20	14	15	16	116
Kempton	0	0	0	0	0	0	0	0
Longfellow	0	24	41	20	20	4	15	124
Longstreet	0	23	21	16	7	12	6	85
J. Loomis	0	22	25	35	30	19	6	137
M. Park	0	28	16	20	5	7	5	81
C. Miller	0	11	10	6	3	3	7	40
J. Moore	0	22	9	17	11	13	12	84
Morley	0	17	17	15	9	8	5	71
J. Rouse	0	29	13	15	8	19	7	91
Salina	0	19	11	19	13	4	7	73
Stone	0	21	8	17	9	12	9	76
Webber Elem.	0	49	31	27	24	30	19	180
Zilwaukee	0	5	6	4	5	1	2	23
TOTAL	0	556	381	350	270	241	210	2,008

*Count as of February 28, 1989 tracking.

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Chapter 1, Total

Building	7	8	9	Total
Central Junior	29	59	33	121
Arthur Eddy	27	44	27	98
North Intermediate	0	0	0	0
South Intermediate	0	0	0	0
Webber Junior	36	61	60	157
TOTAL	92	164	120	376

*Count as of February 28, 1989 tracking.

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Chapter 1, Total

Building	10	11	12	Total
Arthur Hill	0	0	0	0
Saginaw High	0	0	20	20
TOTAL	0	0	20	20

*Count as of February 28, 1989 tracking.

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Chapter 1, Reading

Building	K	1	2	3	4	5	6	Total
E. Baillie	0	32	11	18	12	14	13	100
Coulter	0	30	9	4	9	6	8	66
Emerson	0	31	27	23	13	13	16	123
Fuerbringer	0	21	13	9	7	5	2	57
N. Haley	0	6	18	10	8	8	12	62
Handley	0	0	0	0	0	0	0	0
Heavenrich	0	27	18	16	17	12	10	100
Herig	0	12	3	3	2	5	9	34
Houghton	0	14	12	7	7	7	4	51
Jerome	0	10	23	2	7	5	7	54
Jones	0	22	18	20	13	13	14	100
Kempton	0	0	0	0	0	0	0	0
Longfellow	0	20	34	12	12	4	15	97
Longstreet	0	12	17	14	7	11	6	67
J. Loomis	0	14	17	30	16	18	4	99
M. Park	0	23	13	14	5	7	5	67
C. Miller	0	3	7	4	2	3	5	24
J. Moore	0	18	9	15	8	10	8	68
Morley	0	8	13	14	7	7	5	54
J. Rouse	0	19	12	8	6	13	6	64
Salina	0	16	9	16	13	3	7	64
Stone	0	13	8	14	8	9	8	60
Webber Elem.	0	36	29	20	19	24	17	145
Zilwaukee	0	5	5	3	3	1	2	19
TOTAL	0	392	325	276	201	198	183	1,575

*Count as of February 28, 1989 tracking.

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Chapter 1, Reading

Building	7	8	9	Total
Central Junior	25	45	25	95
Arthur Eddy	27	41	24	92
North Intermediate	0	0	0	0
South Intermediate	0	0	0	0
Webber Junior	29	33	54	116
TOTAL	81	119	103	303

*Count as of February 28, 1989 tracking.

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Chapter 1, Reading

Building	10	11	12	Total
Arthur Hill	0	0	0	0
Saginaw High	0	0	20	20
TOTAL	0	0	20	20

*Count as of February 28, 1989 tracking.

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Chapter 1, Mathematics

Building	K	1	2	3	4	5	6	Total
E. Baillie	0	44	4	6	15	1	3	73
Coulter	0	27	3	2	3	2	0	37
Emerson	0	31	25	22	13	12	9	112
Fuerbringer	0	22	6	7	5	6	1	47
N. Haley	0	18	9	4	6	6	4	47
Handley	0	0	0	0	0	0	0	0
Heavenrich	0	28	7	13	18	12	10	88
Herig	0	10	3	3	1	1	1	19
Houghton	0	11	1	3	5	3	2	25
Jerome	0	4	11	7	6	1	6	35
Jones	0	18	12	11	3	5	8	57
Kempton	0	0	0	0	0	0	0	0
Longfellow	0	16	16	14	15	2	2	65
Longstreet	0	19	16	9	3	4	0	51
J. Loomis	0	16	18	14	22	7	2	79
M. Park	0	10	3	10	2	0	2	27
C. Miller	0	10	5	3	1	1	4	24
J. Moore	0	10	3	8	7	8	7	43
Morley	0	13	11	10	6	2	0	42
J. Rouse	0	26	3	11	7	11	5	63
Salina	0	13	10	8	7	1	1	40
Stone	0	14	3	11	6	10	2	46
Webber Elem.	0	32	7	14	11	21	6	91
Zilwaukee	0	1	2	2	3	1	1	10
TOTAL	0	393	178	192	165	117	76	1,121

*Count as of February 28, 1989 tracking.

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Chapter 1, Mathematics

Building	7	8	9	Total
Central Junior	15	40	18	73
Arthur Eddy	0	16	11	27
North Intermediate	0	0	0	0
South Intermediate	0	0	0	0
Webber Junior	19	43	28	90
TOTAL	34	99	57	190

*Count as of February 28, 1989 tracking.

