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## ABSTRACT

This paper describes the effectiveness of the Austin Independent School District's public school prekindergarten program during a 3-year period. In 1985-86, the program consisted of full-day classes serving low-achieving and limited-English-proficient (LEP) students in Chapter 1 schools. In 1986-87, the district implemented half-day classes in accordance with a state mandate, and served all low-income and LEP students in the district. In 1987-88, the district doubled the number of teachers, put full-day classes in Chapter 1 schools and half-day classes elsewhere; and began to serve low-income and LEP students as close to their attendance area as possible. In each of the three years, the Peabody Picture Vocabulary Test-Revised was given to all students or to a random sample of students. In 1987-88, the Test de Vocabulario en Imagenes Peabody was given to Hispanic LEP students who were Spanish monolingual. Summarized in the report are: (1) achievement results for similar students in full-day versus half-day programs; (2) achievement results for low-income and limited-English-proficient students; (3) comparisons of 1-year gains during the period; and (4) differences in attendance for the groups. Results indicated that over the 3 years the program was successful despite massive changes. Areas for improvement are indicated. (Kd)

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# *A Successful Public School Prekindergarten Program*

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OBJECTIVES

This paper summarizes:

- Achievement results for similar students in full-day versus half-day programs
- Achievement results for low-income students and limited-English-proficient students
- Comparisons of one-year gains across a three-year period
- Differences in attendance for the above groups.

PERSPECTIVES

Prekindergarten programs have been seen as a very promising way to assist disadvantaged youth overcome learning deficits before formal K-12 schooling begins. Long-term follow-ups of programs such as the Ypsilanti Project (Schweinhart & Weikart, 1988) indicate that prekindergarten can be a powerful preventative measure for these students.

This paper focuses on one District's program over three school years. These were tremendous changes in the program, but the program maintained a high degree of successfulness. In 1985-86 the program was all full-day classes serving low-achieving and limited-English-proficient (LEP) students in Chapter 1 schools. In 1986-87 the District implemented all half-day classes as per a State mandate and served all low-income and LEP students across the District. In 1987-88 the District changed the program massively and doubled the number of teachers, put full-day classes in Chapter 1 schools, and put half-day classes elsewhere and all low-income and LEP students were served as close to their attendance area as possible.

METHOD

In each of the three years mentioned, the Peabody Picture Vocabulary Test-Revised (PPVT-R) was given to either all the students (1985-86) or a random sample of students (1986-87 and 1987-88). Additionally in 1987-88 the Test de Vocabulario en Imagenes Peabody (TVIP) was given to those Hispanic LEP students who were Spanish monolingual. Since the TVIP is a new test, this was considered a pilot testing of this instrument. In all cases students were pretested in the early fall and posttested in the following April.

A series of regression analyses were performed to compare the gains of full-day students from 1985-86 to similar students from 1986-87. Another series of regression analyses were performed to compare the full- and half-day students in 1987-88. Because this was the first year that we gave the TVIP and it was considered a pilot, we did not do any tests of statistical significance--we simply compared gains scores in each language for the full- and half-day Spanish monolingual LEP students.

**HOW DID THE PREKINDERGARTEN PROGRAM IN 1987-88 DIFFER FROM THE PROGRAM OFFERED IN 1986-87 AND 1985-86?**

The Pre-K Program changed dramatically from 1985-86 to 1986-87 to 1987-88. In 1986-87, the District had opted to go to half-day classes as funded by the State funding formula. In 1985-86 and previous years, Chapter 1 or another special funding source had provided a full-day program to students in greatest need. In 1987-88, with the creation of the Priority Schools (Schoolwide Projects), the District implemented both full- and half-day programs. At the 16 Priority Schools and the nine Chapter 1 supplementary schools, Chapter 1 funded the second half of the day, creating a full-day program. In all cases (full- or half-day), students were eligible for service if they were low income or if they were LEP. In Figure 1 are given some comparison figures for 1985-86, 1986-87, and 1987-88.

