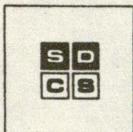


Re: I.5.



## SAN DIEGO CITY SCHOOLS

EDUCATION CENTER | 4100 Normal Street

HOLD FOR RELEASE,  
2:00 P.M., TUESDAY,  
APRIL 13, 1982

DATE: April 7, 1982

MEMO TO: Board of Education

FROM: Isaac *Si*

SUBJECT: SUMMARY OF FINDINGS AND CONCLUSIONS:  
 REPORT NO. 310 - COMPARATIVE ANALYSIS,  
 AGP AND DISTAR INSTRUCTIONAL PROGRAMS

Dr. Robert Smith of the University of Southern California was commissioned by the San Diego Unified School District's Board of Education to compare two major instructional programs in reading and mathematics: AGP (Achievement Goals Program) and DISTAR (Direct Instructional System for Teaching Arithmetic and Reading). Since DISTAR has been implemented in three versions, differing somewhat in the manner in which each is implemented, monitored, and supported, there are altogether four comparison groups:

DISTAR Follow Through (federally funded; sponsored and supervised by the University of Oregon.)

DISTAR District Fully Implemented (district funded; parallels above version but supervised centrally by the district.)

DISTAR District Partially Implemented (district funded; uses DISTAR materials and techniques but independently supervised by each school site administrator.)

AGP (district developed program based on mastery learning and related research.)

Specifically, the purpose of the study was to provide data with respect to the relative effectiveness of these programs in terms of 1) implementation, 2) costs, and 3) achievement for the 1980-81 school year. To understand the report and its implications, it is important to summarize its principal limiting factors: first of all, because DISTAR is essentially a K-3 program, the study deals only with these primary grades for both DISTAR and AGP (the latter program currently spans grades K-7 and is being developed for grades K-12 coverage.) Through a series of interviews with site personnel, program implementation was not found to be an important consideration in explaining differences in program outcomes. The comparison of costs looked at two components: cost of materials (developmental costs were not included) and instructional aides.

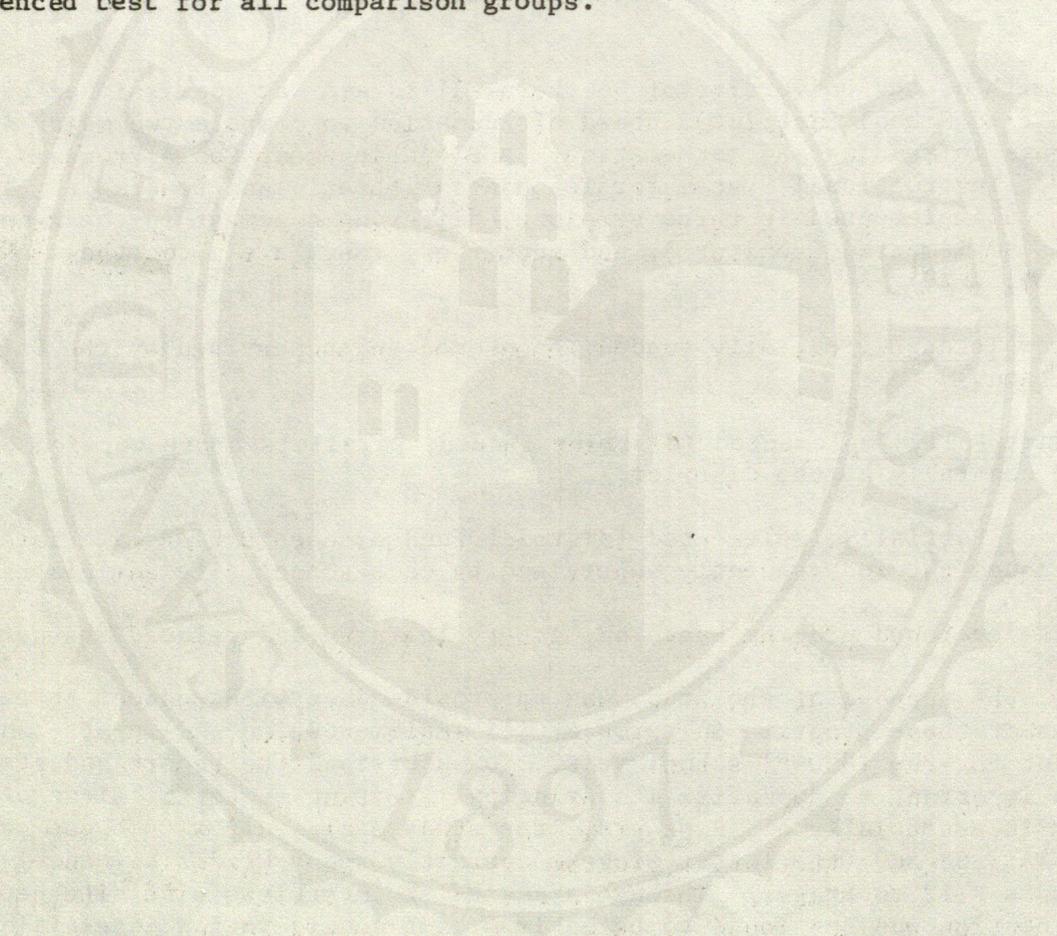
The achievement measure was the Comprehensive Tests of Basic Skills, a norm-referenced test. It compares the performance of students to a norm group across a sample of objectives common to most instructional programs nationally. It does not systematically measure the specific skills taught to each student (which would require a criterion-referenced test). A further qualification is that measurement in the primary grades is more tentative and less reliable because of the limited maturity and experience of younger children and the narrower range of instructional material covered.

Board of Education  
Page 2  
April 7, 1982

Given these constraints, the study concludes that, at this point in time, there is no overall advantage among the three versions of DISTAR or AGP in terms of achievement in reading or mathematics - all show similar results. The cost of materials, excluding developmental costs, are comparable. The program costs, however, are higher for the two versions of DISTAR (Follow Through and Fully Implemented) that require an additional instructional aide in the K-1 classrooms.

Since AGP was in its first year of implementation, while DISTAR has been in place longer, it remains to be seen if similar results will hold for the second year. What this study indicates to date is that the common element in all four programs - a highly structured and focused format for learning - is sufficient to insure equivalent performance on a norm-referenced test for all comparison groups.

SWI:hw



*San Diego City Schools*

**EVALUATION SERVICES OFFICE**

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**COMPARATIVE ANALYSIS**

**AGP and DISTAR  
INSTRUCTIONAL PROGRAMS  
1980-81**

No. 310

Prepared by: Robert A. Smith  
Department of Educational Psychology  
University of Southern California

