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AUTHOR Marable, Paula; Frazer, Linda
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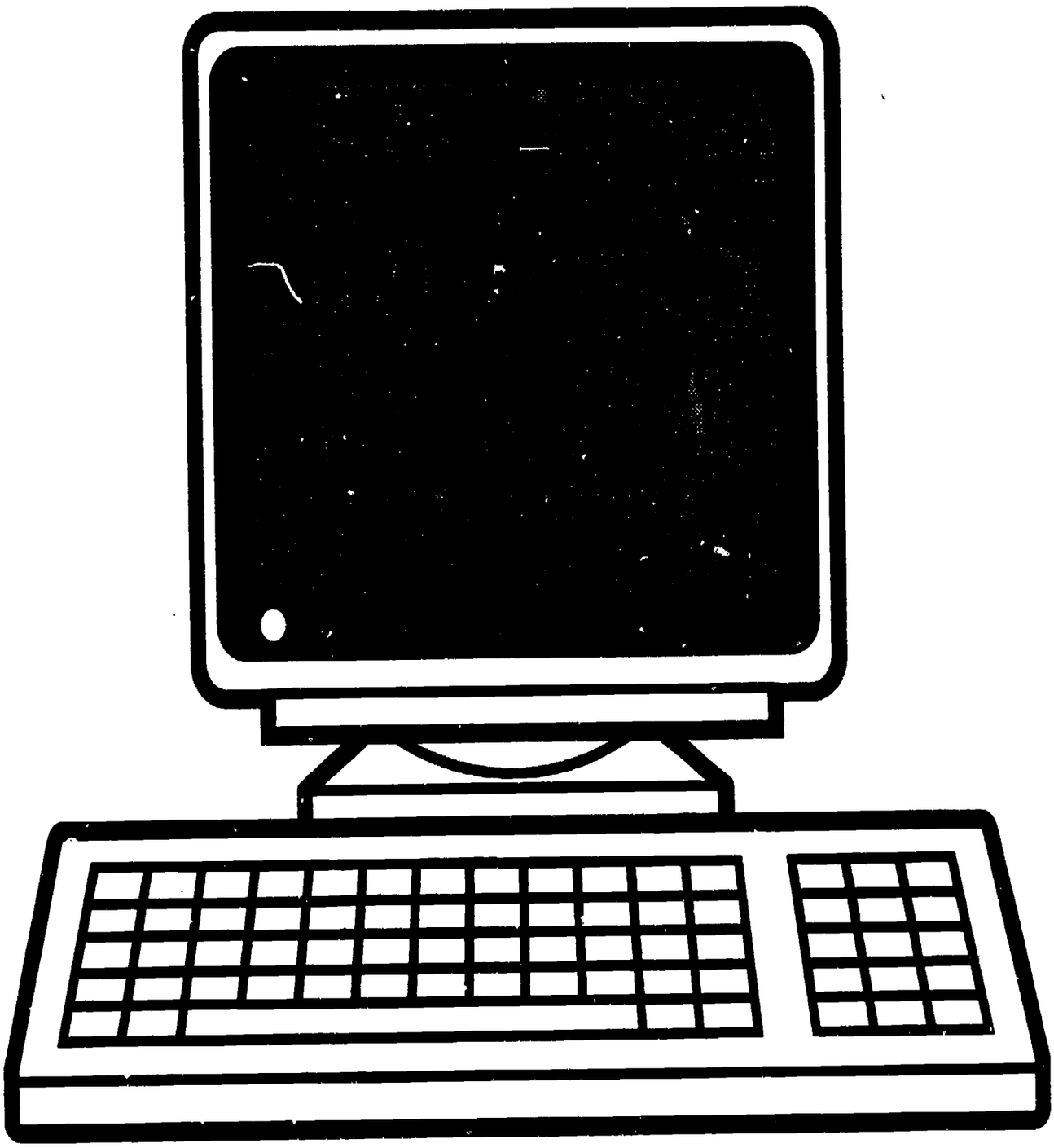
ABSTRACT

Project A+ Elementary Technology Demonstration Schools is a program made possible through grants from IBM (International Business Machines Corporation) and Apple, Inc. The primary purpose of the program is to demonstrate the educational effectiveness of technology in accelerating the learning of low achieving at-risk students and enhancing the education of high achieving students. Four elementary schools in Austin, Texas, were selected to participate in this project: Andrews, Galindo, Langford, and Patton. The overall goal of Project A+ is to have all students function successfully at or beyond age appropriate grade level. Other goals include reduction of the number of students who are not in age appropriate grade levels, development of teacher education programs to ensure effective implementation of technology, and demonstration to the community of the educational benefits of technology. It is noted that project findings cannot be evaluated in terms of success or failure because of the delayed implementation of the program. The first year of the project resulted in many changes to the original timelines because of the reality of delivery dates for equipment. Students in the four schools began to use the computers as early as January and as late as April. The Evaluation Associate for the project visited the four schools frequently to observe computer use, and information gathered during those visits is included in this report. This report is primarily a description of the process of implementation and a resource of baseline achievement data. (4 references) (DB)



Austin Independent School District
Office of Research and Evaluation
Austin, Texas
August, 1991

Background

Project A+ Elementary Technology Demonstration Schools is a program made possible through a grant from International Business Machines Corporation and Apple, Inc. The primary purpose of AISD's Project A+ Elementary Technology Schools is to demonstrate the effectiveness of technology in accelerating the learning of low-achieving students.

Four elementary schools in AISD were selected to participate in this project: Andrews, Galindo, Langford, and Patton. Of the four schools, three received IBM equipment and training and one, Galindo, received Apple equipment and training.

Project Goals

The overall Project A+ goal is to have all students functioning successfully at or beyond age appropriate grade level.

Other targeted goals include:

- In three years, reduce by 50% the number of students who are not in their age appropriate grade level.
- In three years, reduce by 50% the number of students who are not achieving on grade level in reading, writing, and mathematics.
- Develop a comprehensive teacher training program to ensure effective implementation and classroom use of technology.
- Demonstrate to the community the educational benefits of technology thereby obtaining support for districtwide implementation.

Three major points of emphasis in trying to achieve these goals are: a good start in school, constant monitoring with remedial and accelerated learning, and summer school for students not on grade level.

Implementation

The student computers were to be installed in the schools by October, 1990, but because of shipment delays and the extent of wiring needed to prepare the schools for computers, the student computers were not in use until as early as January and as late as April, 1991.

Findings

At this point, Project A+ Elementary Technology Demonstration Schools can not be evaluated in terms of success or failure as measured by student achievement because of the delayed implementation. However, at this time it can be determined if the project's components are coming together so that full implementation can occur. In summary, most features are in place. Those that are not have been scheduled to be carried out in the 1991-92 school year.

- Of the 12 specific features that were planned for the project, all but two were fully implemented this year.
- Classroom telephones were not purchased because of lack of funds and affordable alternatives are being studied.
- The parent take-home program was not implemented and is planned for the fall, 1991.
- The monitoring of remedial and accelerated learning has been partially implemented.
- Summer school took place but only for a restricted number of students.
- During this transitional year, student achievement in the technology schools was tracked and is documented in the full report as a baseline for future years. Some negative effects which could be the result of the change in the normal routine and the transition from the old way of doing things to the new way were evident in 1990-91.

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PROJECT A+ OVERVIEW

Project A+ is an Austin Independent School District (AISD) / International Business Machines Corporation (IBM) initiative established in the spring of 1989, as a long term partnership marshalling community resources to ensure a quality educational environment. According to this initiative, such an environment includes a system of excellence, equity, and compassion in which students develop to the full extent of their abilities. The goal of Project A+ is to identify fundamental changes necessary to enhance education and to muster community support for those changes.

The AISD/IBM initiative is part of a nationwide program begun by the Business Roundtable, a Washington-based business association dedicated to examining public policy issues. The Business Roundtable considers public education to be America's most pressing problem and has encouraged its members to form partnerships with school districts across the nation.

Seven momentum teams made-up of IBM and AISD staff members and members of the community have been working since the spring of 1989, to develop a blueprint for a world-class school district. Focus of the momentum teams includes strategic planning, curriculum, technology, vision, dropout prevention, higher education, and empowerment.

The Zero Dropout Momentum Team developed the goal, which was later adopted and amended by Project A+ overall, of all students functioning successfully at or beyond age appropriate grade level. Through the combined efforts of the Zero Dropout and Technology Momentum Teams, a plan was developed and approved by AISD and IBM to use technology to enhance the learning of all children. This demonstration project is the result of that collaborative effort.

