### DOCUMENT RESUME

ED 117 222

UD 015 613

TITLE

Evaluating Compensatory Education Program Test Results Using Each Compensatory Teachers' Pupils as

Subgroups for Analysis.

INSTITUTION

Connecticut State Dept. of Education, Hartford. Bureau of Evaluation and Educational Services.

PUB DATE

Jan 75

EDRS PRICE DESCRIPTORS

MF-\$0.76 HC-\$1.58 Plus Postage

\*Academic Achievement; \*Compensatory Education
Programs; \*Educational Assessment; Educational
Testing; Grouping Procedures; Group Structure;

\*Measurement; Measurement Instruments; \*Program
Evaluation; Reading Achievement; \*Student Grouping;
Tables (Data); Testing Problems; Test Results

#### ABSTRACT

The practice of analyzing all available project children in as large a group as possible is considered not to be justifiable when distinct subgroups of pupils are represented. Instead, the approach suggested here determines the test score gain a pupil achieves from the beginning to the end of the year, with all of the pupil gain scores of a single compensatory teacher being compared to those presented in the Metropolitan Achievement Test (MAT) Gains Tables. These tables present typical gains that should be made on a particular subtest of the MAT, according to the grade level of the pupil and according to whether the pupil's pre-test achievement level is high, average or low. These tables differ from the norm tables provided in the test publisher's manual in that both the pre and post-test were administered to the same pupils to obtain the gain scores. The tables have two major limitations: (1) they are only useful for pupils test results who are in grade levels 2-8; and, (2). Tthe interval between testing is short. Implementation considerations and implementation procedures are included in the discussion. MAT Gains Tables are presented in this publication. (Author/AM)

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# EVALUATING COMPENSATORY EDUCATION PROGRAM TEST RESULTS USING EACH COMPENSATORY TEACHER'S PUPILS AS SUBGROUPS FOR ANALYSIS

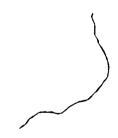
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# EVALUATING COMPENSATORY EDUCATION PROGRAM TEST RESULTS USING EACH COMPENSATORY TEACHER'S PUPILS A3 SUBGROUPS FOR ANALYSIS

,	Page
Section 1 Characteristics of This Evaluation Model	
Rationale	1
Implementation Considerations	1
Implementation Procedures	
Analyzing the Data	
Reporting the Results	3
MAT Gains Tables	4
Section II. Typical Worksheets That Could Be Used	•
Shep & Marshall's PROJECT PUPILS TEST RECORD FORM	6
Casper's PROJECT PUPILS TEST RECORD FORM	8
Follow Through Pupil Achievement	٠,
and Influencing Factors	9
Reading & Math Program Achievement	•
and Influencing Factors	10
Section III. The Written Report and Attachments	
· Body of the Report	11
Attachment 1 Distribution of Pupil's Raw Scores	13
Attachment 2. Group Scores for Reading and Math	13
Attachment 3 Individual Pupil Data (Shep & Marshall)	14
Attachment 4.1*Individual Pupil Data (Casper)	14
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## EVALUATING COMPENSATORY EDUCATION PROGRAM TEST RESULTS USING EACH COMPENSATORY TEACHER'S PUPILS AS SUBGROUPS FOR ANALYSIS

Rationale

A basic decision in evaluating a program is the division of pupils into analysis subgroups. Because of the advantages of having large numbers of pupils in an analysis, there is a temptation to analyze all available project children in as large a group as possible. This practice is not justified when distinct subgroups of pupils are represented.

The smallest identifiable subgroups in compensatory education programs suitable for evaluation purposes are the project pupils of each compensatory teacher, aide, or teacher aide team. Sample sizes are usually large enough generally averaging from 15 to 40 pupils. The samples are always atypical in that pupils are selected because they are experiencing problems in school work. Reading is the compensatory help most often provided with math second most prevalent. In some cases, a teacher provides reading to some pupils and math to others within the same group. Often, the compensatory teacher is assigned pupils from more than one grade level.

Any evaluation model must fit the above described circumstances. Its primary purpose should be to determine whether a compensatory teacher's pupils achieve as they should in reading or math. One approach is to determine the test score gain a pupil achieves from the beginning to the end of the year. All of the pupil gain scores of a single compensatory teacher can be compared to those presented in the MAT Gains Tables.