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Chapter 1, Mathematics

Building	10	11	12	Total
Arthur Hill	0	0	0	0
Saginaw High	0	0	0	0
TOTAL	0	0	0	0

*Count as of February 28, 1989 tracking.

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Article 3, Total

Building	K	1	2	3	4	5	6	Total
E. Baillie	0	52	12	21	19	14	13	131
Coulter	0	32	10	5	10	7	8	72
Emerson	0	40	31	28	18	18	18	153
Fuerbringer	0	30	15	11	10	7	3	76
N. Haley	0	20	22	12	11	10	13	88
Handley	0	0	0	0	0	0	0	0
Heavenrich	0	36	21	22	22	18	15	134
Herig	0	18	4	5	2	6	9	44
Houghton	0	16	12	8	11	8	5	60
Jerome	0	13	24	7	9	6	10	69
Jones	0	29	22	20	14	15	16	116
Kempton	0	17	9	11	2	8	0	47
Longfellow	0	24	41	20	20	4	15	124
Longstreet	0	23	21	16	7	12	6	85
J. Loomis	0	22	25	35	30	19	6	137
M. Park	0	28	16	20	5	7	5	81
C. Miller	0	11	10	6	3	3	7	40
J. Moore	0	22	9	17	11	13	12	84
Morley	0	17	17	15	9	8	5	71
J. Rouse	0	29	13	15	8	19	7	91
Salina	0	19	11	19	13	4	7	73
Stone	0	21	8	17	9	12	9	76
Webber Elem.	0	49	31	27	24	30	19	180
Zilwaukee	0	5	6	4	5	1	2	23
TOTAL	0	573	390	361	272	249	210	2,055

*Count as of February 28, 1989 tracking.

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Article 3, Total

Building	7	8	9	Total
Central Junior	29	59	33	121
Arthur Eddy	27	44	27	98
North Intermediate	9	9	17	35
South Intermediate	15	12	38	65
Webber Junior	36	61	60	157
TOTAL	116	185	175	476

*Count as of February 28, 1989 tracking.

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Article 3, Total

Building	10	11	12	Total
Arthur Hill	0	0	0	0
Saginaw High	0	0	0	0
TOTAL	0	0	0	0

*Count as of February 28, 1989 tracking.

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Article 3, Reading

Building	K	1	2	3	4	5	6	Total
E. Baillie	0	32	11	18	12	14	13	100
Coulter	0	30	9	4	9	6	8	66
Emerson	0	31	27	23	13	13	16	123
Fuerbringer	0	21	13	9	7	5	2	57
N. Haley	0	6	18	10	8	8	12	62
Handley	0	0	0	0	0	0	0	0
Heavenrich	0	27	18	16	17	12	10	100
Herig	0	12	3	3	2	5	9	34
Houghton	0	14	12	7	7	7	4	51
Jerome	0	10	23	2	7	5	7	54
Jones	0	22	18	20	13	13	14	100
Kempton	0	16	8	7	1	7	0	39
Longfellow	0	20	34	12	12	4	15	97
Longstreet	0	12	17	14	7	11	6	67
J. Loomis	0	14	17	30	16	18	4	99
M. Park	0	23	13	14	5	7	5	67
C. Miller	0	3	7	4	2	3	5	24
J. Moore	0	18	9	15	8	10	8	68
Morley	0	8	13	14	7	7	5	54
J. Rouse	0	19	12	8	6	13	6	64
Salina	0	16	9	16	13	3	7	64
Stone	0	13	8	14	8	9	8	60
Webber Elem.	0	36	29	20	19	24	17	145
Zilwaukee	0	5	5	3	3	1	2	19
TOTAL	0	408	333	283	202	205	183	1,614

*Count as of February 28, 1989 tracking.

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Article 3, Reading

Building	7	8	9	Total
Central Junior	25	45	25	95
Arthur Eddy	27	41	24	92
North Intermediate	8	9	17	34
South Intermediate	15	12	38	65
Webber Junior	29	33	54	116
TOTAL	104	140	158	402

*Count as of February 28, 1989 tracking.

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Article 3, Reading

Building	10	11	12	Total
Arthur Hill	0	0	0	0
Saginaw High	0	0	0	0
TOTAL	0	0	0	0

*Count as of February 28, 1989 tracking.