INTRODUCTION

Project A+ Elementary Technology Demonstration Schools is a program in the Austin Independent School District made possible through grants from the International Business Machines Corporation (IBM) for $4.4 million and Apple, Inc. for $74,700. The overall Project A+ goal is to have all students functioning successfully at or beyond age appropriate grade level. The primary purpose of AISD's Project A+ Elementary Technology Demonstration Schools is to demonstrate the effectiveness of technology in accelerating the learning of low achieving at-risk students and enhancing the education of high achieving students. Project A+ is a long-term effort to make AISD a world-class school district. Four Austin elementary schools, Andrews, Galindo, Langford, and Patton are receiving computer equipment, software, teacher trainers, and technical support donated by IBM and Apple.

The IBM grant is the largest the company has made to any school district and the largest private grant received in AISD history. IBM became involved in Project A+, part of its nationwide effort to improve education, through its participation in the Washington-based Business Roundtable. The Roundtable, an association in which 200 large corporations examine public policy issues, has decided to focus on the field of education. Andrews, Langford, and Patton are the AISD elementary schools receiving IBM donations.

Apple, Inc. has also chosen to be a participant in this technology plan for elementary schools. As part of the grant agreement, AISD matched and exceeded the Apple donation by purchasing $300,000 in Apple equipment to use throughout the District. Galindo is the AISD elementary school receiving computer equipment and software from Apple.

EVALUATION OVERVIEW

This report is primarily a description of the process of implementation and a resource of baseline achievement data. The first year of this project resulted in many changes to the original timeline because of the reality of delivery dates for equipment and the extent of wiring required. Because of the changes, students in the four schools began to use the computers as early as January and as late as April. Therefore, process data and baseline data are the basis of this report; reports in the following years will deal more directly with outcome data.

The Evaluation Associate for this project visited the four Project A+ Elementary Technology Demonstration Schools often to observe computer use and to talk informally with teachers and principals about the project. Much information was gathered about the project's progress and difficulties during these visits. Information gathered during those visits is included in this report.

SUMMARY OF THE DETAILED PLAN

The Project A+ technology plan for elementary schools was developed cooperatively by AISD's Zero Dropout Momentum Team and the Technology Momentum Team with information from the AISD Long-Range Technology Plan.

The technology plan for elementary schools addresses the Project A+ goal that all students are to function successfully at or beyond their age appropriate grade level by establishing three major points of emphasis:

- A good start in school,
- Constant monitoring with remedial and accelerated learning, and
- Summer school for students not on grade level.

Other target goals include:

- Reduce by 50% in three years the number of students who are not in their age appropriate grade level.
- Reduce by 50% in three years the number of students who are not achieving on grade level in reading, writing, and mathematics.
- Develop a comprehensive teacher training program to ensure effective implementation and classroom use of technology.
- Demonstrate to the community the educational benefits of technology, thereby obtaining support for districtwide implementation.

The plan uses technology in conjunction with other dropout strategies and has the following characteristics:

IBM Schools (Andrews, Langford, and Patton)

- Four computers per classroom, networked
- Thirty-station computer laboratory, networked
- Stand-alone computers in Pre-K and K
- Writing to Read™ Labs in K and 1
- Computers on each teacher's desk

- Telephones on each teachers' desk
- Integrated instructional systems that can be accessed from any computer on the network
- Extensive teacher training
  - Ten days of training during summer and school year
  - Staff development based on identified needs

Apple School (Galindo)

- Three stand-alone computers in PK, K and 1
- Twenty-four-station writing lab, networked
- Thirty-station mathematics and language arts lab, networked
- Extensive teacher training and staff development based on needs

IBM and Apple Schools

- Constant monitoring of student activity with remedial and accelerated learning
- Summer school for students not on grade level (starting at the end of second grade, funded by the District) focusing on language arts
- Teacher computer-buy program
- Parent take-home program

Extent of Implementation

Of the three major points of interest, two have been partially implemented: the monitoring of remedial and accelerated learning and summer school for students not on grade level. With the installation of computers, teachers monitored students' learning in order to direct them to the appropriate levels on the computer software. Summer school took place, but for a restricted number of students. Funding was limited and only enough money to support 60 students per A+ school was available. The other major point, a good start in school, is rather vague and is a difficult aspect to measure.

The four target goals are long term and will be examined annually as well as at the end of three years.

Of the 12 specific features that were planned for the project, all but two were fully implemented this first year. Telephones were not purchased because of lack of funds. The parent take-home program was not put into effect because the Project A+ Elementary Technology Demonstration Schools were concentrating their efforts on installing and setting up the student computers. The computers for the parent take-home program had been received in January, 1991. The parent take-home program will be implemented in the fall, 1991.

DESCRIPTION OF SCHOOLS

The Austin Independent School District is an urban system that consists of 95 school locations in an area of 252 square miles. The student population is diverse, particularly in terms of ethnic origin and socioeconomic status. The ethnic make-up of the student population as of October, 1990, is 34.5% Hispanic, 19.6% Black, and 46% Other. Four schools were chosen out of 40 applicants to represent the District in Project A+ Elementary Technology Demonstration Schools.

Andrews Elementary

Andrews, the oldest of the four Project A+ schools, built in 1962, had a student membership of 771 in the 1990-91 school year. The student population has surpassed the capacity of the building, and now 18 portable classrooms are necessary. The student membership was largely Black (59%) with fewer numbers of Hispanics (33%) and Others (8%). Many of the students (83%) were from low-income families and 21.5% of the students were identified as Limited English Proficient (LEP). As of October 30, 1990, 110 (15.5%) were overage for their grade, and 332 (43.5%) were at-risk. Few (0.3%) students were retained after completing the 1990-91 school year. Andrews maintained a staff of 84. Betty Jo Hudspeth is the principal and this was her first year at Andrews.

Galindo Elementary

Galindo is the newest of the four schools, built in 1988. The 1990-91 school year had a student membership of 766; 65% were Hispanic, 7% Black, and 28% were classified as Other. Over half (67%) of the student membership were from low-income families and 14.9% of the students were identified as Limited English Proficient (LEP). As of October 30, 1990, 106 (15.6%) were overage for their grade, and 269 (37.7%) were at-risk. Few (1.4%) students were retained after completing the 1990-91 school year. Galindo supported a staff of 83. Joe Dan Mills is the principal and has been at Galindo since it opened.

Langford Elementary

Langford, built in 1980, is the smallest school of the four Project A+ schools and the only school of the four with open classrooms. Langford had a student membership of 542 in the 1990-91 school year, 44% were Hispanic, 35% Other, and 21% Black. Many students (72%) were from low-income families and 11% of the students were identified as Limited English Proficient (LEP). As of October 30, 1990, 73 (14.3%) were overage for their grade, and 175 (32.1%) were at-risk. Few (0.9%) students were retained after completing the 1990-91 school year. Langford maintained a staff of 54. Sandy Leibick is the principal, and the 1990-91 school year completed his second year at Langford.

Patton Elementary

Patton, built in 1985, is the largest of the four Project A+ schools with a student membership of 1,015 in the 1990-91 school year; 86% were classified as Other, 10% Hispanic, and 4% Black. Patton, as Andrews, has outgrown its facility and now requires 16 portable classes. Only 6% of the students were from low-income families, and 1.3% of the students were identified as Limited English Proficient (LEP). As of October 30, 1990, 111 (11%) were overage for their grade, and 200 (19.5%) were at-risk. Few (0.9%) students were retained after completing the 1990-91 school year. Patton supported a staff of 76. Sheila Anderson is the principal and has been at Patton since its opening.

See Profile: 1989-90 Annual Performance Report with 1990-91 Statistical Data for more information on the four schools.

See Attachment 1 and 2 for more information on overage and at-risk students.

Achievement

Last year's achievement scores, 1989-90, are presented in this report to offer baseline information of the achievement environment before the technology of the Project A+ Elementary Technology Demonstration Schools was implemented. This year's achievement scores, 1990-91, are presented so that it can be ascertained if any effects, positive or negative, occurred in the first year of implementation and also with which the following years of full implementation may be compared.

Criterion Reference Tests

The four technology schools, as described previously, differ on many factors. The four schools also differ in achievement levels as measured on standarized tests. Figure 1 displays student scores from the Elementary Technology Schools for the Texas Educational Assessment of Minimun Skills (TEAMS), taken in the spring, 1990, and Figure 2 displays student scores from the Elementary Technology Demonstration Schools for the Texas Assessment of Academic Skills (TAAS) taken in the fall, 1990. Grades 3 and 5 are shown because those are the only elementary grades that take the TEAMS and the TAAS. Please see Figures 3-6 for graphs of the technology schools' TEAMS and TAAS scores.

The TEAMS and TAAS are criterion reference tests (CRT). A CRT is designed to measure a well-defined set of skills and to reference the student's score to a mastery criterion for that set of skills. For both of the tests, the skills measured are a subset of the Essential Elements adopted by the State Board of Education. Recently, the Texas Education Agency adopted the TAAS for testing and no longer uses the TEAMS. Please note that the TEAMS and TAAS are different tests and the scores should be compared with caution.