**APRIL 13, 1982**

Prepared for the Board of Education

COMPARATIVE ANALYSIS  
AGP and DISTAR  
INSTRUCTIONAL PROGRAMS  
SAN DIEGO CITY SCHOOLS

Prepared by

Robert A. Smith

Department of Educational Psychology

University of Southern California

February 23, 1982

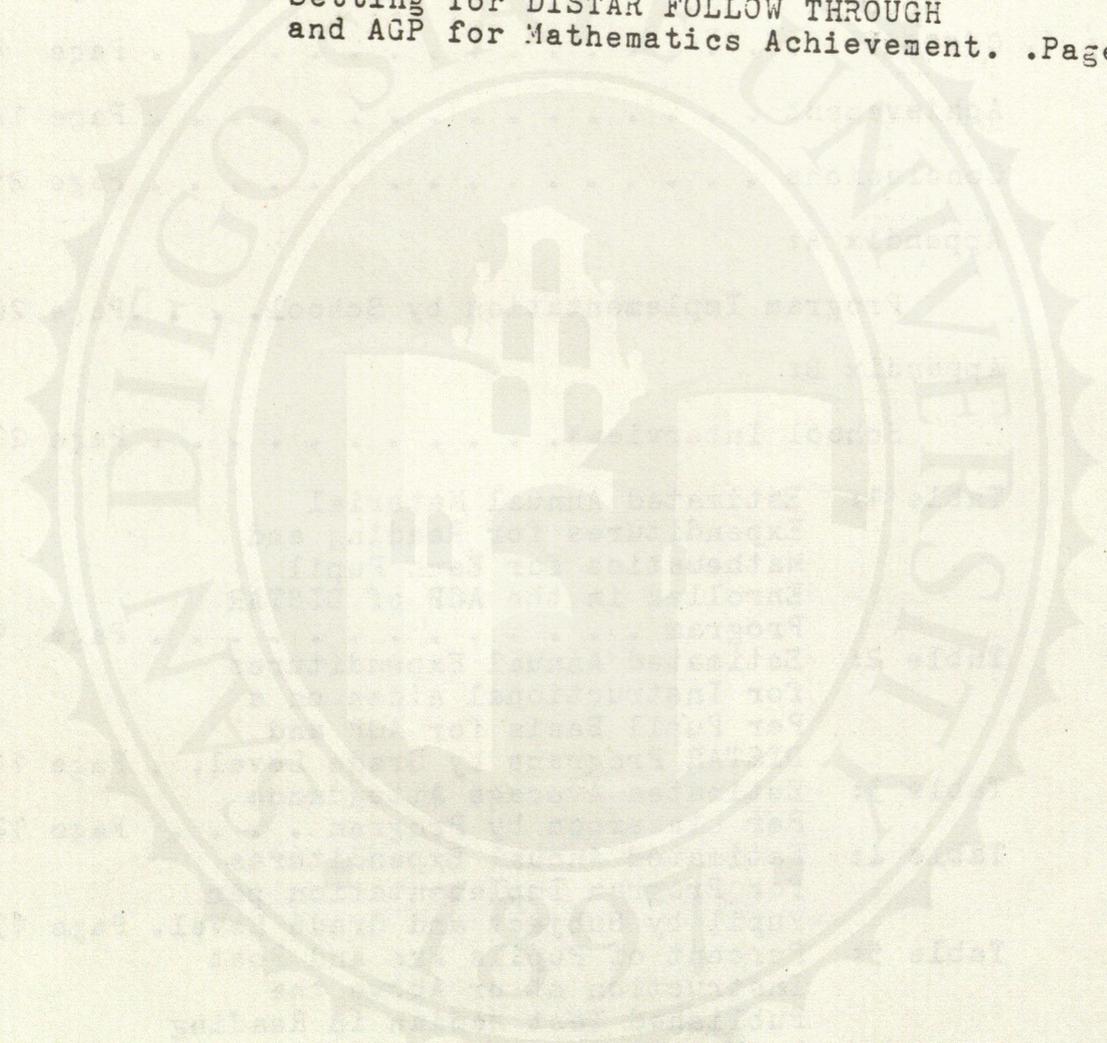
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To honor a commitment to improve the educational achievement level of pupils in minority isolated schools, the San Diego City Schools (SDCS) implemented two programs which focus on reading and mathematics at the elementary school level. The purpose of this report is to provide data with respect to the relative effectiveness of these programs in terms of implementation, costs, and achievement for the 1980-81 school year.

#### BACKGROUND

The implemented programs are identified by the acronyms: AGP (Achievement Goals Program) and DISTAR (Direct Instructional System for Teaching Arithmetic and Reading).

AGP is modeled on the concept of Mastery Learning\* and is described in a series of documents prepared by the Districts' Curriculum and Programs Division (Research Base of Achievement Goals Program (RAB 2/15/80), Achievement Goals Program (BOP 7/14/80), Achievement Goals Program Support-Reading and Mathematics (n.d.)). The program was implemented in fifteen

\*see B.S. Bloom, Human Characteristics and School Learning, New York, McGraw-Hill, 1976, for a discussion of the concept

(15) minority isolated elementary schools for the 1980-81 school year. One aspect of the District evaluation design\* which is a limitation for the present report was the decision to collect systematic program information for Grades 3 and 6.

DISTAR is an intensive programmed-learning instructional model used in developing the basic academic skills. Each day's teaching objectives are specified in a script of carefully sequenced lessons which the teachers must follow. The lessons are presented in a rapid-fire manner to which immediate oral responses are expected by all pupils. This oral response is then reinforced with a written exercise. Each pupil must complete the defined set of tasks before advancing to the next and is tested to be certain that the tasks are mastered. This program was "initially implemented in selected San Diego Schools during the 1978-79 school year."\*\*

\*see Evaluation Service's Department Report, School Board Agenda Item H3a, Achievement Goals Program Evaluation Design Summary, 1980-84.

\*\*see Gersten, R., The San Diego Implementation Study: Interim Report Technical Report 79-1: University of Oregon, Eugene, OR, 1979, and Gersten R. and Williams, P. San Diego Follow Through Project: Preliminary Evaluation Report 1979-80 School Year: University of Oregon, Eugene, OR, June 6, 1980.

This program was in operation during the 1980-81 school year in three modes:

DISTAR FOLLOW THROUGH is the program initially adopted as part of the School Districts' Follow Through activities. As a requirement of the funding acceptance from the Federal Government the program must be placed in the "most needy" schools (broadly defined as the schools registering in the lowest quarter of the District in terms of socio economic status).

This mode meets all of the requirements of the DISTAR model, namely inservice training of teachers and aides in the use of DISTAR materials, close supervision and evaluation of classroom activities to ensure close adherence to the provided script and regularly scheduled testing of pupil progress. One salient requirement of the first model is the prescription of two aides for each kindergarten and first grade classroom (typically one aide is involved with the mathematics component, and the second with the language component. For Grades Two and Three one aide per classroom is stipulated.

DISTAR DISTRICT FULL IMPLEMENTATION is a program which closely parallels the DISTAR FOLLOW THROUGH. The observable differences are: (1) Since the program is funded by the District the requirement to place the program in the "most needy" (in terms of socioeconomic status) is eliminated, and (2) In the perception of some of the involved teachers the requirements with respect to inservice training, supervision and evaluation are relaxed (inservice training was available on a comparable basis to Follow Through).

The program is similar to DISTAR FOLLOW THROUGH in that DISTAR program materials are utilized and the recommended two aides per classroom (Grades K and 1) are utilized.

DISTAR DISTRICT PARTIAL IMPLEMENTATION is similar to DISTAR DISTRICT FULL IMPLEMENTATION with respect to program placement, less supervision and DISTAR materials.

It is a different program in the allocation of one aide for each Kindergarten and First Grade classroom (in terms of aide allocation the DISTAR PARTIAL IMPLEMENTATION is similar to AGP).

For the 1980-81 school year: the DISTAR FOLLOW THROUGH PROGRAM was in operation at seven schools within the School District, the DISTAR DISTRICT FULL IMPLEMENTATION was in operation at five schools, and DISTAR DISTRICT PARTIAL IMPLEMENTATION was in operation at three schools.

Appendix A lists the program configurations and subject areas in operation in San Diego City Schools during the 1980-81 school year.

Finally, it should be noted that there is a continuing theoretic controversy over the relative efficacy of the various approaches to teaching (and learning) reading.\*

\*see for example: House, E. et al, No Simple Answer: Critique of the Follow Through Evaluation and Rebuttals, Harvard Educational Review Vol. 48:2, May 1978.  
Farr, R., The Challenge of Teaching Reading, Today's Education, Elementary Edition, Vol. 71:1, Feb-March, 1982,  
Weinstein, R., Comprehension is the Key, APA Monitor, Vol. 13:1, January 1982, and Martin, S., Strong Case for Reforming Reading (a Review of Bruno Bettelheim and Karen Zelan's Text "On Learning to Read" Los Angeles Times, Part V, p. 24, Feb. 4, 1982.