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Article 3, Mathematics

Building	K	1	2	3	4	5	6	Total
E. Baillie	0	44	4	6	15	1	3	73
Coulter	0	27	3	2	3	2	0	37
Emerson	0	31	25	22	13	12	9	112
Fuerbringer	0	22	6	7	5	6	1	47
N. Haley	0	18	9	4	6	6	4	47
Handley	0	0	0	0	0	0	0	0
Heavenrich	0	28	7	13	18	12	10	88
Herig	0	10	3	3	1	1	1	19
Houghton	0	11	1	3	5	3	2	25
Jerome	0	4	11	7	6	1	6	35
Jones	0	18	12	11	3	5	8	57
Kempton	0	8	3	8	1	7	0	27
Longfellow	0	16	16	14	15	2	2	65
Longstreet	0	19	16	9	3	4	0	51
J. Loomis	0	16	18	14	22	7	2	79
M. Park	0	10	3	10	2	0	2	27
C. Miller	0	10	5	3	1	1	4	24
J. Moore	0	10	3	8	7	8	7	43
Morley	0	13	11	10	6	2	0	42
J. Rouse	0	26	3	11	7	11	5	63
Salina	0	13	10	8	7	1	1	40
Stone	0	14	3	11	6	10	2	46
Webber Elem.	0	32	7	14	11	21	6	91
Zilwaukee	0	1	2	2	3	1	1	10
TOTAL	0	401	181	200	166	124	76	1,148

*Count as of February 28, 1989 tracking.

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Article 3, Mathematics

Building	7	8	9	Total
Central Junior	15	40	18	73
Arthur Eddy	0	16	11	27
North Intermediate	0	0	0	0
South Intermediate	0	0	0	0
Webber Junior	19	43	28	90
TOTAL	34	99	57	190

*Count as of February 28, 1989 tracking.

APPENDIX A

COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Article 3, Mathematics

Building	10	11	12	Total
Arthur Hill	0	0	0	0
Saginaw High	0	0	0	0
TOTAL	0	0	0	0

*Count as of February 28, 1989 tracking.

TABLE B.1. MEAN PERCENTILE GAIN BY BUILDING AND GRADE FOR ALL 1-6 CHAPTER 1/ARTICLE 3 PUPILS IN READING BASED ON APRIL-MAY, 1988 PRE-TESTING AND APRIL-MAY, 1989 POST-TESTING ON CAT (SPRING TO SPRING).*

Building	GRADE 1 Percentile			GRADE 2 Percentile			GRADE 3 Percentile			GRADE 4 Percentile			GRADE 5 Percentile			GRADE 6 Percentile		
	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	31	8	18	10	11	14	17	3	16	12	25	13	10	11	14	3	12	17	15	- 2	9	13	17	4
Coulter	29	1	32	31	6	14	21	7	4	18	24	6	9	15	13	- 2	5	20	20	0	8	16	17	1
Emerson	30	8	8	0	21	10	23	13	22	11	25	14	12	14	16	2	11	15	17	2	14	17	18	1
Fuerbringer	19	15	37	22	13	15	30	15	9	15	27	12	6	18	23	5	5	23	30	7	1	15	13	- 2
Nelle Haley	6	22	18	- 4	17	13	17	4	10	20	27	7	8	18	25	7	8	17	24	7	11	14	20	6
Handley	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--
Heavenrich	20	15	30	15	15	18	14	- 4	12	14	18	4	14	15	20	5	12	14	22	8	9	13	12	- 1
Herig	11	16	37	21	2	21	33	12	2	24	28	4	2	16	32	-16	5	21	21	0	9	20	24	4
Houghton	12	9	25	16	11	12	20	8	7	14	16	2	7	16	20	4	7	15	13	- 2	4	22	28	6
Jerome	10	14	10	- 4	23	8	28	20	2	15	27	12	7	10	21	11	4	22	25	3	7	20	22	2
Jones	17	9	5	- 4	17	8	12	4	19	8	18	10	12	11	12	1	12	17	21	4	12	16	18	2
Kempton	15	10	27	17	8	14	24	10	7	14	39	25	0	--	--	--	7	17	28	11	0	--	--	--
Longfellow	18	9	7	- 2	33	10	14	4	10	18	20	2	11	17	20	3	4	14	15	1	13	21	21	0
Longstreet	11	6	28	22	16	17	28	11	11	17	28	11	7	16	27	11	10	11	13	2	5	24	37	13
J. Loomis	14	8	5	- 3	14	10	12	2	28	12	14	2	14	12	15	3	18	16	18	2	2	21	22	1
Merrill Park	22	10	12	2	13	13	16	3	13	15	21	6	5	18	28	10	6	20	22	2	4	14	22	8
C. Miller	3	5	63	58	6	15	28	13	4	20	52	32	2	21	6	-15	3	20	20	0	5	21	24	3
J. Moore	17	9	29	20	9	10	14	4	12	14	30	16	7	10	25	15	7	14	25	11	6	12	21	9
Morley	8	10	66	56	12	15	20	5	13	13	15	2	7	15	27	12	7	15	17	2	5	15	13	- 2
J. Rouse	17	8	21	13	11	17	16	- 1	7	18	30	12	4	18	22	4	13	20	18	- 2	5	17	14	- 3
Salina	15	6	21	15	9	18	16	- 2	15	13	28	15	12	13	28	15	3	24	16	- 8	7	18	20	2
Stone	11	10	32	22	8	17	20	3	14	13	18	5	7	15	20	5	8	15	21	6	8	17	21	4
Webber Ele.	27	8	11	3	26	12	21	9	19	15	24	9	19	18	20	2	24	16	16	0	15	16	17	1
Zilwaukee	4	17	56	39	5	13	40	27	3	15	21	6	3	18	50	32	1	21	21	0	2	18	17	- 1
TOTAL	367	8	18	10	306	13	19	6	259	14	22	8	185	14	20	6	192	16	19	3	162	18	20	2

*Grade 1 results are fall to spring rather than spring to spring results. The pre-test was administered October-November, 1988 to first grade pupils.