FIGURE 1
TEAMS RESULTS
Spring, 1990

GRADE 3
Percent Mastery

	Andrews	Galindo	Langford	Patton	AISD
Writing	80	71	88	95	78
Reading	86	83	93	97	85
Mathematics	90	85	95	98	91

GRADE 5
Percent Mastery

	Andrews	Galindo	Langford	Patton	AISD
Writing	80	67	77	98	85
Reading	76	74	96	94	86
Mathematics	83	74	98	98	90

FIGURE 2
TAAS RESULTS
Fall, 1990

GRADE 3
Percent Mastery

	Andrews	Galindo	Langford	Patton	AISD
Writing	58	71	61	80	68
Reading	70	82	80	95	85
Mathematics	73	88	72	94	87

GRADE 3 SPANISH (ANDREWS ONLY)
Percent Mastery

	Andrews	AISD
Writing	29	65
Reading	57	81
Mathematics	64	87

GRADE 5
Percent Mastery

	Andrews	Galindo	Langford	Patton	AISD
Writing	54	89	82	94	82
Reading	45	53	76	87	69
Mathematics	31	52	61	83	61

FIGURE 3
TEAMS RESULTS
GRADE 3
Spring, 1990

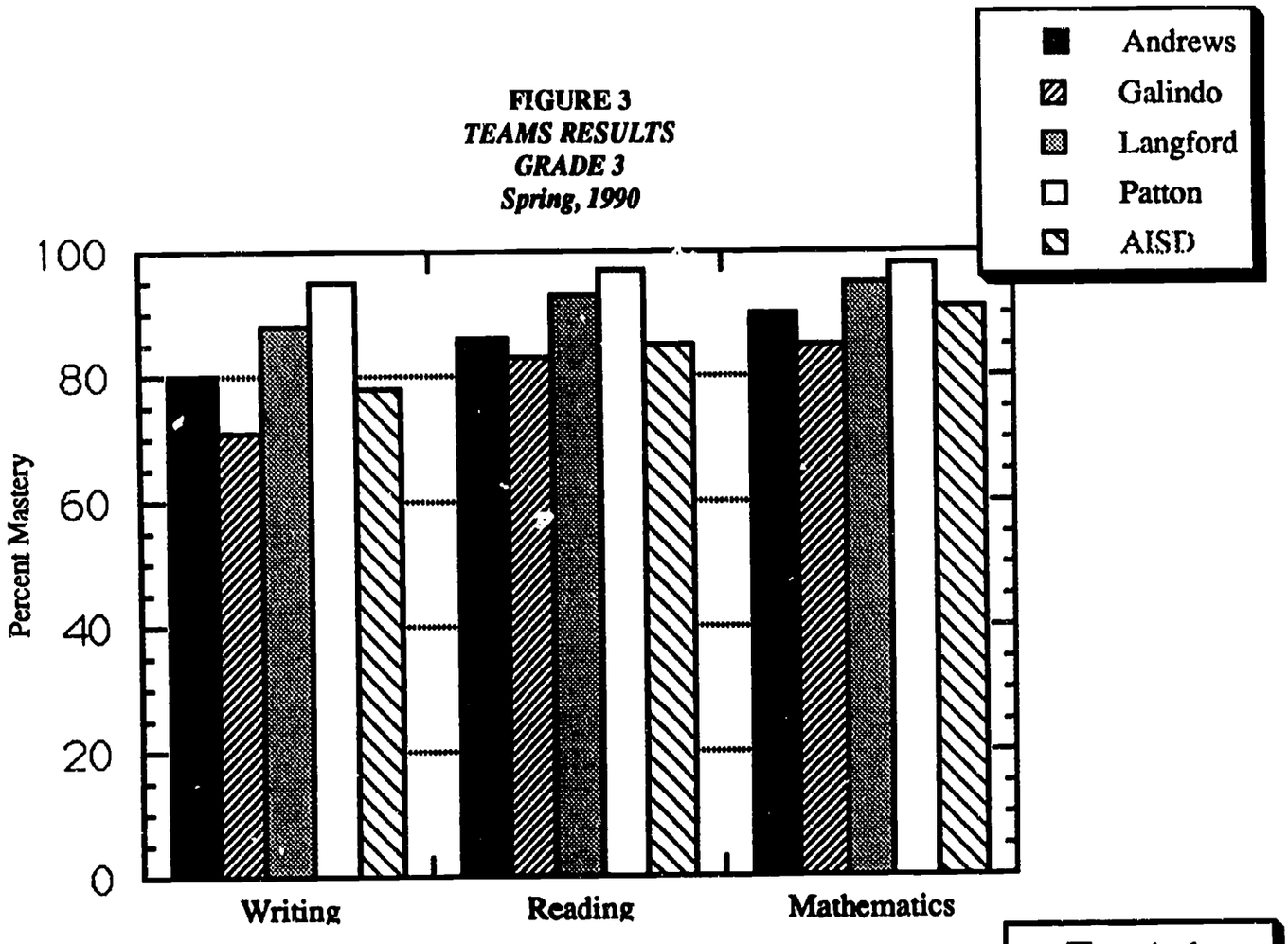


FIGURE 4
TEAMS RESULTS
GRADE 5
Spring, 1990

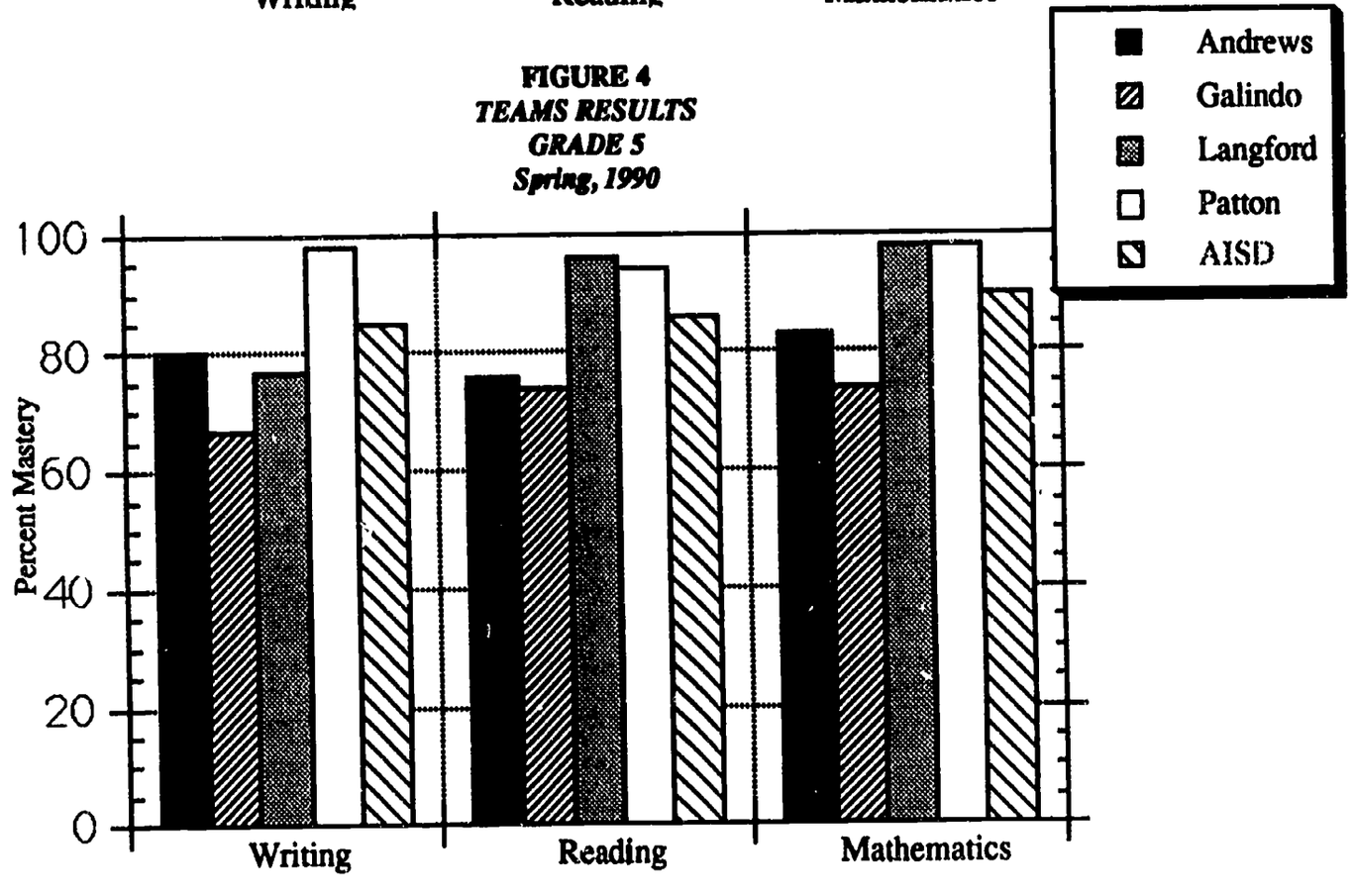


FIGURE 5
TAAS RESULTS
GRADE 3
Fall, 1990

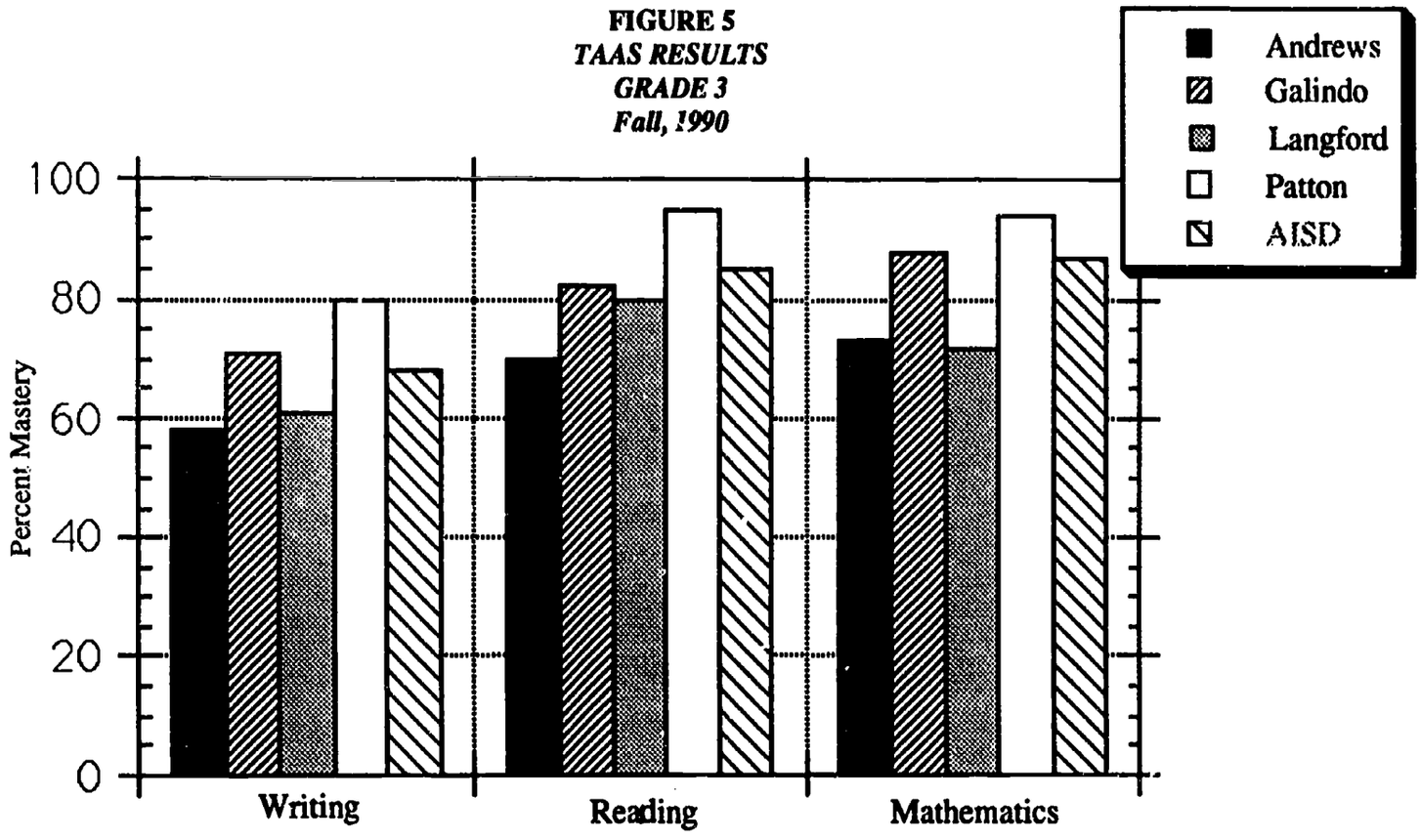