The MAT Gains Tables presents typical gains that should be made on a particular subtest of the Metropolitan Achievement Tests according to the grade level of the pupil and according to whether the pupil's pretest achievement level is high, average, or low. It diffens from the norm tables provided in the test publisher's manual in that both the pre and the posttest were administered to the same pupils to obtain the gain scores.

It has two major limitations. First, it is only useful for pupils' test results who are in grade levels 2-8. Secondly, the interval between testing is short.

Implementation Considerations

This evaluation model requires the use of the Reading, Math Computation, or Math Concepts subtests of the 1970 edition of the Metropolitan Achievement Test, or, the corresponding subtests of any other standardized test which can be converted into the Metropolitan.

The subtest should be administered in October and in April 'The pupil should be administered the 'Tevel' of the test recommended for the pupil's grade level by the test publisher or one level lower where pupil's skill proficiency in the test area is extremely low. Different Forms of the subtest should be used in October and April

To use this evaluation model, project pupils must *not* be selected to receive compensatory help on the basis of their October scores.

Implementation Procedures

Step One—Selectione of the three mentioned subtests for each pupil which is most closely related to instruction provided to that pupil by the compensatory teacher. The pupil should be informed to answer only those items on the test that he knows and to avoid guessing. Administer and score the prefest in exact



compliance with the procedures specified by the test publisher.

Step Two Record the raw scores for each pupil on the Project Pupils Test Record Form. Determine the stanine and Standard score for each pupil's October score using the norm tables in the Metropolitan Teacher's Manual.

Step Three In April determine the representative sample of the teacher's pupils whose scores will be submitted on the Individual Pupil Information Forms. Then administer the posttest and again advise the pupil to avoid guessing. Score and record the raw score and standard score for each pupil on the Project Pupils Test Record Form.

Step Four. Subtract the October standard score from the April standard score and record the gain score on the Project Pupils Test Record Form. Then refer to each pupil's October stanine to determine which column of the MAT Gains Table should be used. For stanines 1-3, use the LOW PRETEST column. For stanines 4-6, use the AVERAGE PRETEST column. And for stanine 7-9, use the HIGH PRETEST column. If the pupil's standard score gain equals or expeeds the mean gain score presented in the appropriate column of the MAT Gains Table, a "+" should be recorded in the last column on the Project Pupils Test Record Form. If the pupil's pre to post test gain score was less than the mean score presented in the MAT Gains Tables, a "-" should be recorded. Proceed in this manner until a "+" or a " "has been recorded for each project pupil for whom presand posttest scores are available.

Step Five Determine the distribution of pupils' raw scores for each level of each subtest administered.

Analyzing the Data

Interpret the pupils' raw score distributions for the October and April test administrations.

Determine the proportion of the teacher's pupils who achieved in reading or math as they should have by dividing the number of "pluses" by the number of "pluses and minuses." A mean proportion of .63 was found for 111 Connecticut compensatory teachers of reading and math in 1973-74. This standard can be used to compare a compensatory teacher's pupils with in 1974-75.

Try to discover why some pupils achieved as they should have while others did not. For example, compare the two groupings in terms of such factors as the following (1) average grade level for each grouping, (2) the proportion of boys compared to girls making up each grouping, (3) an average pretest stanine comparison, (4) any differences in the time of day pupils were scheduled for help or the concentration of compensatory help provided, or (5) the average absences from school for the two groupings. Comparisons such as these tends of identify strengths and weaknesses of compensatory programming, or, limitations of the evaluation model used.

A figure showing the distribution of pupils' raw scores will be valuable in any test score analysis. It will indicate whether there is a floor or ceiling'effect or whether scores "bunch up". Any of these characteristics limit the usefulness of the test results obtained and should be acknowledged as a limitation in the evaluation report.

The distribution of scores also shows the number of pupils scoring sq low that results could be due mainly to guessing. For example, the Intermediate Level of the Metropolitan Reading test is a test of 45 four-choice items which yields a mean chance score of one-fourth of the total number of items, or 11.3.