## IMPLEMENTATION

To determine the degree to which the programs (AGP and DISTAR) were implemented, a series of interviews were conducted with the principal or the resource teacher at 16 elementary schools. Schools were selected to represent the entire spectrum of operational strategies within the School District: identified minority and non-minority isolated schools, AGP only, DISTAR in each of the three modes and AGP and DISTAR in combination.

The structured interview was designed to identify the degree of implementation and adherence to expected program operation at each school. Additionally, opinions with respect to the strengths and weaknesses of the installed program, in view of local school conditions, were solicited.

Results of the interviews indicated the minority isolated schools utilising DISTAR FOLLOW THROUGH and DISTRICT FULL IMPLEMENTATION adhered closely to the developed model, particularly the FOLLOW THROUGH schools. Schools which voluntarily adopted DISTAR (District partial implementation) reported some modifications in program implementation (one school

varied the program to accommodate special school events and another to accommodate pupil time in a basic skills learning center).

Schools implementing AGP programs displayed more apparent variability in program operation (e.g. employing a four day rather than the recommended five day instructional program, or providing the program during the afternoon instead of the recommended morning period. However, instruction time dedicated to reading and mathematics, mastery testing and re-learning, and material sequencing were respected (the reported modifications were necessary to allow for participation in previously developed Learning Center activities).

Insofar as could be determined on the basis of post hoc interviews, program implementation at the minority isolated schools for both DISTAR FOLLOW THROUGH and DISTRICT FULL IMPLEMENTATION and AGP met the structural requirements of the models. As such, an assumption of this analysis is that implementation, or lack of, need not be considered as an explanation for differences in program outcomes for these three modes.

Summaries of each of the sixteen interviews are provided as Appendix B to the report. The perceived strengths and weaknesses may be of assistance to the Curriculum and Programs Division if modifications to the AGP program are considered.

#### PROGRAM COSTS

Information with respect to comparative costs was collected for three areas: material costs, instructional aides, and pupil/teacher ratio. Table 1 summarizes the available data for the material costs associated with DISTAR and AGP.

TABLE 1

ESTIMATED ANNUAL MATERIAL EXPENDITURES  
FOR READING AND MATHEMATICS  
FOR EACH PUPIL ENROLLED IN THE  
AGP OR DISTAR PROGRAM

	READING		MATHEMATICS	
	AGP	DISTAR	AGP	DISTAR
Consumable Materials (work sheets)	\$6.60 <sup>1</sup>	\$4.90	\$6.60 <sup>1</sup>	\$5.95
Non Consumable <sup>2*</sup> Materials (classroom kits)		\$1.20		\$1.35
Textbooks <sup>2*</sup>	\$1.50	\$1.45	\$1.50	
Total Material Costs	<u>\$8.10</u>	<u>\$7.55</u>	<u>\$8.10</u>	<u>\$7.30</u>

<sup>1</sup> All consumable material costs for AGP are based on estimated printing costs for District wide implementation. These figures do not include the costs of developing the AGP materials.

<sup>2\*</sup> Average usable life for non consumable materials and text books is assumed to be four years.

Based on the listed assumptions for Table 1 the average cost of DISTAR materials is slightly less (approximately 7% for reading and 10% for mathematics) as compared to AGP. It must be reemphasized that the AGP costs are reproduction estimates (memo from Hankins to Patrick dated August 20, 1981) and do not include development costs.

The second area of considered costs is the provision for instructional aides. Results of these estimates are presented in Table 2. These estimates are based on instructional aides being employed for 4½ hours per day for 177 days per school year for an average classroom pupil-teacher ratio of 28 to 1 at an hourly cost of \$4.10.

The major program distinction is the employment of two instructional aides for DISTAR FOLLOW THROUGH and FULL IMPLEMENTATION in Kindergarten and First Grade as compared to one instructional aide for DISTAR PARTIAL IMPLEMENTATION and AGP.

TABLE 2  
 ESTIMATED ANNUAL EXPENDITURES  
 FOR INSTRUCTIONAL AIDES  
 ON A PER PUPIL BASIS FOR  
 AGP AND DISTAR PROGRAMS BY GRADE LEVEL (IN DOLLARS)

GRADE LEVEL	AGP	DISTAR F.T.	DISTAR DIST. F.I.	DISTAR DIST. P.I.
K - 1	117	234	234	117
2 - 3	117	117	117	117

One additional cost differential was investigated. The possibility was raised of differing pupil/teacher ratios across the various programs. Given the cost of staffing and supporting a classroom if a consistent difference in pupil/teacher ratio could be identified, it would provide marked cost differentials.

The analysis shown in Table 3 suggest there is no discernible difference in pupil/teacher ratios for the four programs and indicates an average pupil/teacher ratio of 28 to 1.

1. The analysis shown in Table 3 suggest there is no discernible difference in pupil/teacher ratios for the four programs and indicates an average pupil/teacher ratio of 28 to 1.

2. All costs are rounded to the nearest dollar.
3. Technically the second instructional aide for the DISTAR program is allocated for language instruction. However, given the close proximity of language and reading at these grade levels (K-1), the costs are subsumed under reading.

TABLE 3  
ESTIMATED AVERAGE ATTENDANCE  
PER CLASSROOM BY PROGRAM<sup>1</sup>

PROGRAM	NUMBER OF IDENTIFIED CLASSROOM <sup>*2</sup>	AVERAGE PUPILS/ IDENTIFIED CLASSROOMS
DISTAR	28	27.5
-FOLLOW THROUGH		
-DISTRICT (FULL IMPLEMENTATION)	13	28.9
-DISTRICT (PARTIAL IMPLEMENTATION)	14	28.5
AGP	65	27.9

<sup>1</sup> Developed from AGP/DISTAR Study - Grades K, 1, 2, 3 Evaluation Division, August 17, 1981.

<sup>2</sup> Identified classroom was counted for a particular program if a clear majority of the pupils were listed for the program.

SUMMARY OF COST DATA

Analysis of the available information identified two areas of program cost differentials. These are: (1) material expenditures, and (2) instructional aides (Grades K - 1). The summary information with respect to these identified costs is presented in Table 4.

TABLE 4  
ESTIMATED ANNUAL EXPENDITURES FOR PROGRAM IMPLEMENTATION PER PUPIL BY SUBJECT AND GRADE LEVEL (IN DOLLARS)

	AGP	DISTAR F.T.	DISTAR DIST.F.T.	DISTAR DIST. P.I.
READING GRADES <sup>1</sup>				
K-1	60 <sup>2</sup>	112 <sup>3</sup>	112 <sup>3</sup>	60
2-3	60	60	60	60
MATHEMATICS				
K-1	73	137	137	72
2-3	73	73	73	72

1. When two aides were utilised in the same classroom the reading (language) aide was involved for 4 hours/day while the mathematics aide was involved for 5 hours/day. Based on this information costs of instructional aides were apportioned 4/9 to reading and 5/9 to mathematics.
2. All costs are rounded to the nearest dollar.
3. Technically the second instructional aide for the DISTAR program is allocated for language instruction. However, given the close proximity of language and reading at these grade levels (K-1), the costs are subsumed under reading.

## ACHIEVEMENT

A major concern of any instructional program is the effect on achievement. At the elementary school level the focus on achievement is in the areas of reading, mathematics, and language. Since the AGP program was implemented for the areas of reading and mathematics in Grades 1-6 and DISTAR is implemented for Grades K-3 in reading, mathematics, and language, there is available comparative data for Grades 1, 2, and 3 in the area of reading and mathematics.

The results of these comparisons for reading are displayed in Tables 5 and 6.

For mathematics, the comparative results are shown in Tables 7 and 8.