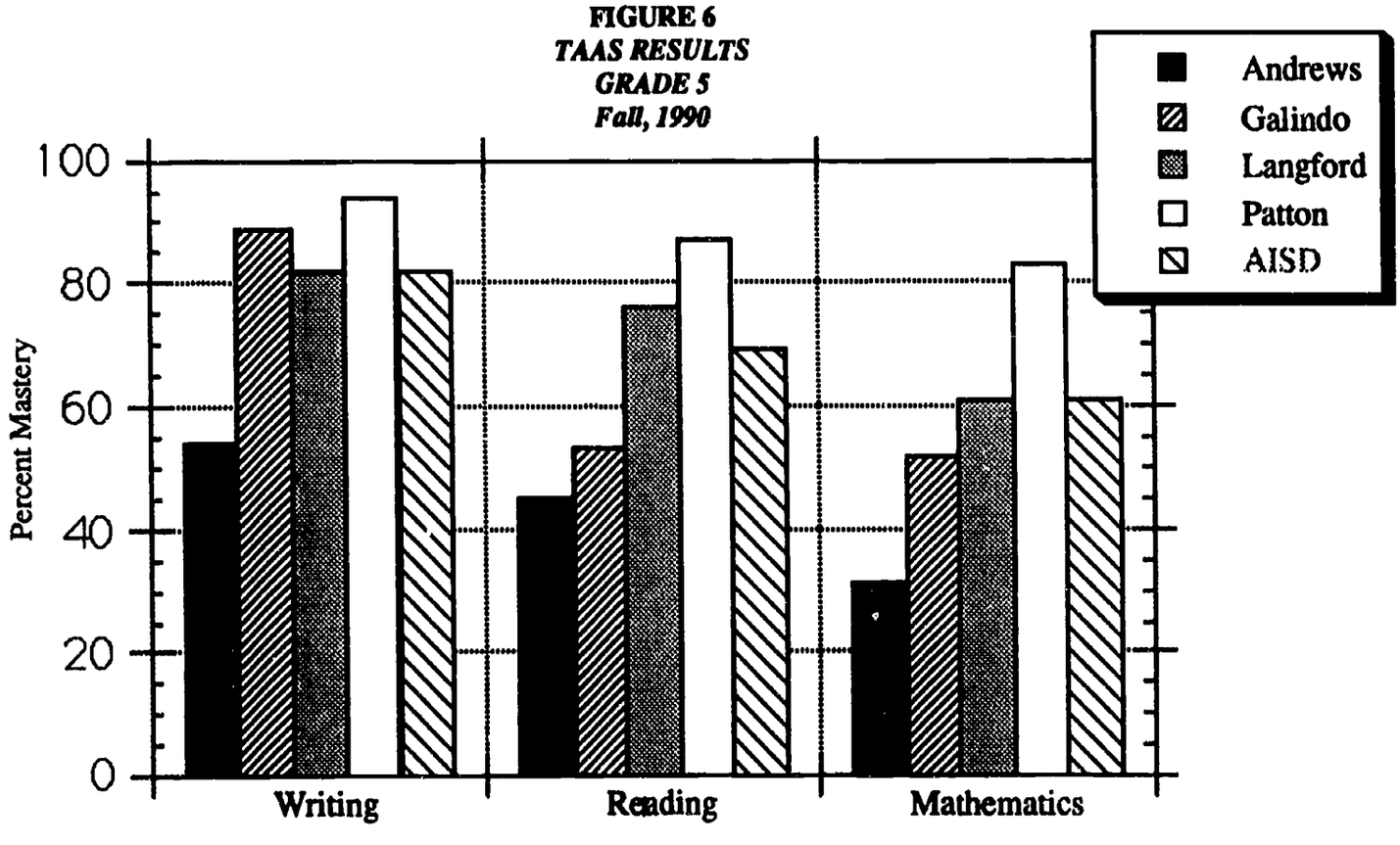


FIGURE 6
TAAS RESULTS
GRADE 5
Fall, 1990



Norm Reference Tests

The Iowa Tests of Basic Skills (ITBS) is a norm-referenced test (NRT). An NRT is designed to measure student achievement in broadly defined skill areas that cover a wide range of achievement. Scores form NRT's (e.g., percentiles and grade equivalents) compare a student's performance with that of a nationwide sample of students at the same grade. In order to determine how a school district performs in comparion to the nation, national norms provided by the test publishers are used. The most accurate comparisons are made with the most current norms available. This year, AISD scored the ITBS with the 1988 norms.

On the ITBS, the area of highest achievement is first grade mathematics at Andrews, second grade mathematics at Galindo, the third grade composite score at Langford, and second grade mathematics at Patton. Overall, the highest achievement area is second grade mathematics at Patton. See Figure 7.