APPENDIX B

TABLE B.2. MEAN PERCENTILE GAIN BY BUILDING AND GRADE FOR ALL 1-6 CHAPTER 1/ARTICLE 3 PUPILS IN MATHEMATICS BASED ON APRIL-MAY, 1988 PRE-TESTING AND APRIL-MAY, 1989 POST-TESTING ON CAT (SPRING TO SPRING).*

Building	GRADE 1 Percentile				GRADE 2 Percentile				GRADE 3 Percentile				GRADE 4 Percentile				GRADE 5 Percentile				GRADE 6 Percentile			
	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	41	8	30	22	4	12	25	13	5	17	27	10	15	13	20	7	0	--	--	--	1	12	52	40
Coulter	26	4	54	50	1	22	18	- 4	2	13	21	8	3	5	14	9	2	14	6	- 8	0	--	--	--
Emerson	30	7	21	14	19	7	40	33	21	12	25	13	12	15	35	20	11	13	30	17	8	14	20	6
Fuerbringer	21	20	52	32	6	8	9	1	7	17	44	27	5	20	73	53	6	20	30	10	1	15	17	2
Nelle Haley	17	16	58	42	9	32	21	-11	4	17	20	3	6	21	25	4	6	17	35	18	4	14	17	3
Handley	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--
Heavenrich	20	6	48	42	5	18	12	- 6	10	13	18	5	14	13	18	5	11	15	21	6	9	8	28	20
Herig	10	16	65	49	2	56	59	3	2	20	32	12	1	16	32	16	1	25	20	- 5	1	24	52	32
Houghton	8	12	59	47	1	10	40	30	3	6	16	10	5	14	14	0	3	18	24	6	2	22	37	15
Jerome	4	22	56	34	11	7	33	26	7	35	37	2	6	14	35	21	1	11	27	16	6	20	32	12
Jones	17	5	17	12	10	13	18	5	11	14	25	11	3	17	18	1	5	12	24	12	6	20	20	0
Kempton	8	12	46	34	3	6	7	1	8	13	68	55	1	12	3	- 9	7	8	28	20	0	--	--	--
Longfellow	14	8	30	22	16	12	21	9	12	17	27	10	14	16	27	11	2	13	35	22	1	17	32	15
Longstreet	17	11	48	37	13	24	42	18	8	17	35	18	3	27	32	5	4	18	27	9	0	--	--	--
J. Loomis	15	7	8	1	17	12	22	10	11	8	12	4	18	14	27	13	7	11	20	9	2	17	6	-11
Merrill Park	9	12	63	51	3	20	63	43	8	17	48	31	2	28	48	20	0	--	--	--	1	12	46	34
C. Miller	10	22	50	28	5	14	32	18	3	18	65	47	1	17	52	35	1	22	37	15	4	18	48	30
J. Moore	9	10	35	25	3	16	22	6	6	10	54	44	7	16	28	12	6	20	54	34	6	15	40	25
Morley	12	8	46	38	10	16	10	- 6	9	15	18	3	6	14	21	7	2	16	22	6	0	--	--	--
J. Rouse	21	9	24	15	3	14	6	- 8	8	18	73	55	6	12	28	16	11	15	24	9	4	16	27	11
Salina	12	4	12	8	10	22	30	8	7	13	27	14	7	17	33	16	0	--	--	--	1	10	63	53
Stone	12	13	50	37	3	24	44	20	11	14	20	6	5	11	17	6	9	12	24	12	2	16	40	24
Webber Ele.	25	10	37	27	6	18	17	- 1	12	21	42	21	11	21	16	4	21	13	17	4	5	8	27	19
Zilwaukee	1	1	17	16	2	21	46	25	2	14	18	4	3	16	40	24	1	9	25	16	1	11	17	6
TOTAL	359	9	37	28	162	13	27	14	176	13	30	17	154	15	25	10	117	14	25	11	65	10	29	19

*Grade 1 results are fall to spring rather than spring to spring results. The pre-test was administered October-November, 1988 to first grade pupils.

TABLE B.3. MEAN PERCENTILE GAIN BY BUILDING FOR ALL 7-9 CHAPTER 1/ ARTICLE 3 PUPILS IN READING AND MATHEMATICS BASED ON APRIL-MAY, 1988 PRE-TESTING AND APRIL-MAY, 1989 POST-TESTING ON CAT (SPRING TO SPRING).