**FIGURE 1  
COMPARISONS OF 1985-86, 1986-87 AND 1987-88  
AISD PREKINDERGARTEN PROGRAMS**

VARIABLE	1985-86	1986-87	1987-88
Number of Full-Day Classes	22	0	76
Number of Half-Day Classes	0	84	36
Number of Teachers	22	42	94
Number of Students Served Because Low Income	316	1,081	1,352
Number of Students Served Because LEP	117	435	553
Number of Half-Day Students	0	1,516	603
Number of Full-Day Students	433	0	1,302
Number of Students--Total	433	1,516	1,905

**DID PREKINDERGARTEN STUDENTS MAKE ACHIEVEMENT GAINS?**

**PPVT-R**

In order to measure whether or not students had made gains, the Peabody Picture Vocabulary Test-Revised (PPVT-R) was given to a sample of students. The sample was a randomly selected subset of each class. The goal was to test at least 50% of the class, and more if time allowed. In all, a total of 707 students had valid pre- and posttest scores from the 1987-88 school year.

The PPVT-R is an individually administered test that is designed to measure receptive vocabulary. It was chosen for pre-K because of its psychometric qualities; children do not have to be able to speak or write--they point to the answer--and it is easy to administer. Students were pretested in October of 1987 and posttested in April of 1988. The scores reported are the standard scores. These are based on nationally established norms for children of varying age levels. Because the test is age-normed, over a period of time the standard scores of students making average gains are expected to remain constant.

In Figure 2 are presented the mean pretest, posttest, and gain scores for students who had valid scores on both administrations. Students were labeled either bilingual or English-as-a-second language (ESL) depending upon the program of instruction the teachers indicated. All groups made gains over and above what was predicted.

**FIGURE 2**  
**SUMMARY PPVT-R MEAN PRETEST, POSTTEST, AND GAINS, 1987-88**

GROUP	N	$\bar{X}$ PRETEST	$\bar{X}$ POSTTEST	$\bar{X}$ GAIN
Full-Day Bilingual	149	46.8	62.7	15.9
Full-Day ESL	36	63.4	82.9	20.5
Full-Day Low Income	405	77.4	90.5	13.1
Half-Day Bilingual	47	53.9	62.6	8.7
Half-Day ESL	14	64.4	84.0	19.6
Half-Day Low Income	205	80.4	90.0	9.6

Only students with valid pre- and posttests are included.

#### HOW DO THE GAINS MADE THIS YEAR COMPARE WITH THE GAINS MADE IN PREVIOUS YEARS?

##### PPVT-R

The gains made in the full-day programs are very similar to those made in 1985-86 when the District last had full-day pre-K; and the gains made in the half-day programs are very similar to the gains made in 1986-87 when the District only had half-day classes. For the purposes of comparisons with previous years' data, 1987-88 students are grouped under LEP if they were served in either a bilingual or an ESL program.