TABLE 5  
 PERCENT OF PUPILS PRE AND POST INSTRUCTION AT OR ABOVE  
 THE PUBLISHED TEST MEDIAN IN READING  
 BY GRADE LEVEL BY PROGRAM  
 FOR THE 1980-81 SCHOOL YEAR

PROGRAM	N	PRE	POST	CHANGE
GRADE 1				
COMBINED DISTAR (F.T. DIST. F.I.)	214	64.0	57.9	-6.1
AGP <sup>1</sup>	234	68.4	62.8	-5.6
GRADE 2				
DISTAR F.T.	143	49.7	39.2	-10.7
DISTAR DIST.F.I.	58	48.3	31.0	-17.3
COMBINED DISTAR (F.T. DIST. F.I.)	201 (196) <sup>2</sup>	49.2 (50.0)	36.8 (37.2)	-12.4 (-12.8)
DISTAR DIST.P.I.	101	41.6	35.6	-6.0
AGP	318	62.3	54.7	-7.6
GRADE 3				
COMBINED DISTAR (F.T. DIST. F.I.)	162	26.1	32.7	+6.6
AGP	390	38.7	47.9	+9.2

1. The combined data for DISTAR Grades 1,2 (shown in parentheses), and 3 and AGP data for Grades 1, 2, and 3 are extracted from the District's Evaluation Services Department Report 295 A, Spring 1981, pages 13 and 5 respectively.
2. The slight discrepancy in the combined figures for DISTAR at Grade 2 and the data from Report 295A is the result of the identification of five (5) additional program participants.

From the data in Table 5 these observations are suggested (it should be noted that measured reading ability is expressed as the percent of pupils who attain or exceed the established test median value).

1. DISTAR and AGP have roughly comparable populations in terms of measured reading achievement at the beginning of Grade 1 and both programs evidence comparable changes during Grade 1.
2. DISTAR and AGP have differing populations in terms of measured reading achievement at the beginning of Grade 2. This is a somewhat surprising finding since Grade 2 pretests are Grade 1 post tests and assuming pupil populations are comparable from one school year to the next, the expectation would be for pre Grade 2 to be nearly equivalent to post Grade 1. This is the case for AGP, but not DISTAR (on a combined basis). Of the four groups DISTAR PARTIAL IMPLEMENTATION starts with the relatively most disadvantaged group in terms of measured reading achievement and posts the smallest relative loss, a loss that is comparable to AGP which started with the relatively most advantaged group.

3. Both DISTAR and AGP show declines in Grade 3 pretests vis a' vis Grade 2 post tests and both show increases during Grade 3 in terms of measured reading achievement.

4. The relative changes at each grade level were tested for statistical significance and in no cases were the changes in terms of measured reading achievement significantly different from each other at the .05 level.

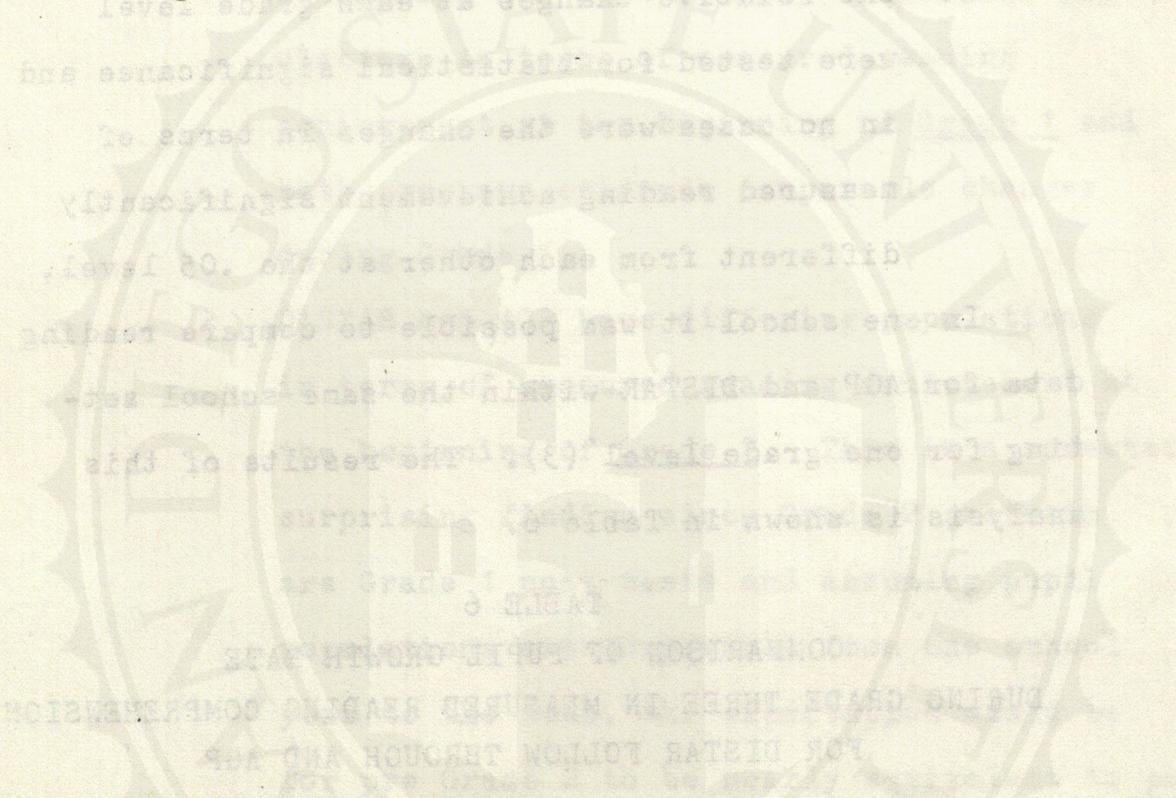
In one school it was possible to compare reading data for AGP and DISTAR within the same school setting for one grade level (3). The results of this analysis is shown in Table 6.

TABLE 6  
COMPARISON OF PUPIL GROWTH RATE  
DURING GRADE THREE IN MEASURED READING COMPREHENSION  
FOR DISTAR FOLLOW THROUGH AND AGP

	No. of Pupils	Pre Test Spr.'80	Post Test Spr. '81	Change
DISTAR	21	266 <sup>1</sup>	379	113
AGP	26	266	375	109

<sup>1</sup> all scores are expressed in standard score units of achievement. This allows for comparisons across differing tests Spring 1980 CTBS Level - C, Spring 1981 Level - 1.

The results shown in Table 6 indicate comparable starting points (which is contradictory to Table 5) and comparable pupil gain scores for DISTAR and AGP. The differences between the DISTAR gain of 113 and the AGP gain of 109 is statistically non significant.



Change	Loss Test	Pre-Test	Post-Test
113	379	266	382
109	377	268	376

This allows for comparisons across different tests. Spring 1980 CTS Level - C, Spring 1981 Level - 1.

TABLE 7  
 PERCENT OF PUPILS (PRE AND POST  
 INSTRUCTION) AT OR ABOVE THE  
 PUBLISHED TEST MEDIAN IN  
 MATHEMATICS BY GRADE LEVEL  
 BY PROGRAM FOR THE 1980-81  
 SCHOOL YEAR

PROGRAM	N	PRE	POST	CHANGE
GRADE 1				
DISTAR F.T.	156	44.9	53.9	+8.9
DISTAR DIST. F.I. COMBINED 1	95	34.7	52.6	+17.9
DISTAR (F.T.-DIST. F.I.)	251 (197)	41.0 (42.6) <sup>2</sup>	53.3 (60.9)	+12.1 (+18.3)
DISTAR DIST.P.I.	132	63.6	83.3	+19.7
AGP <sup>1</sup>	210	52.9	85.9	+33.0
GRADE 2				
DISTAR F.T.	142	54.9	50.7	-4.2
DISTAR DIST. F.I. COMBINED	55	69.1	65.5	-3.6
DISTAR (F.T. DIST. F.I.)	197 (193) <sup>2</sup>	58.9 (58.5)	54.8 (54.9)	-4.1 (-3.6)
DISTAR DIST. P.I.	89	69.3	53.4	-15.9
AGP	328	69.5	74.4	+4.9
GRADE 3				
COMBINED DISTAR (F.T. DIST. F.I.)	62	32.3	32.3	0.0
AGP	494	51.2	52.0	+0.8

Notes 1 and 2 on the following page

1. The combined data for DISTAR Grades 1, 2 (shown in parentheses), and 3 and AGP data for Grades 1, 2, and 3 are extracted from the District's Evaluation Services Department Report 295A, Spring 1981, Pages 13 and 5 respectively.
2. The slight discrepancies in the combined figures for DISTAR at Grades 1 and 2 and the data from Report 295A are the result of the identification of additional program participants.