FIGURE 7
ITBS MEDIAN PERCENTILES
Spring, 1991
(1988 Norms)

Grade	Reading				Mathematics				Composite			
	A	G	L	P	A	G	L	P	A	G	L	P
1	42	51	36	74	56	56	41	75	53	55	35	78
2	32	50	35	79	47	70	43	84	37	58	39	83
3	27	37	42	67	31	51	46	75	32	50	55	78
4	25	43	30	65	27	50	33	70	26	50	36	71
5	20	36	52	67	22	39	41	74	22	35	48	75

A = Andrews Elementary
G = Galindo Elementary
L = Langford Elementary
P = Patton Elementary

Report on School Effectiveness

Because the four schools differ significantly on many different factors, to compare them would be somewhat misleading. A more accurate method to evaluate achievement levels for comparing schools is through the use of the Report On School Effectiveness (ROSE). The ROSE provides information about AISD schools' achievement that is more than just descriptive. ROSE is the result of a series of statistical analyses which answer the question, "How do the achievement gains of a school's students compare with those of other AISD students of the same previous achievement levels and background characteristics?" Regression analysis is used to predict achievement levels in reading and mathematics for each student based on the following characteristics:

- Age
- Sex,
- Ethnicity,
- Estimate of Family Income,
- Whether or not the student received a free or reduced-price lunch,
- Whether or not the student was a reassigned student, and
- The average pupil/teacher ratio for the student's grade at his/her school.

The predicted scores are then compared with the student's actual scores. The verbal descriptors, "Exceeded Predicted Gain," "Achieved Predicted Gain," and "Below Predicted Gain" are assigned according to the statistical significance of the results. If the obtained average is far enough above or below the predicted value so that it would have occurred only 5% of the time or less by chance, then the "Exceeded" or "Below" is assigned. See Figure 8.

For this year's achievement on ROSE, the Apple school "Achieved Predicted Gain" in all 12 possible categories, no "Exceeded Predicted Gain" and no "Below Predicted Gain." The IBM schools "Achieved Predicted Gain" in 23, "Exceeded Predicted Gain" in 3, and were "Below Predicted Gain" in 10 of the total possible 36 categories.

Further Analysis

The question could be asked, "Has the first year's implementation of computer technology affected the achievement of students at the four schools involved in the project?"

The main purpose of the implementation of technology at the four schools involved is to improve academic achievement so that all students are functioning at or beyond the age appropriate grade level. Implementation of anything new, whether a new curriculum, a new textbook, or a new teaching method, can have positive effects, negative effects, or no discernable effects at all.

Timing is an important element in asking whether the implementation of something new has had an effect and, if so, what effect. To conclude that an effect has been positive, there must be a clear relationship between the implementation and the outcome measure. At this point in time, the computer technology

FIGURE 8
REPORT ON SCHOOL EFFECTIVENESS (ROSE)
1989-90, 1990-91

	(IBM) Andrews		(Apple) Galindo		(IBM) Langford		(IBM) Patton	
	1989-90	1990-91	1989-90	1990-91	1989-90	1990-91	1989-90	1990-91
Grade 2								
Reading	=	=	=	=	-	=	=	=
Mathematics	=	=	+	=	=	-	=	=
Language	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Work Study	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Grade 3								
Reading	+	+	=	=	=	+	=	=
Mathematics	+	+	=	=	=	=	=	-
Language	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Work Study	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Grade 4								
Reading	=	=	=	=	=	=	=	=
Mathematics	=	-	=	=	=	-	=	=
Language	=	-	=	=	=	-	=	-
Work Study	=	=	=	=	=	-	=	-
Grade 5								
Reading	=	=	=	=	=	=	=	=
Mathematics	=	=	-	=	=	=	-	=
Language	=	=	=	=	=	=	=	=
Work Study	=	-	=	=	=	=	=	=

Achieved Predicted Gain: =

Exceeded Predicted Gain: +

Below Predicted Gain: -

n/a = test not given at that grade

been in place long enough to conclude that any positive change in achievement was related to the computer technology. A possible question, and probably more useful at this point, would be to ask whether the process of implementation has had a deleterious effect on achivement. What evidence do we have that there has been a negative effect or that there has been no effect at all? What we are asking is "Did achievement decrease because of the process of implementation of technology?"

To answer this question, let us look at the ROSE results at the four schools by grade level and by school for the last two years. See Figures 9 and 10.

At the Apple school (Galindo), from last year to this, out of 12 possible comparisons:

- 1 (8.3%) down
- 1 (8.3%) up
- 10 (83.3%) same

At the three IBM schools (Andrews, Langford, and Patton), from last year to this, out of 36 possible comparisons:

- 10 (27.8%) down
- 3 (8.3%) up
- 23 (63.9%) same

FIGURE 9
BY GRADE LEVEL
Comparing 1889-90 and 1990-91

Grade	Apple	IBM
2	1 down (mathematics) 1 same	1 down (reading) 1 up (reading) 4 same
3	2 same	1 down (mathematics) 1 up (reading) 2 same
4	4 same	7 down (2 in mathematics, 3 in language, and 2 in work study) 5 same
5	1 up (mathematics) 3 same	1 down (work study skills) 1 up (mathematics) 10 same

ERRATA

The first line on page 12 should begin with the words "has not..."

FIGURE 10
BY SCHOOL (IBM)
Comparing 1989-90 and 1990-91

Andrews	Langford	Patton
3 down (2 fourth grade 1 fifth grade) 9 same	4 down (1 second grade, 3 fourth grade) 2 up (1 second grade 1 third grade) 6 same	3 down (1 third grade, 2 fourth grade) 8 same 1 up (fifth grade)

Overall, for the majority of comparisons there were no changes, but there was some change in achievement results. The most change in achievement results apparently took place at the fourth grade (58.3%) and the least amount of change in achievement results took place at the fifth (16.7%) grade. More change in achievement results took place at the IBM schools (36.1%) than at the Apple school (16.7%). Within the IBM schools more change in achievement results occurred at Langford (50%) and the least change in achievement results occurred at Andrews (25%).

Of the changes that occurred:

Apple

50% down, 50% up

IBM

76.9% down, 23.1% up

second grade: 50% down, 50% up
third grade: 50% down, 50% up
fourth grade: 100% down, 0% up
fifth grade: 50% down, 50% up

Langford: 66.7% down, 33.3% up
Andrews: 100% down, 0% up
Patton: 75% down, 25% up

A higher percentage of changes occurred at the schools with IBM equipment and 76.9% of them were negative changes. The largest number of changes occurred at fourth grade and 100% of those changes were negative. The largest number of changes occurred at Langford and 66.7% of them were negative.

From visits to the schools we know that the implementation of computer technology at the Apple school involved computer labs for grades 2-5, while in the IBM schools the implementation of computer technology involved placing computers directly in the classroom in addition to computer labs. It is possible that there was more disruption to the normal routine at the IBM schools than at the Apple school and that this had some effect on the achievement results.

There was some variation in the amount of implementation between the IBM schools and between grade levels. The teachers reported more use of computers at the upper grades, grades 4 and 5. There was more reported implementation of the new technology at Langford and Galindo possibly because they were the first schools that were "up and running."

The implementation of the new technology may have had some negative effect where it was most heavily implemented. This could have come from the change to the normal routine and the transition from the old way of doing things to the new way. The reader needs to interpret these results with caution. Possibly, the negative changes in achievement results came from other causes.

For more information on achievement, see the Annual Report on Student Achievement, 1990-91.

IMPLEMENTATION

The initial training for teachers began in July, 1990, and extended to January, 1991, as planned. Installation of the student computers was to take place in October, 1990, but due to shipment delays of the hardware and the fileservers, installation did not begin until January, 1991, and was completed in April, 1991.

Training

Computer training for the teachers was planned and scheduled by IBM for Andrews, Langford, and Patton and by Apple, Inc./ComputerLand for Galindo. All teachers at the participating schools were required to attend training. Teachers were given the option when their school was chosen as a Project A+ school to transfer to another AISD elementary school if they did not want to participate in the project. From Andrews 14 teachers transferred, from Galindo 1, from Langford 3, and from Patton 1. The transfers may or may not have been a result of Project A+.

Training began in July, 1990, and extended into January, 1991, (see Figure 11). Some training was scheduled for Saturdays, following a full work week. On the average for the 1990-91 school year, teachers with the IBM schools received 88 hours of formal training, and teachers from the Apple school received 36 hours of formal training.

Teachers attending training after school hours received a stipend for their participation. A full day's training paid $40 to the teacher, $20 for a half day. Some of the training, specifically Teaching and Learning with Computers (TLC) and Writing to Read™ (WTR), were held during the school day. Substitutes took over the classes of the participating teachers. Some substitutes were hired by the District for $40 per day and others were community volunteers from various Austin businesses and parent volunteers.