Subject/ School	Grade 7				Grade 8				Grade 9			
		Percentiles				Percentiles				Percentiles		
	Number Tested	Pre Mean	Post Mean	Mean Gain	Number Tested	Pre Mean	Post Mean	Mean Gain	Number Tested	Pre Mean	Post Mean	Mean Gain
READING												
Eddy	27	15	9	- 6	36	11	11	0	21	8	17	9
Central	21	11	27	16	33	6	8	2	21	6	12	6
North	2	21	21	0	11	13	17	4	37	10	18	8
South	23	8	8	0	30	6	14	8	38	6	14	8
Webber	23	8	8	0	30	6	14	8	38	6	14	8
System	80	12	10	- 2	116	8	12	4	133	8	15	7
MATHEMATICS												
Eddy	0	--	--	--	15	20	20	0	8	5	16	11
Central	13	18	18	0	31	11	11	0	13	7	13	6
Webber	14	17	14	- 3	36	10	15	5	20	4	22	18
System	27	18	17	- 1	82	12	14	2	41	5	18	13

TABLE B.4. MEAN PERCENTILE GAIN BY BUILDING FOR ALL TWELFTH GRADE CHAPTER 1/ARTICLE 3 PUPILS IN READING BASED ON APRIL-MAY, 1988 PRE-TESTING AND APRIL-MAY, 1989 POST-TESTING ON CAT (SPRING TO SPRING).

Subject/ School	Grade 12			
		Percentiles		
	Number Tested	Pre Mean	Post Mean	Mean Mean
READING				
Saginaw High	11	13	21	8
System	11	13	21	8

TABLE B.5. MEAN PERCENTILE GAIN BY BUILDING AND GRADE FOR ALL 1-6 CHAPTER 1 PUPILS IN READING BASED ON APRIL-MAY, 1988 PRE-TESTING AND APRIL-MAY, 1989 POST-TESTING ON CAT (SPRING TO SPRING).*

Building	GRADE 1 Percentile				GRADE 2 Percentile				GRADE 3 Percentile				GRADE 4 Percentile				GRADE 5 Percentile				GRADE 6 Percentile			
	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	31	8	18	10	11	14	17	3	16	12	25	13	10	11	14	3	12	17	15	- 2	9	13	17	4
Coulter	29	1	32	31	6	14	21	7	4	18	24	6	9	15	13	- 2	5	20	20	0	8	16	17	1
Emerson	30	8	8	0	21	10	22	12	22	11	25	14	12	14	16	2	11	15	17	2	14	18	18	0
Fuerbringer	19	15	37	22	13	15	30	5	9	15	27	12	6	18	22	4	5	22	30	8	1	15	13	- 2
Nelle Haley	6	22	18	- 4	17	13	17	4	10	20	27	7	8	18	25	7	8	17	24	7	11	14	20	6
Handley	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--
Heavenrich	20	15	30	15	15	18	14	- 4	12	14	18	4	14	15	20	5	12	14	22	8	9	13	12	- 1
Herig	11	16	37	21	2	21	33	12	2	24	28	4	2	16	32	16	5	21	21	0	9	20	24	4
Houghton	12	9	25	16	11	12	20	8	7	14	16	2	7	16	20	4	7	15	13	- 2	4	22	28	6
Jerome	10	14	10	- 4	23	8	28	20	2	15	27	12	7	10	21	11	4	22	25	3	7	20	22	2
Jones	17	9	5	- 4	17	8	12	4	19	8	18	10	12	11	12	1	12	17	21	4	12	16	18	2
Kempton	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--
Longfellow	18	9	7	- 2	33	10	14	4	10	18	20	2	11	17	20	3	4	14	15	1	13	21	21	0
Longstreet	11	6	29	23	16	17	28	11	11	17	28	11	7	16	27	11	10	11	13	2	5	24	37	13
J. Loomis	14	8	5	- 3	14	10	12	2	28	12	14	2	14	12	15	3	18	16	18	2	2	21	22	1
Merrill Park	22	10	12	2	13	13	16	3	13	15	21	6	5	18	28	10	6	20	22	2	4	14	22	8
C. Miller	3	5	63	58	6	15	28	13	4	20	52	32	2	21	6	-15	3	20	20	0	5	21	24	3
J. Moore	17	9	28	19	9	10	14	4	12	14	30	16	7	10	25	15	7	14	25	11	6	12	21	9
Morley	8	10	66	56	12	15	18	3	13	13	15	2	7	15	27	12	7	15	17	2	5	15	13	- 2
J. Rouse	17	8	21	13	11	17	16	- 1	7	18	30	12	4	18	22	4	13	20	18	- 2	5	17	14	- 3
Salina	15	6	21	15	9	18	16	- 2	15	13	28	15	12	13	28	15	3	24	16	- 8	7	18	20	2
Stone	11	10	23	13	8	17	20	3	14	13	18	5	7	15	20	5	8	15	21	6	8	17	21	4
Webber Ele.	27	8	11	3	26	12	21	9	19	15	24	9	19	18	20	2	24	16	16	0	16	16	17	1
Zilwaukee	4	17	56	39	5	13	41	28	3	15	21	6	3	18	50	32	1	21	21	0	2	18	17	- 1
TOTAL	352	21	18	- 3	298	12	19	7	252	14	21	7	185	14	20	6	185	16	19	3	162	18	20	2

TABLE B.6. MEAN PERCENTILE GAIN BY BUILDING AND GRADE FOR ALL 1-6 CHAPTER 1 PUPILS IN MATHEMATICS BASED ON APRIL-MAY, 1988 PRE-TESTING AND APRIL-MAY, 1989 POST-TESTING ON CAT (SPRING TO SPRING).*