From the data in Table 7 these observations are suggested (it should be noted that measured mathematical ability is expressed as the percent of pupils who attain or exceed the established test median value):

1. AGP begins Grade 1 mathematics instruction with a relatively more advantaged population than the fully implemented DISTAR programs, but less advantaged than the partially implemented DISTAR.

All programs show a gain during Grade 1 instruction in terms of measured mathematical ability ranging from a low of +8.9% for DISTAR FOLLOW THROUGH to a high +33.0% for AGP. This difference is statistically significant at the .01 level.

2. DISTAR FOLLOW THROUGH begins Grade 2 mathematics instruction with a relatively disadvantaged population as compared to the other three programs. All three of the DISTAR programs show a loss in Grade 2 in terms of measured mathematical ability ranging from -15.9% for DISTAR DISTRICT P.I. as compared to the +4.9% gain for AGP.

3. At Grade 3 AGP starts with a relatively more advantaged population as compared to the DISTAR combined groups in terms of measured mathematical ability.

Both groups maintained their relative position during Grade 3 mathematics instruction.

Comparative data for AGP and DISTAR for the Third Grade at one school are shown in Table 8.

TABLE 8  
COMPARISON OF PUPIL GROWTH DURING  
GRADE THREE IN THE SAME SCHOOL  
SETTING FOR DISTAR FOLLOW  
THROUGH AND AGP FOR  
MATHEMATICS ACHIEVEMENT

	No. of Pupils	Pre Test Spr. '80	Post Test Spr. '81	Change
DISTAR	29	284 <sup>1</sup>	367	83
AGP	40	297	352	55

<sup>1</sup>All scores are expressed in standard score units of achievement. This allows for comparisons across differing tests. Spring 1980 CTBS Level C, Spring 1981, CTBS Level 1.

These results indicate that in Grade 3 DISTAR starts at a slight disadvantage to AGP in terms of mathematics achievement and by the end of the instructional year is operating at a slight advantage. The difference between AGP and DISTAR both in terms of pre tests and post tests are statistically non-significant. However, the amount of change for each relative to their own pre-post difference, viz., DISTAR (83 units) and AGP (55 units) is significant.

## SUMMARY OF ACHIEVEMENT DATA

Comparisons of AGP and DISTAR were developed in terms of the number of pupils achieving at or above the published median for the normative referenced test utilised by the School District. While this criterion does provide an indication of the relative improvement of pupils compared to established norming groups, it does not provide a measure of the specific skills learned during instruction by individual pupils. As a consequence questions can be, and have been raised, with respect to the validity of such normative referenced tests for measuring the impact of what is learned during instruction.

In an effort to eliminate the problem of shifting norms, test publishers resort to a standard score unit of measure where each test, or level of test, is calibrated to a single scale. In this manner the amount of change can be compared across grade levels. For one specific school it was possible to develop data of this type for the DISTAR FOLLOW THROUGH, and AGP programs. This type of scaling allows programs to be compared in terms of the amount of change in pupil's skills during the instructional period.

With these specified assumptions the following summary statements with respect to achievement are offered:

1. Fully Implemented DISTAR programs at the beginning of instruction are working with a more disadvantaged population than AGP (Grades 2 and 3 reading and mathematics pre scores).
2. The impact of the programs on instruction is generally comparable. Of five possible comparisons where change occurs, DISTAR FULLY IMPLEMENTED shows two positive increases while AGP shows three. When the amount of growth in average pupil score is compared at the third grade level, the changes in program reading scores are non-significant while the change in mathematics is significantly different in favor of DISTAR.
3. Partially Implemented DISTAR (DISTAR materials, AGP guidelines with respect to the number of aides) displays a similar pattern of mixed results (one of three possible comparisons positive, where DISTAR Fully Implemented shows one of three and AGP two of three).

## CONCLUSIONS

Based on the information presented within this analysis the following conclusions are presented for consideration when developing program priorities:

1. Continuing material costs for DISTAR and AGP are essentially equal on a per pupil basis.
2. Instructional aides present an added cost for fully implemented DISTAR, as compared to AGP, of approximately \$121 per pupil per year for Grades Kindergarten and One.
3. Based on the available achievement data, there is no identifiable advantage for any of the four programs in the improvement of measured reading and mathematics achievement. This lack of identifiable difference could in part be attributed to utilisation of normative referenced tests for the measurement of achievement.

APPENDIX A  
 PROGRAM IMPLEMENTATION  
 (AGP and DISTAR) BY  
 GRADE LEVEL (K-3) and SUBJECT MATTER  
 (R-READING, M-MATHEMATICS, L-LANGUAGE)

	<u>Kindergarten</u>		<u>One</u>		<u>Two</u>		<u>Three</u>	
	AGP	DISTAR	AGP	DISTAR	AGP	DISTAR	AGP	DISTAR
BAKER			R,M		R,M		R,M	
BALBOA <sup>a,c</sup>		R,M,L	R,M	R,M,L	R,M	R,M,L	R,M	R,M,L
BOONE <sup>b</sup>		R,M,L		R,M,L				
CHOLLAS			R,M		R,M		R,M	
CURIE			R,M		R,M		R,M	
DAILARD			R		R		R	
EMERSON <sup>c</sup>		R,M,L	R,M	R,M,L	R,M	R,M,L	R,M	R,M,L
FREESE			R,M		R,M		R,M	
FULTON			R,M		R,M		R,M	
HORTON <sup>a</sup>		R,M,L	R,M	R,M,L	R,M	R,M,L	R,M	R,L
JOHNSON			R		R		R	
KEILLER <sup>b</sup>		R,L		R,L				
KENNEDY <sup>a</sup>		R,M,L	R,M	R,M,L	R,M	R,L	R,M	
KNOX <sup>a</sup>		R,M,L	R,M	R,M,L	R,M	R,M,L	R,M	R,L
LOGAN <sup>a</sup>		R,M,L	R,M	R,M,L	R,M	R,M,L	R,M	R,L
LOWELL			R,M		R,M		R,M	
MEAD <sup>b</sup>		L	R,M	L	R,M	L		
SHERMAN <sup>a,b</sup>		R,M,L	R,M	R,M,L	R,M	R,L	R,M	
STOCKTON <sup>a,b</sup>		R,M,L	R,M	R,M,L	R,M	R,L	R,M	
WEBSTER <sup>c</sup>		R,M,L		R,M,L		R,M,L		L

Note: There were three versions of DISTAR operating in SDCS during the 1980-81 school year:

- (a) indicates programs funded by Follow Through
- (b) indicates programs supported by the School District at the same funding level as DISTAR FOLLOW THROUGH
- (c) indicates programs utilizing DISTAR materials and supported at the funding level established District programs



SCHOOL: BALBOA

PROGRAMS OF INTEREST:

1. DISTAR FOLLOW THROUGH
2. DISTAR DISTRICT PARTIAL IMPLEMENTATION
3. AGP (modified for Spanish speaking pupils)

OPERATION

The DISTAR FT program for reading, mathematics, and language was in operation during the 1980-81 school year in five classrooms (K, 1, 2, 3, and 1-2-3 multigrade). These classes followed closely the University of Oregon model.

AGP was modified for Spanish speaking pupils by starting reading and language instruction with Spanish Curriculum Development Center materials, then switching to DISTAR for levels 1 and 2 and then to AGP for reading and the Macmillan series for language. Mathematics instruction was initiated with a Spanish translation of AGP, which was replaced with the English version as language proficiency was developed.