**FIGURE 3**  
**SUMMARY PPVT-R MEAN PRETEST, POSTTEST,**  
**AND GAINS, 1985-86 THROUGH 1987-88**

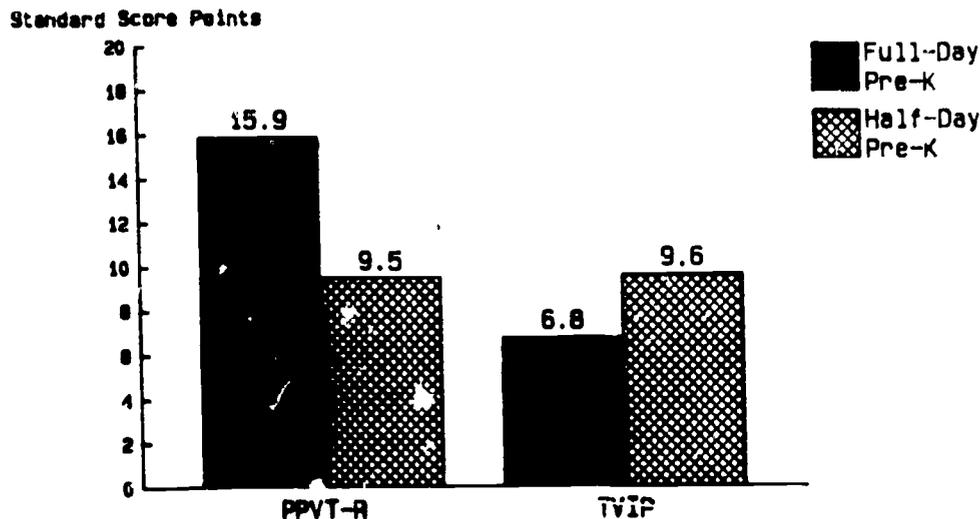
GROUP	N	$\bar{X}$ PRETEST	$\bar{X}$ POSTTEST	$\bar{X}$ GAIN
LEP 1985-86 (Full-day)	28	70.0	85.5	15.5
LEP 1986-87 (Half-day)	94	67.7	78.8	11.4
LEP 1987-88 (Full-day)	185	56.3	67.5	16.8
LEP 1987-88 (Half-day)	61	50.0	66.8	11.2
Low-Income 1985-86 (Full-day)	183	73.2	89.0	15.8
Low-Income 1986-87 (Half-day)	334	79.7	90.6	10.9
Low-Income 1987-88 (Full-day)	405	77.4	90.5	13.1
Low-Income 1987-88 (Half-day)	205	80.4	90.0	9.6

**HOW DID STUDENTS WHO WERE SERVED IN A SPANISH BILINGUAL PROGRAM PERFORM IN ENGLISH AND IN SPANISH?**

**PPVT-R and TVIP**

In 1987-88 the Test de Vocabulario en Imagenes Peabody (TVIP) was available. This is a Spanish version of the PPVT-R. The TVIP was given along with the English PPVT-R to a sample of monolingual Spanish LEP students. The English and Spanish gains for the Spanish monolingual students who received a bilingual instructional program were compared. The TVIP has the same structure and standard score system as does the PPVT-R. The results are presented graphically in Figure 4. The half-day students gained equally well in Spanish and English (9.6 and 9.5 standard score points, respectively), while the full-day students averaged very divergent gains--15.9 in English and 6.8 in Spanish. This may indicate in the full-day classes there is more time spent on English instruction than on the Spanish instruction.

**FIGURE 4**  
**SPANISH MONOLINGUAL STUDENTS TESTED ON PPVT-R AND TVIP**  
**1987-88**



Note: Full-Day n=105  
 Half-Day n= 30

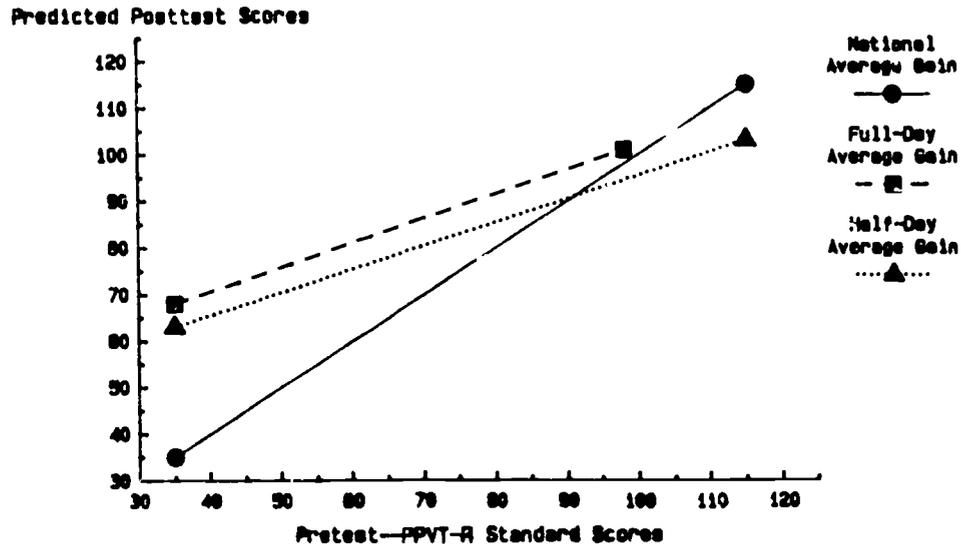
**ARE THE DIFFERENCES IN THE PPVT-R GAINS IN 1987-88 BETWEEN THE FULL-DAY STUDENTS AND THE HALF-DAY STUDENTS STATISTICALLY SIGNIFICANT?**

#### PPVT-R

A series of regression analyses were performed separately for LEP and low-income students to answer this question. Regression analyses produce a regression line that gives the best fit for the pre- and posttest score relationship. Given a pretest score, the regression line will give a predicted posttest score.