Building	GRADE 1 Percentile				GRADE 2 Percentile				GRADE 3 Percentile				GRADE 4 Percentile				GRADE 5 Percentile				GRADE 6 Percentile			
	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	41	8	30	22	4	12	25	13	5	17	27	10	15	13	20	7	0	--	--	--	1	12	52	40
Coulter	26	4	54	50	1	22	18	- 4	2	13	21	8	3	5	14	9	2	14	6	- 8	0	--	--	--
Emerson	30	7	21	15	19	7	41	34	21	11	25	14	12	15	35	20	11	13	30	17	8	14	20	6
Fuerbringer	21	20	52	32	6	8	39	31	7	17	44	27	5	20	73	50	6	20	30	10	1	15	17	2
Nelle Haley	17	16	58	42	9	32	21	-11	4	17	20	3	6	21	25	4	6	17	35	18	4	14	17	3
Handley	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--
Heavenrich	20	6	48	42	5	18	12	- 6	10	13	18	5	14	13	18	5	11	15	21	6	9	8	28	20
Herig	10	15	65	50	2	56	59	3	2	20	32	12	1	16	32	16	1	25	20	- 5	1	24	52	28
Houghton	8	12	59	47	1	10	41	31	3	6	16	10	5	14	14	0	3	18	24	6	2	22	37	15
Jerome	4	22	56	34	11	7	33	26	7	35	37	2	6	14	35	21	1	11	27	16	6	20	32	12
Jones	17	5	17	12	10	25	18	- 7	11	14	25	11	3	17	18	1	5	12	24	12	6	20	20	0
Kempton	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--
Longfellow	14	8	30	22	16	11	21	11	12	17	27	10	14	16	27	11	2	13	35	22	1	17	32	15
Longstreet	17	11	48	37	13	24	43	19	8	17	37	20	3	27	32	5	4	18	27	9	0	--	--	--
J. Loomis	15	7	8	1	17	11	22	11	11	8	12	4	18	13	27	13	7	11	20	9	2	17	6	-11
Merrill Park	9	12	63	51	3	20	63	43	8	17	48	31	2	29	48	19	0	--	--	--	1	12	44	32
C. Miller	10	22	50	28	5	14	32	18	3	18	65	47	1	17	52	35	1	22	37	15	4	18	48	30
J. Moore	9	10	35	25	3	16	22	6	6	10	54	44	7	16	29	13	6	20	54	34	6	15	41	26
Morley	12	8	46	38	10	16	10	- 6	9	15	18	3	6	14	21	7	2	16	22	6	0	--	--	--
J. Rouse	21	9	24	15	3	14	6	- 8	8	18	73	55	6	12	29	17	11	15	24	9	4	16	26	10
Salina	12	4	12	8	10	22	30	8	7	13	27	14	7	17	34	17	0	--	--	--	1	10	63	53
Stone	12	13	50	37	3	24	44	20	11	14	20	6	5	11	17	6	9	12	24	12	2	16	41	25
Webber Ele.	25	10	37	27	6	18	17	- 1	12	21	43	22	11	21	16	- 5	21	13	17	4	5	8	27	19
Zilwaukee	1	1	17	16	2	21	46	25	2	14	18	4	3	16	41	25	1	9	25	16	1	11	17	6
TOTAL	351	22	37	15	159	14	27	13	168	14	28	14	153	15	25	10	110	14	25	11	65	10	29	19

*Grade 1 results are fall to spring rather than spring to spring results. The pre-test was administered October-November, 1988 to first grade pupils.

TABLE B.7. MEAN PERCENTILE GAIN BY BUILDING FOR ALL 7-9 CHAPTER 1 PUPILS IN READING AND MATHEMATICS BASED ON APRIL-MAY, 1988 PRE-TESTING AND APRIL-MAY, 1989 POST-TESTING ON CAT (SPRING TO SPRING).

Subject/ School	Grade 7				Grade 8				Grade 9			
		Percentiles				Percentiles				Percentiles		
	Number Tested	Pre Mean	Post Mean	Mean Gain	Number Tested	Pre Mean	Post Mean	Mean Gain	Number Tested	Pre Mean	Post Mean	Mean Gain
READING												
Eddy	27	15	9	- 6	36	11	11	0	21	8	17	9
Central	21	11	10	- 1	33	6	8	2	21	6	12	6
Webber	23	8	8	0	30	6	14	8	38	6	14	8
System	71	12	9	- 3	99	7	11	4	80	7	14	7
MATHEMATICS												
Eddy	0	--	--	--	15	20	20	0	8	5	16	11
Central	13	18	18	0	31	11	11	0	13	7	13	6
Webber	14	17	14	- 3	36	10	15	5	20	4	22	18
System	27	18	17	- 1	82	12	14	2	41	10	35	25

TABLE B.8. MEAN PERCENTILE GAIN BY BUILDING FOR ALL TWELFTH GRADE CHAPTER 1 PUPILS IN READING BASED ON APRIL-MAY, 1988 PRE-TESTING AND APRIL-MAY, 1989 POST-TESTING ON CAT (SPRING TO SPRING).