When a pupil scores this low, it is difficult to discern whether he actually knows the items of the test or guessed them. Extremely low correlations between fall and spring test results are mainly due to guessing and this behavioir nullifies the usefulness of tests as evaluation instruments.

Reporting the Results

The year-end compensatory program evaluation report should start with a brief description of the evaluation model used. Following this, the appropriateness of the levels of subtests administered in terms of the distribution of raw scores should be discussed. Next, the number of each compensatory teacher's pupils who achieved as they should have followed by the number of children who did not should be listed. The final part of the analysis should discuss the various factors that might bear on the test results obtained and their possible influence upon how well the pupils achieved.

A table should appear in the appendix of the report indicating the exact name of the instrument used, the subtest(s), levels, forms, dates of test administration, and pre and posttest raw scores by grade levels of pupils. Combined results for all compensatory, efforts of a single project should appear in this table.

Individual Pupil Reading on Math Information Forms completed by each compensatory supported teacher should also appear in the appendix. These will be used for a statewide and national evaluation of compensatory education.

#### MAT GAINS TABLES

Twenty of the school systems in the standardization of the 1970 Metropolitan Achievement Tests provided data referred to as the MAT Gains Tables in this publication. These 20 systems were selected to be representative of the entire standardization group (and thus, of the nation's school population) in terms of relevant population characteristics.

Average Otis-Lennon Mental Ability Test deviation IQs for this sample ranged from a low of 99.6 (Grade 8) to a high of 101.1 (Grade 5). Key variables used in selecting and describing the Metropolitan sample included the median years of schooling of adults over age 25 in the community, median family income, and the percent of blacks in the population.

The data presented here have important advantages over "growth" charts or tables offered in the past. First, the data are empirical—no interpolation or extrapolations are involved. Second, and perhaps more importantly, the same pupils were used for computing the Fall-Spring score changes. The regular Metropolitan percentile rank/stanine libbles provide the first advantage above. However, the regular "Beginning," and "End" of year norms are not based on identical sets of pupils, although great care was taken to match the two samples as closely as possible.

An additional advantage of these data is that the sample is closely representative of both the entire Metropolitan normative sample and the nation's school population, thus making interpretation of obtained results more meaningful.

It is recognized that utilization of this model is probably too lengthy a process where the number of staff in the project becomes very large. Additionally, the model is suitable only for children who are fluent in English.



## MAT GAINS TABLES

Median, Mean and S.D. of MAT Standard Score "Gains" Over a Six-Month Period by Grade for Three Subgroups and Total Scoup (N=1461-2861 per grade) READING

Grade	High Me-	Pretes	t	Avera Me-	ige Pro	etest	Low Me-	Pretes	t	Total Me•	Group	9	
	dian	Mean	S.D.	dian	Χ̈	S.D.	dian	X	S.D	dian	Mean	S.D.	
2	<b>.</b> 2.8	3.4	9.8	8.0	7.8	6.8	11.3	11.3	9.9	7.6	7.5	8.6	
3	5.1	5.2	10.1	4.9	5.0	7.4	5.3	7.1	14.0	5.0	5.0	9.8	
4	2.3	21	8.3	4.5	4.5	7.9	6.3	8.5	15.5	4.4	4.8	10.4	
5	.3	4	7.1	3.6	3.0	7.0	12.7	1.4.6	16.9	3.6	4.6	11.0	
6	-3.8	-3.4	8.1	2.6	2.4	6.2	8.3	11.2	17.5	2.0	2.4	10.9	,
7	1.8	2.2	8.9	1.6	1.2	8.2	5.3	6.3	13.4	2.2	2.5	9.9	
- 8	.4	` ?	9.0	2.3	2.3	8.6	2.1	2.9	11.8	2.0	2.0	9.5	
MATH	СОМР	UTAT	ION			~							
Grade	High	Pretes	t	Avera	age Pr	etest	Low	Prete	sį	Total	Grou	<b>р</b>	
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	dian	Mean	S.D.	dian	Χ̈́	S.D.	dian	X	S.D.	dian'	Mean	S.D.	
3 •	4.4	4.0,	8.0	8.8	9.0	7.2,	11.4	12.6	<del>(10</del> .9	8.2	8.5	8.7	
4	8.2	8.1	8 2		10.8		10.2				10.5	9.3	
′ 5	5.4	5.2	6.3	5.9	6.2	7.0	9.5	11.8	13.4	6.2	7.0	8.8	