Sixty employees from Texas Instruments (TI) in Austin helped supervise classes totaling 120 students at Andrews for two days. One day the students took a field trip to the TI facilities which included an anti-drug film, planting a tree, touring the facility, seeing the insides of a computer, having lunch, and using computers to print certificates and run software. The following day the TI employees worked with the Andrews students in class.

3M, MCC, The University of Texas, and the AISD Adult Education team also provided volunteers to work with the students from Andrews and Langford. The roles of the volunteers varied between teaching whole classes and tutoring individual students. Parent volunteers supported Patton's training release time.

FIGURE 11
TEACHER TRAINING WORKSHOPS
1990-91

ANDREWS, LANGFORD, & PATTON (IBM SCHOOLS)

DATE	SUBJECT	LOCATION	LENGTH	NUMBER OF PARTICIPANTS
July/August '90	IBM courseware	Bowie High School	3 wks, 1 wk per school	165
September '90	Excelsior Grade Book	Bowie High School	1 day	140
October '90	Word Processing (Displaywrite)	Bowie High School	1 day	158
November '90	Teaching and Learning with Computers (TLC) for Language Arts	IBM, 301 Congress	2 wks, 2 days per school	76
December '90	Writing to Read™ (WTR)	IBM, 301 Congress	2 wks, 2 days per school	45
January/Feb. '90	Make-up Summer Training	Langford Elementary	2 days	12

GALINDO (APPLE SCHOOL)

DATE	SUBJECT	LOCATION	LENGTH	NUMBER OF PARTICIPANTS
September '90	Introduction to the Macintosh	Galindo Elementary	1/2 day	20
October '90	Apple Learning Series	Galindo Elementary	four 1/2 days	20
November '90	Writing Process	Galindo Elementary	two 1/2 days	19
January '91	Electronic Mail	Galindo Elementary	1/2 day	54
	Homecard	Galindo Elementary	1/2 day	49

Generally, the Project A+ staff and volunteers felt that the two days were a success. According to the volunteers, the best aspect of the program was the interaction between the students and the volunteers. Many children wrote thank-you notes to the volunteers expressing their appreciation and saying how much fun they had. Project A+ plans to incorporate volunteers into the program again if teachers attend training during the school day.

Altogether, 13 teachers were required to attend the make-up training for the summer workshops. The make-up workshops were held in January and February, 1991, with two teachers from Patton, two from Langford, and nine from Andrews participating. Andrews sent the most teachers because their student enrollment increased in the fall, and new teachers were hired after the summer workshops.

Additional training was planned for summer, 1991, to review old issues and address new ones. Several teachers from each of the four campuses attended workshops and then returned to their school to train the other teachers there. See Figure 12.

FIGURE 12
TEACHER TRAINING
Summer, 1991

IBM			
Subject	Date	Time	Place
CNI	June 10, 11, 12	8:30 - 4:30	Patton Elementary
Writing to Write (WTR)	August 12, 13, 14	8:30 - 4:30	IBM
Teaching and Learning with Computers (TLC) for language arts	unknown	unknown	unknown
Basic Skills Courseware / TLC	August 5	9:00 - 4:00	each campus
Excelsior / I Class	August 6	9:00 - 4:00	each campus
Express Publisher	August 7	9:00 - 4:00	each campus
Linkway	August 8	9:00 - 4:00	each campus
APPLE			
Subject	Date	Time	Place
WordPerfect	August 15	unknown	Galindo Elementary
E Mail / Hypercard / Printer	August 16	unknown	Galindo Elementary

Summer School

Summer school was provided at each of the four campuses for students who were not performing at grade level. Summer school was offered on a voluntary basis, although the students who most needed it were encouraged to attend. An informal list of students was created at each school that ranked students to determine if they qualified for summer school. Students were encouraged to attend summer school if they were overage, below grade level, scored low on the TAAS, TEAMS, ITBS, or End of Book test, had poor class performance, or were recommended by their teachers.

Each school received $10,000 for summer school. Andrews and Langford received a little extra to provide transportation for students.

The basic plan for each campus was the same, but because each campus was responsible for designing its own summer school, there was some variation. See Figure 13. Each campus implemented pre- and post-testing of summer school students to accurately determine their needs and to measure their performance.

FIGURE 13
SUMMER SCHOOL
1991

	Andrews	Galindo	Langford	Patton
# of Students	61	60	54	56
% of Student Populations served	8%	8%	10%	6%
Class Size	15-16	8-17	13-14	12-15
Dates	6/24 - 7/25	6/24 - 7/25	6/24 - 7/25	6/24 - 7/25
Days	Mon - Thurs 19 total days	Mon - Thurs 19 total days	Mon - Thurs 19 total days	Mon - Thurs 19 total days
Time				
students	8:30 - 11:30	8:30 - 11:30	8:30 - 11:30	8:30 - 11:30
teachers	8:15 - 12:15	8:15 - 12:15	8:15 - 12:15	8:00 - 12:00
Grades	2 - 5	2 - 5	3 - 5	2 - 5
Focus	math, language arts	math, language arts	math, language arts	math, language arts
Attendance Incentive	95% attendance wins calculator	95% attendance wins calculator	95% attendance wins calculator	95% attendance wins calculator
Computer Time	4 hrs per wk per student	4 hrs per wk per student	4 hrs per wk per student	4 hrs per wk per student

Langford and Galindo had other summer school programs at their campuses as well as the A+ summer school. Galindo maintained two other programs: the Community in Schools (CIS) summer camp with lasted all summer and the Extend-A-Care for program for special education students which lasted from June 10 to August 2. Langford also provided two other programs: Extend-A-Care, whereby the school provides a free breakfast and lunch to members of the community, and the Austin Parks and Recreation Department sponsored an adult supervised playground play.

The evaluation of summer school will be included in the 1991-92 Project A+ Elementary Technology Demonstration School report.

Teacher Computers

Teachers received their computers after they had attended the initial training in July and August, 1990. Following the training, the teachers were issued their computers so that they could take them home and practice until the beginning of school. The computers were in the teachers' possession at home from two days to three weeks prior to the opening of school for the fall. Teachers were required to inform their home insurance company of the computer in the home in case of theft. Teachers were also permitted to take their computers home over the summer, 1991, and many did.

Number of Computers

Each of the schools received teacher computers, student computers, and computers for the laboratories. All of the IBM computers, except the computers in the Writing to Read™ lab, were networked. All of the Apple computers were networked, except for the computers in the PK, K and 1.

Abiding by a stipulation of the grant from IBM, all Apple computers that had been in Andrews, Langford, and Patton (IBM schools) were removed in the fall of 1990 when Project A+ began (except for a few computers at Patton and Andrews that are used for special education). Most of the Apple computers that were removed were then given to Galindo.

The following lists the type and number of computers on each campus.

Andrews

Student Machines 8525-G06		
Pre-K, K, Special Ed: 2 per class		30
Grades 1-5: 4 per class		124
Laboratories 8525-G06		
2 Writing to Read™	(9 in each lab)	18
Student Lab		24
Parent Take-Home 8525-G06		40
Teacher Machines 850-E21		58
TOTAL		294

Langford

Student Machines 8525-G06	
Pre-K, K, Special Ed: 2 per class	18
Grades 1-5: 4 per class	72
Laboratories 8525-G06	
1 Writing to Read™	9
Student Lab	24
Parent Take-Home 8525G06	40
Teacher Machines 850-E21	41
TOTAL	204

Patton

Student Machines 8525-G06		
Pre-K, K, Special Ed: 2 per class		22
Grades 1-5: 4 per class		152
Laboratories 8525-G06		
2 Writing to Read™	(9 in each lab)	18
Student Lab		24
Parent Take-Home 8525-G06		40
Teacher Machines 850-E21		62
TOTAL		318

Galindo

Student Machines		
Pre-K, K		
Apple II GS	(Each class has 1 GS	15
Apple II E	and 2 II E's)	30
Teacher Machines Macintosh SE		40
Laboratories		
Writing Lab, Mac Plus		30
Basic Skills Lab, Apple II GS		24
TOTAL		139

Extra Software / Courseware

Teachers at the IBM schools were free to use whatever software they wished on the teachers' computers. For the student computers, only the courseware that was donated can be used so that the project can be accurately evaluated (the schools used the same products). The Apple school, Galindo, had more freedom in purchasing software and added one courseware package for the PK, K and 1 student computers.