Subject/ School	Grade 12			
		Percentiles		
	Number Tested	Pre Mean	Post Mean	Mean Mean
READING				
Saginaw High	11	13	21	8
System	11	13	21	8

TABLE B.9. MEAN PERCENTILE GAIN BY BUILDING AND GRADE FOR ALL 1-6 ARTICLE 3 PUPILS IN READING BASED ON APRIL-MAY, 1988 PRE-TESTING AND APRIL-MAY, 1989 POST-TESTING ON CAT (SPRING TO SPRING).*

Building	GRADE 1				GRADE 2				GRADE 3				GRADE 4				GRADE 5				GRADE 6			
	Number Tested	Percentile Pre Mean	Percentile Post Mean	Mean Gain/ Loss	Number Tested	Percentile Pre Mean	Percentile Post Mean	Mean Gain/ Loss	Number Tested	Percentile Pre Mean	Percentile Post Mean	Mean Gain/ Loss	Number Tested	Percentile Pre Mean	Percentile Post Mean	Mean Gain/ Loss	Number Tested	Percentile Pre Mean	Percentile Post Mean	Mean Gain/ Loss	Number Tested	Percentile Pre Mean	Percentile Post Mean	Mean Gain/ Loss
E. Baillie	31	8	18	10	11	14	17	3	16	12	25	13	10	11	14	3	12	17	15	- 2	9	13	17	4
Coulter	29	1	32	31	6	14	21	7	4	18	24	6	9	15	13	- 2	5	20	20	0	8	16	17	1
Emerson	30	8	8	0	21	10	22	12	22	11	25	14	12	14	16	2	11	15	17	2	14	18	18	0
Fuerbringer	19	15	37	22	13	15	30	15	9	15	27	12	6	18	22	4	5	22	30	8	1	15	13	- 2
Nelle Haley	6	22	18	- 4	17	13	17	4	10	20	27	7	8	18	25	7	8	17	24	7	11	14	20	6
Handley	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--
Heavenrich	20	15	30	15	15	18	14	- 4	12	14	18	4	14	15	20	5	12	14	22	8	9	13	12	1
Herig	11	16	37	21	2	21	34	13	2	24	28	4	2	16	32	16	5	21	21	0	9	20	24	4
Houghton	12	8	25	17	11	12	20	8	7	14	16	2	7	16	20	4	7	15	13	- 2	4	22	28	6
Jerome	10	14	10	- 4	23	8	28	20	2	15	27	12	7	10	21	11	4	22	25	3	7	20	22	2
Jones	17	9	5	- 4	17	8	12	4	19	8	18	10	12	11	12	1	12	17	21	4	12	16	18	2
Kempton	15	9	27	18	8	14	24	10	7	14	39	25	0	--	--	--	7	17	28	11	0	--	--	--
Longfellow	18	9	7	- 2	33	10	14	4	10	18	20	2	1	17	20	3	4	14	15	1	13	21	21	0
Longstreet	1	6	28	22	16	17	28	11	11	17	28	11	7	16	27	11	10	11	13	2	5	24	37	13
J. Loomis	14	8	5	- 3	14	10	12	2	28	12	14	2	14	12	15	3	18	16	18	2	2	21	22	1
Merrill Park	22	10	12	2	13	13	16	3	13	15	21	6	5	18	28	10	6	20	22	2	4	14	22	8
C. Miller	3	5	63	48	6	15	29	14	4	20	52	32	2	21	6	-15	3	20	20	0	5	21	24	3
J. Moore	17	9	28	19	9	10	14	4	12	14	30	16	7	10	25	15	7	14	25	11	6	12	21	9
Morley	8	10	66	56	12	15	18	3	13	13	15	2	7	15	27	12	7	15	17	2	5	15	13	- 2
J. Rouse	17	8	21	13	11	17	16	- 1	7	18	30	12	4	18	22	4	13	20	18	- 2	5	17	14	- 3
Salina	15	6	21	15	9	18	16	- 2	15	13	28	15	12	13	28	15	3	24	16	- 8	7	18	20	2
Stone	11	10	32	22	8	17	20	3	14	13	18	5	7	15	20	5	8	15	21	6	8	17	21	4
Webber Ele.	27	8	11	3	26	12	21	9	19	15	24	9	19	18	20	2	24	16	16	0	16	16	17	1
Zilwaukee	4	17	56	39	5	13	41	28	3	15	21	6	3	18	50	32	1	21	21	0	2	18	17	- 1
TOTAL	367	8	18	10	306	13	19	6	259	14	22	8	185	14	20	6	192	16	19	3	162	18	20	2

*Grade 1 results are fall to spring rather than spring to spring results. The pre-test was administered October-November, 1988 to first grade pupils.