5.4 6.0 5.8 8.7 14.1 3 3 7.2 6.3 7.3 3.1 6.4 6 6.3 12.6 2.5 2.8 8.8 4.7 2.5 7.2 1.6 7.3 7 1.7 2.7 6.6 5.0 4.8 11.4 2.7 3.3 8.5 82 3.1 1,1 8.9 2.8 2.7

9.2



# MATH CONCEPTS

		-	Pretest								Total Me-	Group.	
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	4	. 3.0	2.9	6.7	7.3	7.2	6.9	8.2	9.7	13.8	6.4	6.8 8.9	
	5	4.2	4.7	7.5	-4.2	40	7.7	7 7	10.1	14.9	4.7	5.3 9.6	
•	6	6.4	6.2	7.8	4.0	3.9	7.6.	4.8	7.7	16.6	4.7	5.2 10.0	
	7	1.0	11,	8.0	1.6	2.0	7.1	5.2	6.0	11.2	2.4	2.7 8.6	
	R	1.1	16	ያ በ	22	2.5	77	3.6	5.0	119	23	28 90	

# , TOTAL MATH

Grade,	• High	Pretes	t			etest			t	Total	- Group	<b>)</b> /	
٠, ٠	Me∙			Me-	_	•	Me-	٠		Me-	·		
	dian	Mean	S.D.	dian	X ~	S.D.	dian	Х	S.D.	dian	Mean	S.D.	
2	6.2	7.1	8.8	10.5	<b>№</b> .8	6.2	16 1	16.0	9.9	10.7	11.0	8.3	_
2	6.2	7.1	8.8	10.5	<del>10</del> .8	6.2	16 1	16.0	9.9	10.7	11.0	8.3	



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Pupil Grade   Subtest   Test   Test   Post   Raw   Stand   Raw   Score   Sco	-	ects	1 <u>2</u> sh	et_ o	L_ She	HAL	MAR	-lp <u>ς.</u>	tory h	compensa:	viding o	pro	(staff	Name of
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Pupil Grade Subtest Test Post Pre & Pre & Post Pre & Post Post Post Post Post Post Post Post					•	•			rest	Compo	ouaf (	hro	ou T	Follo
Pupil Grade   Subtest   Test   Test   Post   Raw   Stand   Raw   Score   Sco	_	Stand +		Postt		etest	Pr	Month	Pre &	Pre &				
		Score of	Stand					Post	Test	Test	Subtest			
2       2       6       2       3       50       9         3       2       6       8       1       24       19       47       23         4       2       8       1       24       19       47       23         4       2       8       1       5       19       47       23       47       23       44       44       38       44       44       38       44       44       38       44       44       38       44       44       38       44       44       47       29       54       7       7       2       8       35       6       49       21       49       0       8       44       41       22       50       9       9       24       44       41       22       50       9       9       9       24       44       41       22       50       9       9       9       24       44       41       22       50       9       9       9       24       44       41       33       1       13       11       10       3       8       8       12       11       34       19       47       13	-							05/		Ont				
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# PROJECT PUPILS TEST RECORD FORM

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#### - PROJECT PUPILS TEST RECORD FORM

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Munsen School, 1974.75

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READING & MATH PROGRAM ACHIEVI MENT AND INFLUENCING FACTORS
Munsen School, 1974-75

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# ANALYSIS OF TEST RESULTS FOR THE MUNSEN SCHOOL COMPENSATORY DUCATION PROGRAM

One of two subtests of the Metropolitan Achievement Tests, Reading or Math Computation, was administered to pupils in the Munsen Compensatory Program in October 1974 and April 1975.

The test score gain each pupil made was compared to an "expected gain" for the particular subtest according to the grade level of the pupil and according to whether the pupil's pretest achievement was high, average, or low. "Expected gains" were determined from the MAT Gains Tables.

This test analysis is for three major purposes. (1) to interpret the distribution of raw scores for the different levels of the tests administered, (2) to determine the number of a compensatory teacher's pupil's who achieved as they should have and, the number who did not, and (3) to discuss factors which possibly influenced the pupils' test gains.