Apple School

See Figure 14 for a list of the courseware on the Apple student machines. The teacher computers at Galindo have access to the following software:

Word Perfect 2.01
Quick Mail
Home Card

IBM Schools

See Figure 15 for a list of the software on the IBM student machines. The teachers' IBM machines include all of the student software in addition to the following:

Excelsior Grade Book/Quiz
From network: Microsoft Works
Lanschool
Linkway
Express Publisher
Displaywrite Assistant

Bilingual / Limited English Proficient (LEP) Students

Bilingual/Limited English Proficient (LEP) students used the same English language software as the nonbilingual/LEP students at the IBM and Apple schools. However, two special Spanish programs "Vale," the Spanish version of Writing to Read™, and "Mi Editor Primerio," a word processing package, were offered at the IBM schools. Galindo had no special software for Spanish-speaking students.

Computer Buy Program

As has been done through other District projects, an IBM computer buy program was offered to all employees in the District as an outgrowth of Project A+. The prices are generally 40% off list price and include approximately $1000 (retail price) worth of software at no extra cost. By December, 1990, information packets describing several different IBM computers and printers were available at each school office along with loan information from the Austin Area Teachers Federal Credit Union.

FIGURE 14
SOFTWARE ON APPLE STUDENT COMPUTERS

READING/LANGUAGE ARTS	PK	K	1	2	3	4	5	6
The Muppet Word Book	◆	◆	◆					
Muppets on Stage	◆	◆	◆					
Color Me	◆	◆	◆					
Muppetville	◆	◆	◆					
Touch 'N Write	◆	◆	◆					
Talking Text Writer	◆	◆	◆					
Sound Ideas:								
Word Attack	◆	◆	◆					
Consonants	◆	◆	◆					
Vowels	◆	◆	◆					
Where Did My Toothbrush Go?	◆	◆	◆					
Monsters & Make Believe	◆	◆	◆					
Words at Work: Compound It!					◆	◆	◆	◆
Those Amazing Reading Machines								
Level I					◆			
Level II						◆		
Level III							◆	
Level IV								◆
Phonics Prime Time								
Initial Consonants		◆	◆					
Final Consonants		◆	◆	◆				
Vowels I			◆	◆				
Vowels II			◆	◆	◆			
MATHEMATICS								
Addition Logician					◆			
Circus Math				◆	◆			
Conquering Decimals (addition & subtraction)						◆	◆	◆
Conquering Decimals (multiplication & division)							◆	◆
Fraction Practice Unlimited						◆	◆	◆
Multiplication Puzzles					◆	◆		
Quotient Quest						◆		
Space Subtraction			◆	◆	◆			
Subtraction Puzzles					◆			

KEY: ● Enrichment ◆ Developmental

FIGURE 15
IBM SOFTWARE ON STUDENT COMPUTERS

READING/LANGUAGE ARTS	PK	K	1	2	3	4	5	6
Bouncy Bee Learns Letters	◆	◆						
Bouncy Bee Learns Words		◆	◆					
Writing to Read™		◆	◆					
Primary Editor Plus		◆	◆	◆	◆	◆	◆	◆
Voy a Leer Escribiendo (Vale)		◆	◆	◆	◆			
Mi Editor Primario		◆	◆	◆	◆	◆	◆	◆
Touch Typing for Beginners				●	◆	◆	◆	◆
Reading for Meaning Series								
Reading for Meaning: Level I			●	◆				
Reading for Meaning: Level II				●	◆	◆		
Reading for Meaning: Level III						●	◆	◆
Reading for Information Series								
Reading for Information: Level II				●	◆	◆		
Reading for Information: Level III						●	◆	◆
Spelling Series								
Spelling: Level I			◆	◆				
Spelling: Level II				●	◆	◆		
Spelling: Level III						●	◆	◆
Vocabulary Series								
Vocabulary: Level II				●	◆	◆		
Vocabulary: Level III						●	◆	◆
Vocabulary: Level IV								●
Parts of Speech Series								
Parts of Speech: Level II				●	◆	◆		
Parts of Speech: Level III						●	◆	◆
Punctuation Series								
Punctuation: Level II				●	◆	◆		
Punctuation: Level III						●	◆	◆
Punctuation: Level IV								●
Combining Sentences Series								
Combining Sentences: Level II				●	◆	◆		
Combining Sentences: Level III						●	◆	◆
Combining Sentences: Level IV								●
MATHEMATICS								
Math Concepts Series								
Math Concepts: Level P		◆						
Math Concepts: Level I		●	◆	◆				
Math Concepts: Level II				●	◆	◆		
Math Concepts: Level III						●	◆	◆
Math Concepts: Level IV								●
Exploring Measurement, Time and Money								
Level I	●	◆	◆	◆				
Level II	●	●	●	●	◆	◆		
Level III					●	●	◆	◆
Math Practice Series								
Math Practice Series: Level I			◆	◆				
Math Practice Series: Level II				●	◆	◆		
Math Practice Series: Level III						●	◆	◆

KEY: ● Enrichment ◆ Developmental

ComputerLand scheduled an open house on two Saturdays in December, 1990, to display the available IBM computers and to provide staff to answer questions. An Apple computer-buy program was announced in April, 1991. The prices were lower than retail and included 12 hours of free training with each computer purchased. AISD personnel had from April 17, 1991, to May 20, 1991, to place their orders. Computers were displayed at three open houses, two at ComputerLand and one at another location.

The District arranged financing of the computers in the following ways:

1. IBM Credit Card (for IBM computers): a revolving account at approximately 18% annual interest.

2. Loan from Austin Area Teacher Federal Credit Union: at 9.0% annual pecentage rate (APR) for a share secured and 13.9% to 15.9% APR for unsecured shares.

As of April 15, 1991, ComputerLand could no longer sell IBM computers for educational purposes because of regulations put forth by Apple, Inc., so the District set up arrangements with NYNEX Business Center for the sale of IBM computers.

Equipment Repair

IBM supports a one year warranty on their equipment. The computers will be under warranty until January, 1992. IBM makes repairs on all breakdowns while equipment is under warranty. AISD is responsible for delivering the broken equipment to the IBM repair facility.

Apple supports a one year warranty for the Mac Plus computers. The Mac Pluses will be under warranty until December, 1991. The Apple II GS computers are repaired at the AISD Service Center.

Summary of Project Costs to AISD

Project A+ Elementary Technology Demonstration Schools was made possible by a grant from IBM and equipment donations from Apple; however, for the project to actually come about, AISD had to invest its own resources. These additional costs to the District include project staff, the rewiring of schools for computers, summer school, computer equipment, teacher stipends, and computer supplies (diskettes, computer paper, etc.). The total expenditure from AISD for Project A+ Elementary Technology Demonstration Schools is approximately $462,000: (Figures rounded.)

Cost of Wiring	$	118,300.00
Staff	$	257,000.00
Stipends	$	45,000.00
Supplies	$	1,000.00
Summer School	$	41,000.00
	$	462,300.00

Cost of Wiring

For the computers to be installed in the four A+ schools, each campus had to undergo special wiring and cabling. Andrews, the oldest of the schools, had the most extensive wiring. The cost of wiring for all the Project A+ Elementary Technology Demonstration Schools is as follows:

As of August 31, 1990	$ 18,675.00
For the 1990-91 school year	$ 99,617.38
Total	$118,292.38

Staff

The installation of technology in the four schools required that additional staff be hired to provide technical support for the project. The position is "professional" according to AISD job classifications. The salary ranges from $21,000 to $36,000 for 185 days per year. A technology coordinator was hired in August, 1990, to organinze the training, the computer installation, to work with the technical support from IBM and Apple, and generally to supervise the project at all four schools. The technology coordinator, who had taught in AISD for over 10 years, had earned a master's degree in educational technology and had conducted workshops in technology for the District.

An evaluation associate was hired in October, 1991, to conduct the evaluation of the project. The position is "professional" according to AISD job classifications. The salary ranges from $23,000 to $39,500 for 230 days per year.

During the fall of 1990, computer assistants were hired to provide technical support in the Writing to Read™ (IBM schools only) and mathematics/ language arts laboratories in each of the four schools. The positions are

"classified" according to AISD's employment categories. The official title of the position is "teacher assistant" who "assists classroom teachers in instructional activities in a variety of duties." Educational requirements include "knowledge of general office procedures and/or knowledge of educational assistance techniques;" a high school diploma or equivalent is required. The salary scale ranges from $15,000 to $22,500 for nine months depending upon years of experience. A total of nine computer assistants was distributed throughout the four schools: three at Andrews and Patton, two at Langford, one at Galindo. (Two of the WTR lab assistants were certified teachers, but received the computer assistant salary.)

Computer Lab Assistants

Computer assistants were required to attend all of the training. All but one of the assistants were hired after the beginning of the school year and following the summer training. Because they missed the summer training, each assistant had to attend the make-up training in January and February.

The computer lab assistants are assigned either to WTR labs, mathematics/language arts labs, or the writing lab (Galindo only). The WTR assistants provide support only in the WTR labs; all of the other assistants provide support for the mathematics/language arts labs and technical support for the whole school.