APPENDIX B

TABLE B.10. MEAN PERCENTILE GAIN BY BUILDING AND GRADE FOR ALL 1-6 ARTICLE 3 PUPILS IN MATHEMATICS BASED ON APRIL-MAY, 1988 PRE-TESTING AND APRIL-MAY, 1989 POST-TESTING ON CAT (SPRING TO SPRING).*

Building	GRADE 1 Percentile				GRADE 2 Percentile				GRADE 3 Percentile				GRADE 4 Percentile				GRADE 5 Percentile				GRADE 6 Percentile			
	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	41	8	30	22	4	12	25	13	5	17	27	10	15	13	20	7	0	--	--	--	1	12	52	40
Coulter	26	4	54	50	1	22	18	- 4	2	13	21	8	3	5	14	9	2	14	6	- 8	0	--	--	--
Emerson	30	7	21	14	19	7	41	34	21	11	25	24	12	15	36	21	11	13	30	17	8	14	20	6
Fuerbringer	21	20	52	32	6	8	39	31	7	17	44	27	5	20	73	53	6	20	30	10	1	15	17	2
Nelle Haley	17	16	58	42	9	32	21	11	4	17	20	3	6	21	25	4	6	17	35	18	4	14	17	3
Handley	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--
Heavenrich	20	6	48	42	5	18	12	6	10	13	18	5	14	13	18	5	11	15	21	6	9	8	29	21
Herig	10	15	65	50	2	56	59	3	2	20	32	12	1	16	32	16	1	25	20	- 5	1	24	52	28
Houghton	8	12	59	47	1	10	41	31	3	6	16	10	5	14	14	0	3	18	24	6	2	22	37	15
Jerome	4	22	56	34	11	7	34	27	7	35	37	2	6	14	35	21	1	11	27	16	6	19	32	13
Jones	17	5	17	12	10	13	18	5	11	14	25	11	3	17	18	1	5	12	24	12	6	20	20	0
Kempton	8	12	37	25	3	6	7	1	8	13	68	55	1	12	3	9	7	8	29	21	0	--	--	--
Longfellow	14	8	30	22	16	11	21	10	12	17	27	10	14	16	27	11	2	13	35	22	1	17	32	15
Longstreet	17	11	48	37	13	24	43	19	8	17	37	20	3	27	32	5	4	18	27	9	0	--	--	--
J. Loomis	15	7	8	1	17	11	22	11	11	8	12	4	18	14	27	13	7	11	20	9	2	17	6	11
Merrill Park	9	12	63	51	3	20	63	43	8	17	48	31	2	29	48	19	0	--	--	--	1	12	44	32
C. Miller	10	22	50	28	5	14	32	18	3	18	65	47	1	17	52	35	1	22	37	15	4	18	48	30
J. Moore	9	10	35	25	3	16	22	6	6	10	54	44	7	16	29	13	6	20	54	34	6	15	41	26
Morley	12	8	46	38	10	16	10	- 6	9	15	18	3	6	14	21	7	2	16	22	6	0	--	--	--
J. Rouse	21	9	24	15	3	14	6	- 8	8	18	73	55	6	12	28	13	11	15	24	9	4	16	27	11
Salina	12	4	12	8	10	22	30	8	7	13	27	14	7	17	34	17	0	--	--	--	1	10	63	53
Stone	12	13	50	37	3	24	44	20	11	14	20	6	5	11	17	6	9	12	24	12	2	16	41	25
Webber Ele.	25	10	37	27	6	18	17	- 1	12	21	42	21	11	21	16	- 5	21	13	17	4	5	8	27	19
Zilwaukee	1	1	17	18	2	21	46	25	2	14	18	4	3	16	41	25	1	9	25	16	1	11	17	6
TOTAL	359	9	37	28	162	13	27	14	176	14	30	16	154	15	25	10	117	14	25	11	65	10	29	19

*Grade 1 results are fall to spring rather than spring to spring results. The pre-test was administered October-November, 1988 to first grade pupils.

APPENDIX B

TABLE B.11. MEAN PERCENTILE GAIN BY BUILDING FOR ALL 7-9 ARTICLE 3 PUPILS IN READING AND MATHEMATICS BASED ON APRIL-MAY, 1988 PRE-TESTING AND APRIL-MAY, 1989 POST-TESTING ON CAT (SPRING TO SPRING).

Subject/ School	Grade 7				Grade 8				Grade 9			
		Percentiles				Percentiles				Percentiles		
	Number Tested	Pre Mean	Post Mean	Mean Gain	Number Tested	Pre Mean	Post Mean	Mean Gain	Number Tested	Pre Mean	Post Mean	Mean Gain
READING												
Eddy	27	15	9	- 6	36	11	11	0	21	8	17	9
Central	21	11	10	- 1	33	6	8	2	21	6	12	6
North	7	40	17	-23	6	10	24	14	16	10	17	7
South	2	21	21	0	11	13	17	4	37	10	18	8
Webber	23	8	8	0	30	6	14	8	38	6	14	8
System	80	12	10	- 2	116	8	12	4	133	8	15	7
MATHEMATICS												
Eddy	0	--	--	--	15	20	20	0	8	5	16	11
Central	13	18	18	0	31	11	11	0	13	7	13	6
Webber	14	17	14	- 3	36	10	15	5	20	4	22	18
System	27	18	17	- 1	82	12	14	2	41	5	18	13