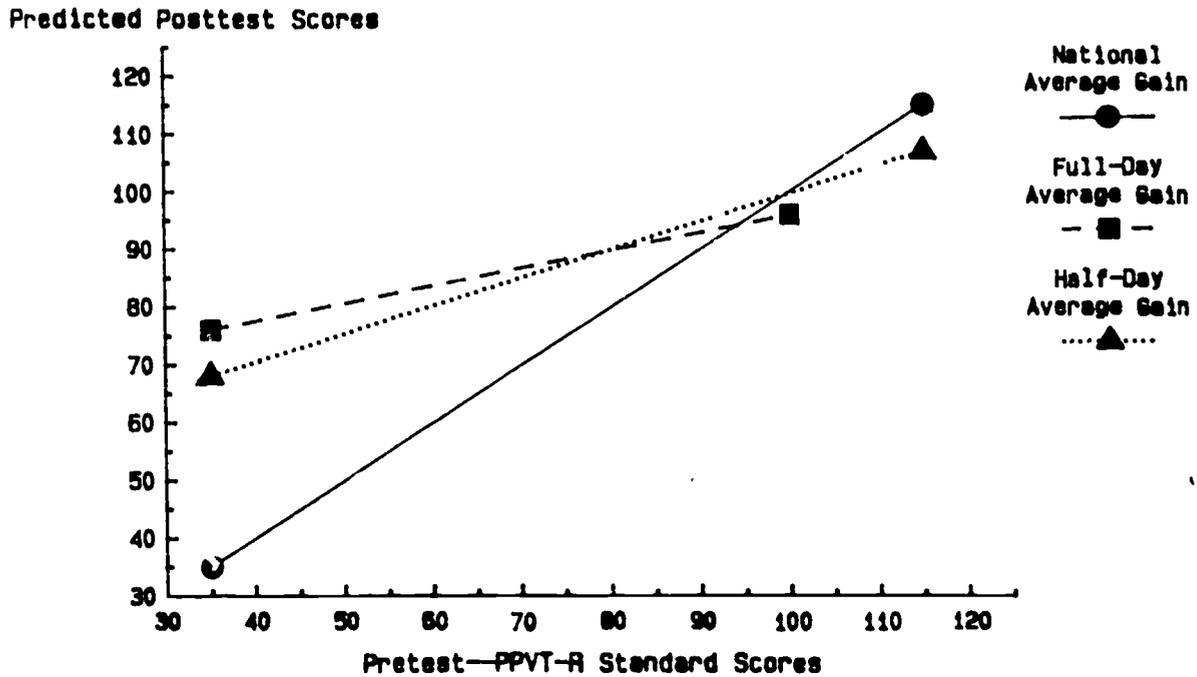
LEP Students. The regression analyses revealed a significant difference in gains for the two groups. The full-day students made significantly greater gains than the half-day students. In Figure 5 are illustrated these differences as compared with the gains the average student would make based on the norming sample. As illustrated across pretest levels, both the half-day and full-day students made greater gains than did the national sample. However, as the plot shows, students at the lower pretest levels make the largest gains. The advantage for pre-K decreases at the average (100) pretest level and beyond. Very few LEP students scored in the 90+ range on the pretest. These results are very similar to the comparison for LEP student gains between 1985-86 data (full-day) versus 1986-87 data (half-day).