Telephones

According to the original plan, telephones are to be in every classroom to help provide for greater teacher-parent communication. Because of the funding considerations, the telephones are scheduled to be purchased in the summer of 1991, and installed in the fall, 1991.

Writing to Read™

Writing to Read™ (WTR) is a literacy program from IBM with the purpose of teaching young children to read through their own writing. WTR teaches children to write any word they can say before they can read and is designed as a multiactivity, multisensory approach to learning for use in kindergarten and first grade classes. Students rotate among five workstations, two of which involve computers. At one of the computer workstations, students work with computers to learn 42 phonemes (letter-sound combinations) that make up the English language (rather than using standard English spelling) in the context of 30 familiar words. At another computer station, they type stories on computers. A third learning station provides students with tape-recorded stories that they can follow in books. A fourth gives students the opportunity to write stories using paper and pencil, and a fifth provides additional practice with letter sounds using a variety of tactile media. (Only Andrews had a WTR lab before the implementation of the project.)

Teaching and Learning with Computers

Teaching and Learning with Computers (TLC) is an IBM centers-based delivery system designed to accompany the IBM software and incorporate it into the curriculum. TLC, for grades 2-5 in language arts this past year and in mathematics next year, is supplemental to the curriculum in place, but requires restructuring of the classroom environment. TLC is used only for the IBM computer schools, not Galindo.

The teachers attended training for two full days in TLC at IBM in November, 1990. Because the computers have taken longer for installation than was expected, most principals and teachers resisted implementation of TLC this past school year. It appeared that teachers resisted the change because of the time factor, not because they dislike TLC.

Computer Use

At Andrews, Langford, and Patton computers were available in the classroom and in laboratories. Pre-K through first had two computers in each classroom and attended Writing to Read™ labs for five hours per week. Grades 2-5 had five computers in each classroom, four student and one teacher model, and a 24 station mathematics/language arts lab at each campus. Computer use in the classrooms varied, but because much of the software was for more advanced students, the pre-K to first graders used the computers less in the classroom than the other grades. Because the fifth grade classes at Patton were larger than the earlier grades, six computers from the lab were removed and transferred to the fifth grade classrooms so they would have five student machines and maintain the student-computer ratio of the other classes.

Each campus decided for itself how the mathematics/language arts computer labs would be used. Andrews and Langford developed a schedule for all the grade 2-5 classes and each class attended the lab at least once a week. Patton did not develop a formal schedule. Due to the late implementation of the computer lab, the school decided that classes would schedule lab times when they needed to and a formal schedule will be developed in the fall.

Galindo had two computer laboratories, one for mathematics/language arts and one for writing. Each lab was used three hours per week per class for instruction in grades two through five. Each student worked on a computer. The pre-K through first classes had three computers per room. Each of the three computers was different and offered different capabilities, one had a touch screen for practicing outlining letters and numbers, one had a voice box and adaptable keyboard, and another had a standard screen and keyboard. Each student worked on the three computers for two hours per week combined.

Other Donations

The 3M Foundation and 3M Visual Systems Division contributed a grant of $52,000 to Project A+ in the spring of 1991. The grant was used to provide overhead projectors and color computer display panels to the four Project A+ Elementary Technology Demonstration schools. Each school received one overhead projector and one color computer display panel per grade level. The equipment was received in the summer of 1991, and training will be provided in August, 1991.

ISSUES TO BE RESOLVED

Training

A common complaint from the teachers at all the Project A+ technology schools is that the training was given too far in advance to the actual student computer installation. The training began in late July, 1990, and although the student computers were planned to be in the schools in October, actual installation of student computers occurred in January to March, 1991. In addition to teachers' losing their enthusiasm for computers, they lost their knowledge of the software and processing fundamentals.

Teaching and Learning with Computers

Teaching and Learning with Computers (TLC) was also criticized by some teachers. Their knowledge of TLC grew cold during the time between the training (November, 1990) and the installation of student computers (January to April, 1991). They were encouraged at the training to begin TLC after the winter break: the student could move from station to station omitting the computer station, then add the computers when they are up and running. Implementation of TLC before computer installation was not a popular idea and was not put into practice.

Student Computer Log-on

In order to maintain accurate student records of computer activity (monitored by the computer), students must log-on to the computer with their assigned password, and they must log-off of the computer when they leave the computer station. Often times, teachers may log-on to a computer and let students come and go without logging-on with their own password. In addition, sometimes students work in pairs or more at the computer and the activity can only be recorded under one of the student's password. In order to guard against contaminated records, the process of students logging-in and out of a computer with their assigned password must be enforced.

Because student records were not closely examined in this first year of the Project A+ Elementary Technology Demonstration Schools, abiding by the proper log-on process was not a concern. However, in the following years, the student records will be a primary resource in determining the effectiveness of the technology in improving student achievement.

QUESTIONS TO BE ANSWERED

The answers to the following questions will be critical for the next two years of Project A+ Elementary Technology Demonstration Schools in order to determine the efficacy of the project:

- How effective is the technology plan for elementary schools in improving the achievement of all students and reducing the risk for students at risk of dropping out of school?
- How much time, as recorded by student computer logs, per week, on the average, did students receive instruction on the computers?
- Was the overall project considered effective?
- What elements need to be present to replicate successfully the plan at other schools?

CONCLUSION

At this point, Project A+ Elementary Technology Demonstration Schools can not be evaluated in terms of success or failure. Because of the project's late start, the overall goal of having all students functioning successfully at or beyond grade level cannot yet be legitimately measured. The program must be fully in place before such evaluative questions are presented. However, at this time it can be determined if the project's components are coming together so that full implementation can occur. In summary, most features are in place. Those that are not have been scheduled to be carried out in the 1991-92 school year.

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ATTACHMENT 1

Number and Percent of At-Risk Students Enrolled by October 30, 1990

ANDREWS

Grade	Enrollement	At-Risk	% At-Risk
EK	72	17	23.6
K	128	33	25.8
1	120	69	57.5
2	118	42	35.6
3	118	48	40.7
4	113	63	55.8
5	95	60	63.2
TOTAL	764	332	43.5

This analysis inlcudes all special education students.

GALINDO

Grade	Enrollement	At-Risk	% At-Risk
EK	50	14	28.0
K	126	15	11.9
1	135	81	60.0
2	102	26	25.5
3	120	50	41.7
4	87	41	47.1
5	94	42	44.7
TOTAL	714	269	37.7

This analysis inlcudes all special education students.

LANGFORD

Grade	Enrollement	At-Risk	% At-Risk
EK	60	14	23.3
K	89	9	10.1
1	79	39	49.4
2	90	21	23.3
3	85	27	31.8
4	78	33	42.8
5	65	32	49.2
TOTAL	546	175	32.1

This analysis inlcudes all special education students.

PATTON

Grade	Enrollement	At-Risk	% At-Risk
K	152	9	5.9
1	194	69	35.6
2	168	28	16.7
3	167	36	21.6
4	162	20	12.3
5	184	38	20.7
TOTAL	1027	200	19.5

This analysis inlcudes all special education students.

ATTACHMENT 2
Number and Percent of Overage Students Enrolled by October 30, 1990

ANDREWS

Grade	Enrollement	Overage	% Overage
EK	70	.	.
K	110	5	4.5
1	113	8	7.1
2	105	15	14.3
3	108	23	21.3
4	111	34	30.6
5	92	25	27.2
TOTAL	709	110	15.5

Included in the above numbers are 10 students who are 2 or more years overage.

GALINDO

Grade	Enrollement	Overage	% Overage
EK	49	.	.
K	125	1	0.8
1	128	18	14.1
2	99	16	16.2
3	113	31	27.4
4	79	20	25.3
5	85	20	23.5
TOTAL	678	106	15.6

Included in the above numbers are 7 students who are 2 or more years overage.

LANGFORD

Grade	Enrollement	Overage	% Overage
EK	60	.	.
K	79	2	2.5
1	78	11	14.1
2	85	11	12.9
3	79	15	19.0
4	72	20	27.8
5	57	14	24.6
TOTAL	510	73	14.3

Included in the above numbers are 4 students who are 2 or more years overage.

PATTON

Grade	Enrollement	Overage	% Overage
K	151	7	4.6
1	190	25	13.2
2	164	21	12.8
3	159	27	17.0
4	160	10	6.3
5	181	21	11.6
TOTAL	1005	111	11.0

Included in the above numbers are 4 students who are 2 or more years overage.

AUSTIN INDEPENDENT SCHOOL DISTRICT

Department of Management Information

DR. GLYNN LIGON, EXECUTIVE DIRECTOR

OFFICE OF RESEARCH AND EVALUATION

AUTHORS:

Paula Marable, Evaluation Associate

Linda Frazer, Research Analyst

CONTRIBUTING STAFF:

Stacy Buffington, Programmer/Analyst

Ruth Fairchild, Secretary

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