For some classes, depending upon the proficiency level of individual pupils, both DISTAR and AGP reading programs were in operation.

Aides at Balboa were employed for five to six hours per day. AGP aides, in general, worked on an

an individual basis with pupils and did some of the teaching of language. DISTAR aides taught the language component and parts of the mathematics component.

Volunteers were utilised to staff a Parent Information Room where assistance was provided for home involvement with both DISTAR and AGP.

#### PERCEPTIONS OF PROGRAMS

DISTAR was considered to be superior to AGP for the introduction of reading and language. In this introductory year AGP was not sufficiently programmed to meet the unique needs of Balboa (large non-English speaking population).

DISTAR places the teacher in an extremely rigid time schedule which does not allow for unexpected events. At the same time the DISTAR scripts provide a method for inexperienced teachers to function effectively in the classroom.

AGP provides a system which allows the teacher to focus on the expected classroom objectives and enables the pupils to gauge their achievement and progress during the school year.

SCHOOL: BOONE

PROGRAMS OF INTEREST:

1. DISTAR DISTRICT FULL IMPLEMENTATION  
OPERATION

DISTAR was implemented during the 1980-81 school year in Grades K and one. The teachers received two days of inservice instruction from the DISTAR FOLLOW THROUGH consultants. While the program generally followed the DISTAR FOLLOW THROUGH model, there were variations to accomodate special events and the instructional schedule.

Aides for the classrooms were provided by District and School Improvement Program funding. The aides provided teaching functions as specified by the DISTAR FOLLOW THROUGH model.

PERCEPTIONS OF THE PROGRAM

Immediate feedback of test results to both teachers and pupils is of benefit, as was the assistance of the FOLLOW THROUGH Office in test administration.

The major disadvantages of DISTAR were that some of the necessary materials were not on the State approved purchase list (State Instructional Materials Schedule) and the perceived additional cost of DISTAR materials.

SCHOOL: CHOLLAS

PROGRAMS OF INTEREST:

1. AGP

OPERATION

The District model for AGP was followed with one modification: pupils in grades 4 - 6 were involved on a four day per week basis to allow for learning center activities in science.

Aides were employed approximately three hours per day and typically were utilised for reteaching and tutoring.

PERCEPTIONS OF THE PROGRAM

Since the introduction of AGP, pupil absence rate has declined and parent support has increased, particularly with respect to homework assignments.

In addition, "time on task" has increased, classroom distractions have decreased, and pupil mobility among classrooms has become less of a problem because of the continuity of structure and materials. It is suggested the AGP is in need of modification to fit year round schools activity schedule.

SCHOOL: CURIE

PROGRAMS OF INTEREST:

1. AGP

OPERATION

The District AGP model was followed with one modification. In some classrooms the recommended three reading groups were not functioning at different levels, but all at the same level.

During the first half of the school year (this is a year round school) there was some necessary learning of the program. Some classes were able to cover two years of AGP reading curriculum during the school year.

PERCEPTION OF THE PROGRAM

The sequential development of materials and the focusing on specific skills are well received. There were perceived needs for a mathematics enrichment component\* and the development of more difficult initial reading work sheets.

\*subsequently developed with major assistance from the staff at Curie

SCHOOL: DAILARD

PROGRAMS OF INTEREST:

1. AGP

OPERATION

The AGP program for reading was implemented at all grade levels following the District developed model.

PERCEPTIONS OF THE PROGRAM

The number of reported discipline infractions declined following the introduction of the AGP program. At the same time there was a perception of increased interest, on the part of the pupils, in learning to read.

The AGP program materials were uneven in quality (some were too easy and some were too hard) which made it difficult to maintain instructional pacing and the time required for reading and mathematics curtailed the instruction of social studies and the arts.

SCHOOL: EMERSON

PROGRAMS OF INTEREST:

1. DISTAR DISTRICT PARTIAL IMPLEMENTATION
2. AGP

OPERATION

The AGP program followed the District model with respect to grouping (three reading and two mathematics per classroom) and instructional time scheduling.

DISTAR language was intermixed with AGP reading and mathematics in the same classroom.

Aides were employed for six hours per day. In DISTAR classrooms the aides performed teaching duties when they were qualified and maintained the testing schedule. In AGP classrooms the aides worked with children on an individual basis for reinforcement.

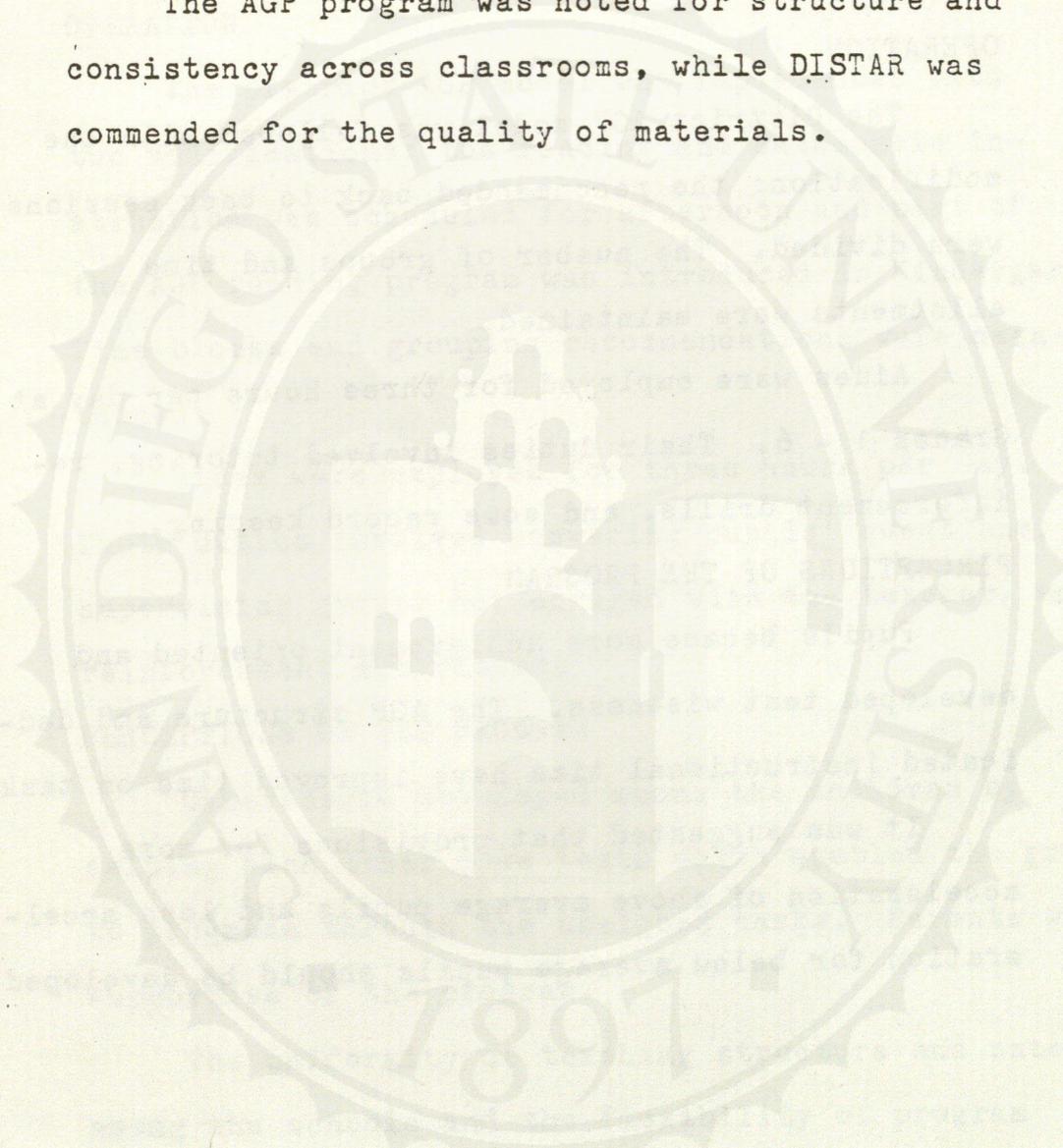
DISTAR is a voluntary program at this school and all teachers involved were volunteers. It was noted that the more experienced teachers did not volunteer.