**FIGURE 5**  
**PLOT OF REGRESSION LINES FOR FULL-DAY AND HALF-DAY**  
**PREKINDERGARTEN PROGRAMS FOR LEP STUDENTS, 1987-88**



**Low-Income Students.** The regression analyses revealed a significant difference between the full- and half-day students, with full-day students showing higher gains. These differences are illustrated in the plot of the regression lines for the two groups of low-income students and the national average in Figure 6. Although full-day students' gains were higher on the average, these analyses reveal that the full-day program is most beneficial for students with the lowest pretest scores. At a pretest score of about 80, the lines for the two groups cross, indicating nearly equal effectiveness. Or put another way, at pretest scores below 80, full-day students performed better on the posttest than did similar half-day students; however, at pretest scores above 80, the reverse tended to be true. The regression analyses comparing gains for low-income full-day students (in 1985-86) with low-income half-day students (in 1986-87) were strikingly similar, even to the two lines intersecting near 80.

**FIGURE 6**  
**PLOT OF REGRESSION LINES FOR FULL-DAY AND HALF-DAY**  
**PREKINDERGARTEN PROGRAMS FOR LOW-INCOME STUDENTS**



**WHAT WAS THE AVERAGE NUMBER OF DAYS OF INSTRUCTION RECEIVED BY PREKINDERGARTEN STUDENTS?**

#### Attendance File

The AISD Attendance File was accessed to determine what were pre-K students' average number of days enrolled, attended, and absent. These data were gathered separately for full-day and half-day students. In Figure 7, this information is presented along with an attendance rate. The data from 1985-86 and 1986-87 are included for comparison purposes. Although the rates for full- and half-day were similar to their counterparts in previous years, they were closer to each other than the rates in 1985-86 and 1986-87 were to each other. Considering the average AISD elementary percent of attendance for 1987-88 was 95.3%, the figures of 91.7% and 90.1% are below this figure.

**FIGURE 7  
AVERAGE ATTENDANCE FOR PREKINDERGARTEN STUDENTS BY YEAR**

YEAR	FULL/DAY HALF-DAY	DAYS ENROLLED	DAYS ABSENT	DAYS PRESENT	ATTENDANCE RATES
1985-86	Full-Day	153.7	11.6	142.1	92.5%
1986-87	Half-Day	138.5	14.4	124.1	89.6%
1987-88	Full-Day	151.0	12.6	138.4	91.7%
1987-88	Half-Day	139.8	13.9	126.0	90.1%

### Discussion

Our results show that over the last three years we have maintained a successful prekindergarten program despite massive changes in the program. In 1987-88 over 50% of the pre-K teachers were new teachers. The expansion of the program in the last three years has been incredible--from 22 to 112 teachers and from 433 to 1,905 students. The gains made by students in 1987-88 were still well above what would be expected or predicted. Some of the factors that figure in this success include a well-established and extensive curriculum (AISD, 1988); a strong instructional coordinator, regular monthly staff development sessions specific to pre-K, and hiring quality certified teachers. There is also a strong commitment in our District to prekindergarten as one of the best ways to provide a strong school foundation to disadvantaged students. Our local instructional staff works closely and cooperatively with the Chapter 1 staff in planning and administering the program since both local and Chapter 1 funds are used.

Although we consider our program successful on the whole, there are several areas that need improvement. Because the selection criteria have been modified over the last several years, there are an increasing number of low-income students who have higher PPVT-R pretest scores. Even though they are a small percentage of the students, their gains have been small and less than we would like. We are planning to add more challenging activities to our units to better meet these students' needs. We have a great diversity of students receiving ESL instruction. Several years ago we had very few non-Hispanic LEP students. The number and diversity of LEP students speaking languages other than Spanish has been increasing each year. This provides increasing challenges to the curriculum and especially to teachers to best meet the needs of this culturally diverse group of students.

As an evaluator, I would like to do a more in-depth and extensive evaluation of this program. The evaluation of its longitudinal effectiveness is especially important. Unfortunately as pointed out by Christner & Baenen (1988) longitudinal analyses require time and resources. Because of budget cuts our District's evaluation efforts as a whole have been cut back. Additional time and/or resources to conduct a more comprehensive and/or longitudinal evaluation are not currently available.

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