Pupils have been divided into two subgroups for test score analysis. (1) the reading and math results of middle grade pupils all served by the same compensatory teacher, and (2) the reading results for grade 2 and 3 pupils receiving the Follow Through services. This latter group is served by two aides who have overlapping responsibilities for the grade 2 and 3 pupils.

A distribution of the raw scores for each level of each subtest was made. Reading test scores for grade 3 pupils showed some "piling up" of scores at the upper end of the scale at posttesting indicating that a higher level of that particular subtest should have been used as the test publisher recommended.

The Reading pretest administered to grade 4, 5, and 6 pupils should have been one level lower than that recommended by the test publisher as these pupils all tended to score too low on the scale.

When children score very low on a test, it is difficult to ascertain whether the results are actually what the pupil knows or whether the results are due to guessing.

The raw score distributions show a third characteristic. that approximately three-quarters of the grade 3 pupils are achieving exceedingly well. All these pupils began in the Auburn Headstart Program five years earlier and have been provided supplementary services each year since.

Scores were not available for 12 children. Four of the pupils left Munsen School before the April testing, five entered Munsep School after the October testing, and three pupils received short term help unrelated to reading or math computation.

The number of children who achieved well and those who did not achieve up to expectation are presented below.

to expectation are presented below:		
Compensatory Pupils' Achievement by Teacher Subgroups:	Follow Through, Aide Team	Reading and Math Teacher
Total pupils assigned for compensatory instruction during the 1974-75 year	38	21
Total pupils for whom pre and posttest results have been reported	29	18
Number of pupils who achieved up to expectations in reading or math	16	10
number of pupils who didnot achieve up to expectation in reading or boath	13	8 · 11

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These results indicate that slightly more than half of the pupils of each compensatory teacher achieved in reading or math as well as they should have. This proportion is slightly less than the average proportion ( $\overline{X}$ = .63) obtained for 111 reading and math teachers of compensatory pupils in Connecticut in 1973-74

In a further analysis, various information was analyzed in an attempt to determine factors possibly responsible for the differences in achievement found for the two categories of pupils.

Follow Through Component Analysis

Findings. There were essentially no differences between the two groups in terms of boy-girl ratio, and pupil school absences. A slightly larger proportion of grade 3 pupils achieved as expected than did grade 2 pupils.

Pretest scores were generally lower for pupils in the group who made the expected achievement. Also, these pupils showed the greater reading test average gain from pre to posttesting (12 standard score gain units for the better achievers compared to 2 standard score gain units for the others).

Interpretation. Pupils having the greatest educational need showed the better reading achievement. Other factors examined appeared to have no particular influence on whether the pupils achieved well or not.

If more children are expected to achieve well in the Follow Through Program in the coming year, it would be worthwhile for classroom teachers and compensatory aides to review the methods and procedures they use to help their average and above average achieving pupils.

Findings. There were no grade level differences between groups. A larger proportion of boys than girls achieved as they should have. Pre test scores were lower for pupils in the group who made expected achievement, and this group made the greater gains on the average (19 standard score units for the better achievers compared to 4 standard score units for the group not achieving as expected). Also, pupil absences from school appeared to be less for the group achieving as expected.

Interpretation. Again the pupils having the greatest educational need showed the better reading and math progress.

Three factors should be studied if more pupils are to achieve as they should in this program in the coming year:

Why do a greater proportion of boys than girls make the expected achievement gains?

How can achievement be improved for children who are a notch or two higher than the pupils who start out lowest in the project group?



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the publisher stand have been used for the grade 4,5, and 6 pupils. A Reading sublist pine level lower than that recommended by This would have avoided the "floor effect" apparent in the distribution of pretext sones for pupils at these grade levels.

# ATTACHBANT A

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States of wests of compensatory help provided by you in 1974-751 16 Hours for week of compensatory help phevided by you in 1974-75; \_\_

Cost of the 1974-75 compensatory help you provided: 59.654

Provide information below for pupils whe received compensatory help from you in 1974-75 (see instructions on the next page).

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Froutes information below for pupils who received compensatory help from you in

1974-75 (see instructions on the fiext page)

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