PERCEPTIONS OF THE PROGRAM

For both programs the parental response has been positive. In the upper grades pupils are more achievement oriented since the AGP program was introduced.

Concern was expressed over the lack of discretionary time in both programs and, for DISTAR, no trained substitute teachers.

The AGP program was noted for structure and consistency across classrooms, while DISTAR was commended for the quality of materials.



SCHOOL: FREESE

PROGRAMS OF INTEREST:

1. AGP

OPERATION

The District AGP model was followed with one modification: the recommended back to back sessions were divided. The number of groups and time allotments were maintained.

Aides were employed for three hours per day at Grades 1 - 6. Their duties involved tutoring, reinforcement drills, and some record keeping.

PERCEPTIONS OF THE PROGRAM

Pupils became more achievement oriented and developed test wiseness. The AGP structure and dedicated instructional time have improved time on task.

It was suggested that provisions for more acceleration of above average pupils and less acceleration for below average pupils should be developed.

SCHOOL: FULTON

PROGRAMS OF INTEREST:

1. AGP

OPERATION

The District AGP model was implemented with two modifications: the reading and mathematic instruction was scheduled for afternoon and part of the AGP reading program was introduced in Kindergarten. Time blocks and grouping recommendations were maintained.

Aides were employed for three hours per day. Their duties involved answering pupils' questions, supervising groups not engaged with the teacher, and reinforcement activities.

PERCEPTIONS OF THE PROGRAM

Camaraderie developed among the children by helping each other pass tests which enabled the group to progress through the assigned tasks. Parents were supportive of the program.

The uniformity of teaching structure and materials among the schools and the flexibility of program for instructional enhancement were favorably noted.

SCHOOL: KEILLER

PROGRAMS OF INTEREST:

1. DISTAR DISTRICT FULL IMPLEMENTATION

OPERATION

DISTAR was introduced during the 1980-81 school year for reading and language in a K-1 classroom. Aides conducted the language program and maintained the records. One volunteer was available who supervised pupils not working with the teacher or the aide.

DISTAR FOLLOW THROUGH personnel provided assistance with the necessary testing.

PERCEPTIONS OF THE PROGRAM

DISTAR instilled confidence in the pupils as to their ability to decode new words. At the same time the inflexibility of the program schedule was lamented, since it did not allow time for special events.

SCHOOL: KENNEDY

PROGRAMS OF INTEREST:

1. DISTAR FOLLOW THROUGH
2. AGP

OPERATION

The DISTAR FT program was in operation for reading, mathematics, and language in Grades K and 1, and reading and language in Grade 2 during the 1980-81 school year.

AGP was implemented as directed by the District.

Aides at Kennedy were employed for four to five hours per day depending upon the assignment.

PERCEPTIONS OF THE PROGRAM

Pupils in the DISTAR program commenced reading in Grades K and 1 which is an acceleration from previous years.

For both programs there was an expressed concern that too much emphasis was being placed on test scores, and that the emphasis could be a detriment to what the children actually learned.

The structure of both AGP and DISTAR provided complete support for the teacher in terms of planning, materials, and testing.

SCHOOL: MEAD

PROGRAMS OF INTEREST:

1. DISTAR DISTRICT FULL IMPLEMENTATION
2. AGP

OPERATION

The DISTAR program for language is implemented in Grades K, 1, and 2. The AGP for mathematics and reading (in an exchange program with Daillard) is implemented in Grades 1 and 2.

Aides are employed for five hours per day and were utilised in the AGP programs for reinforcement instruction.

PERCEPTIONS OF THE PROGRAM

It was noted that the test anxiety of the pupils has decreased following the introduction of the programs. Since AGP and DISTAR function on differing time schedules it was difficult to mesh the programs for individual pupils.

Parents are most supportive of the skills emphasis of AGP program.

DISTAR does not require as much preparation time as AGP (primarily because of the more active involvement of aides in instruction under DISTAR). At the same time this takes more time on the part of the teacher to train the aide (s) to operate the DISTAR model.

SCHOOL: LOWELL

PROGRAM OF INTEREST:

1. AGP

OPERATION

The AGP program was implemented as prescribed in District guidelines. A few Kindergarten pupils who were in multigraded (K-1-2) classrooms were included. Since Lowell is a year round school, the program started in October 1980.

Aides worked six hours per day in the classroom. Duties performed were at the direction of the classroom teacher and included: spelling practice, group monitoring, word warm up drills, and use of study books.

PERCEPTIONS OF THE PROGRAM

The uniformity of the sequential programming of AGP enabled teachers to know the performance level of pupils when they transferred. Pupil achievement scores were improving as well as motivation toward academic achievement. Parental support for the program has been positive.

The lack of AGP materials for learning disabled pupils was noted as a program disadvantage.

SCHOOL: SHERMAN

PROGRAMS OF INTEREST:

1. DISTAR FOLLOW THROUGH
2. DISTAR DISTRICT FULL IMPLEMENTATION
3. AGP

OPERATION

The AGP model is in operation in eight classrooms, modified in Grades 4 through 6 to allow pupils to attend a learning center one day per week. DISTAR FOLLOW THROUGH is in operation in three classrooms and DISTAR DISTRICT FULL IMPLEMENTATION is in seven classrooms. These programs followed the DISTAR recommendations. It was noted that a high turnover occurred among the mathematics aides which may have affected the achievement of the DISTAR program. Pupil testing and teacher inservice functions were performed by DISTAR FOLLOW THROUGH personnel.

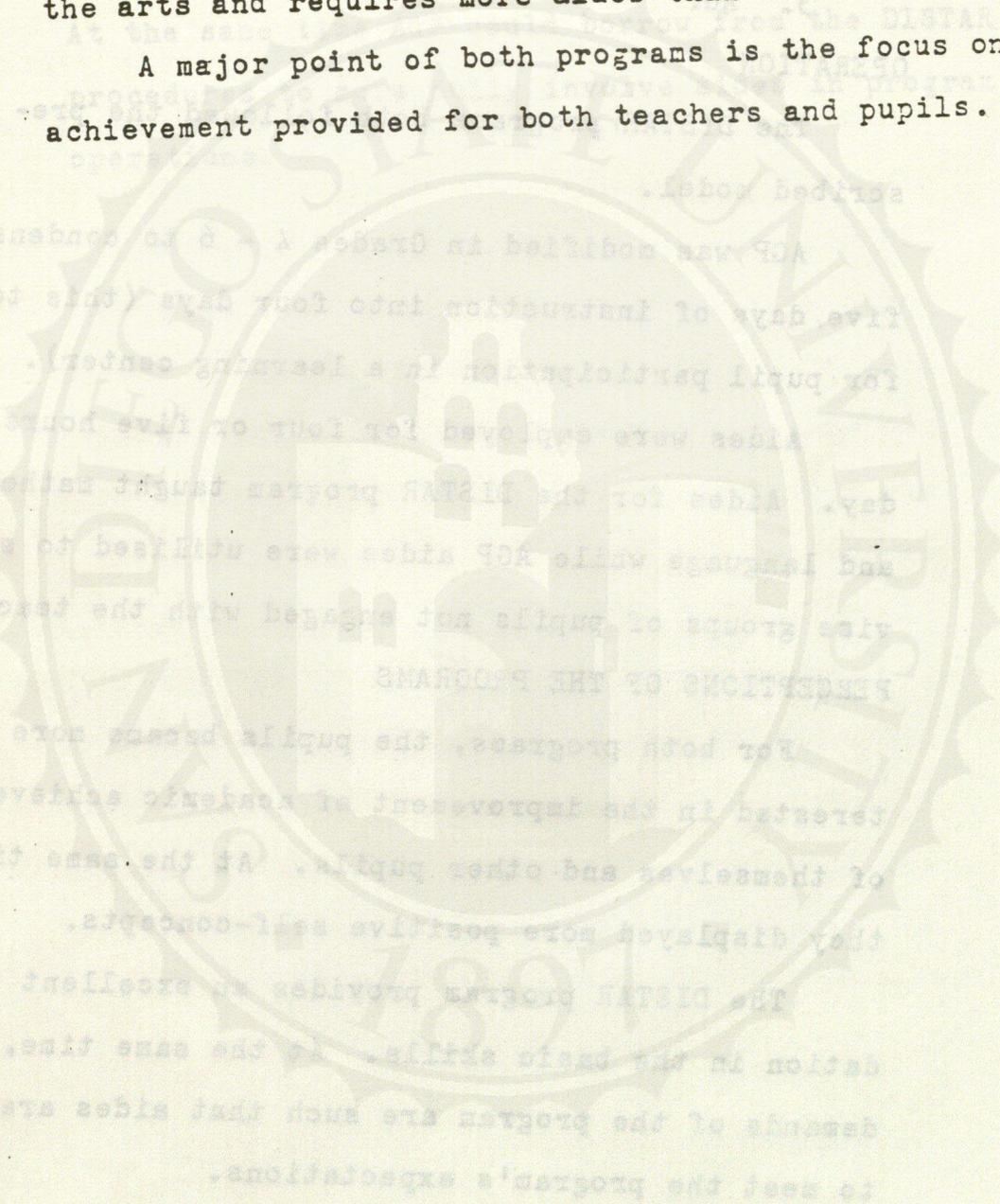
Aides are employed for four or five hours per day and provide the services stipulated in the DISTAR and AGP models.

PERCEPTIONS OF THE PROGRAM

On a comparative basis, DISTAR placed more emphasis on "time on task" than AGP, while AGP allowed for more individual (both teacher and pupil) flexibility and was more oriented toward achievement as measured by the District's testing program.

DISTAR, when fully implemented, reduces the amount of time available for social studies and the arts and requires more aides than AGP.

A major point of both programs is the focus on achievement provided for both teachers and pupils.



SCHOOL: STOCKTON

PROGRAMS OF INTEREST:

1. DISTAR FOLLOW THROUGH
2. DISTAR DISTRICT FULL IMPLEMENTATION
3. AGP

#### OPERATION

The DISTAR programs both followed the prescribed model.

AGP was modified in Grades 4 - 6 to condense five days of instruction into four days (this to allow for pupil participation in a learning center).

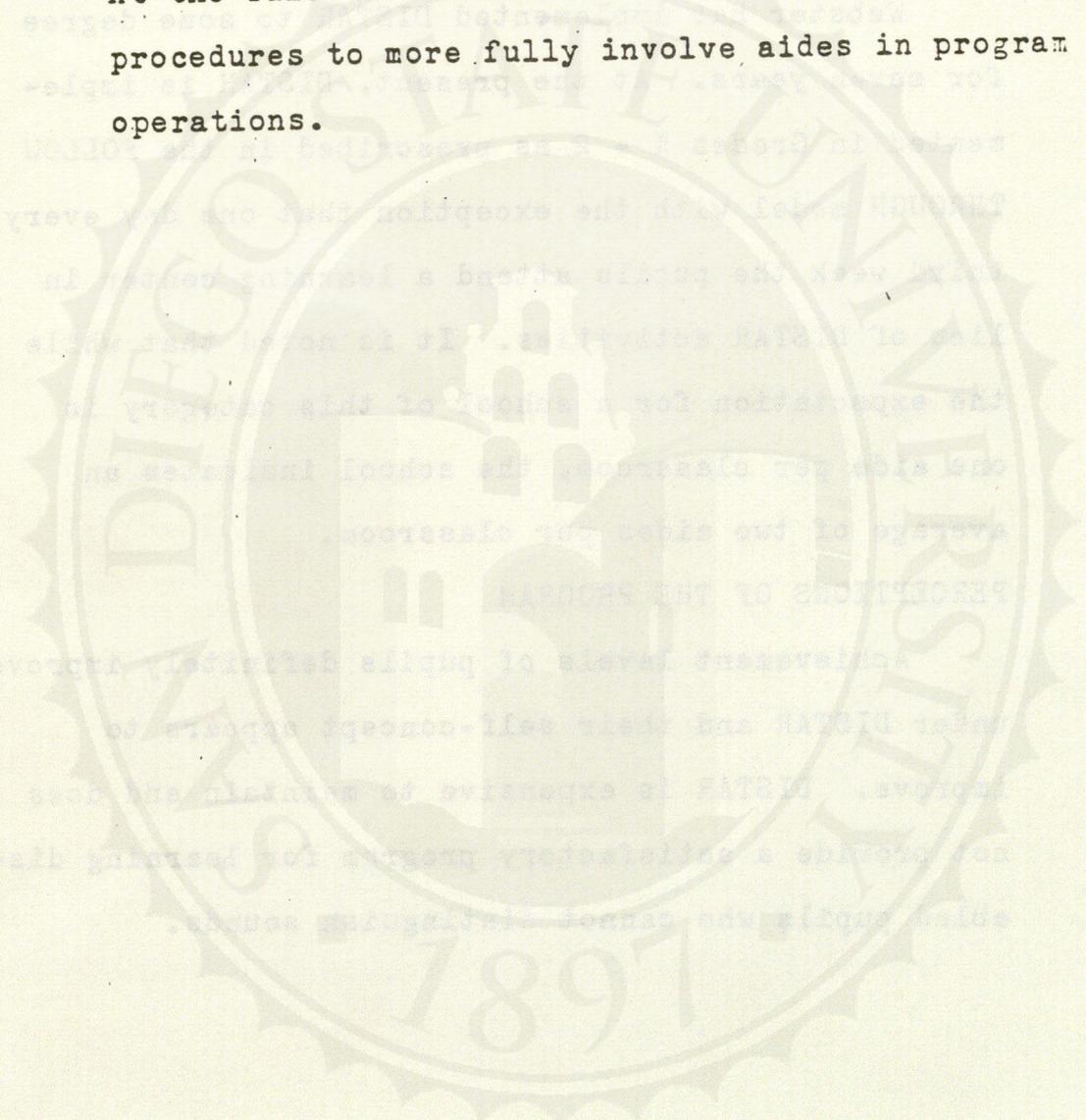
Aides were employed for four or five hours per day. Aides for the DISTAR program taught mathematics and language while AGP aides were utilised to supervise groups of pupils not engaged with the teacher.

#### PERCEPTIONS OF THE PROGRAMS

For both programs, the pupils became more interested in the improvement of academic achievement of themselves and other pupils. At the same time, they displayed more positive self-concepts.

The DISTAR program provides an excellent foundation in the basic skills. At the same time, the demands of the program are such that aides are necessary to meet the program's expectations.

The AGP provides for more flexibility in program operation which allows for easier adjustments to the unexpected and unforeseen contingencies. At the same time AGP could borrow from the DISTAR procedures to more fully involve aides in program operations.



SCHOOL: WEBSTER

PROGRAM OF INTEREST:

1. DISTAR DISTRICT PARTIAL IMPLEMENTATION  
OPERATION

Webster has implemented DISTAR to some degree for seven years. At the present, DISTAR is implemented in Grades K - 2 as prescribed in the FOLLOW THROUGH model with the exception that one day every third week the pupils attend a learning center in lieu of DISTAR activities. It is noted that while the expectation for a school of this category is one aide per classroom, the school indicates an average of two aides per classroom.

PERCEPTIONS OF THE PROGRAM

Achievement levels of pupils definitely improve under DISTAR and their self-concept appears to improve. DISTAR is expensive to maintain and does not provide a satisfactory program for learning disabled pupils who cannot distinguish sounds.