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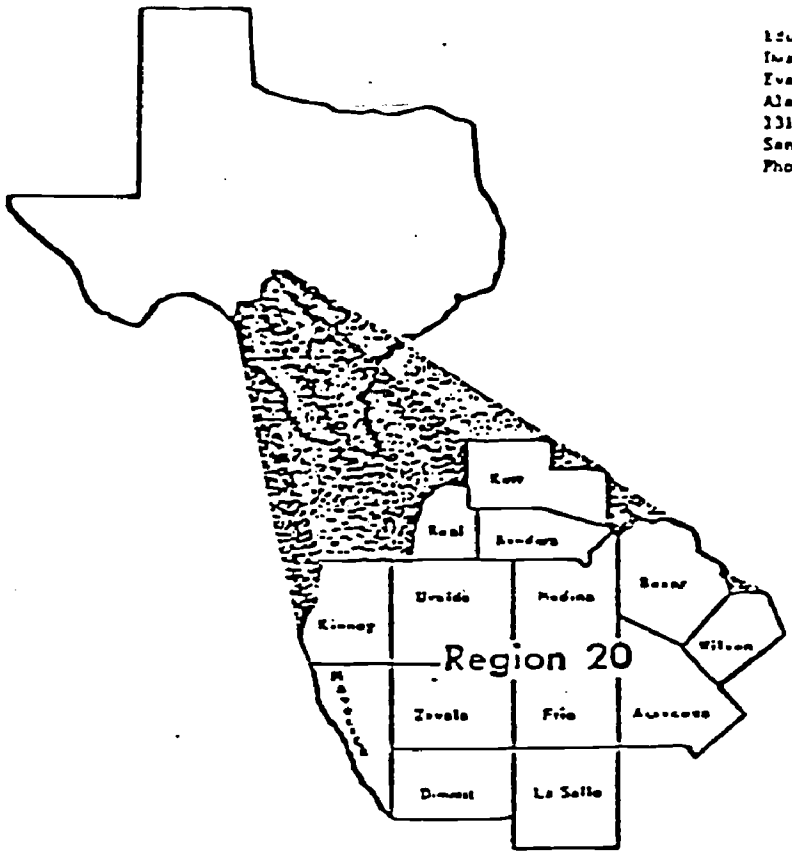
ABSTRACT

The system discussed in this paper was successfully used to track approximately 17,000 students participating in various educational programs and to measure their gains through achievement test results. It was developed for a school district with twelve supplementary instruction programs, and has been in use since the 1975-76 school year. The evaluation method was used to fulfill federal reporting requirements and to conduct longitudinal studies in measuring the impact of instructional programs. Programs in which kindergarten through high school students were tracked included: Title I, Title VII, State Bilingual, Migrant, and Experimental Schools. Inservice training was conducted to familiarize teachers and counselors with the materials required in the process. Greater speed in reporting test results, and increased specificity of scores for each student helped to alleviate teacher resistance to the extra record keeping involved. Appendices include a list of references, examples of scoring sheets, program code numbers, a list of the scoring codes, their corresponding programs, and the matching design. (FG)



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A SYSTEMATIC APPROACH FOR MEASURING SUSTAINED EFFECT AND FOR COMPARING COMPENSATORY EDUCATION PROGRAMS USING ACHIEVEMENT TEST DATA

Al Noonan

Paper presented at the annual meeting of the Southwest Educational Research Association at Dallas, Texas, January 29, 30, 31, 1981

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ABSTRACT

This system is a method for setting up a testing program that will allow evaluators and researchers to track students over periods of time, thus allowing for the measurement of sustained effect. The system is both economical and easy to implement. The system was developed for a school district with 12 supplementary instructional programs. This process also provides a structure for comparing students in various programs using test data, and an efficient way for collecting data needed to complete the required federal reports (Title I, Migrant, etc).

The purpose of this paper is to present a system, which was successfully used to track students participating in various educational programs and to measure their gains through achievement test results.

INTRODUCTION

Educational program evaluation was officially sanctioned with the passage by Congress of the Elementary and Secondary Education Act (Title I) in 1965. The purpose of evaluation, as introduced by Robert Kennedy, was for accountability. In the last 15 years, evaluation has evolved considerably. Originally dominated by methods from experimental psychology, evaluation has become interdisciplinary and has incorporated methods from the behavorial and social sciences. As Congress has allocated more money to education, it has also further defined and required program evaluation. The Education Division General Administrative Regulations (EDGAR, 1980) state:

" A grantee shall evaluate at least annually --

(a) The grantee's progress in achieving the objectives in its approved application;

(b) The effectiveness of the project in meeting the purposes of the program; and

(c) The effect of the project on persons being served by the project..."

As evaluation has evolved, so has concern over the longitudinal effectiveness of various educational interventions over several years (Kirst & Jung, 1980; Tallmadge, 1976). Numerous studies indicating the negative impact of various educational programs have increased societies' concern over the effectiveness of education (Coleman Report, AIR Report on Bilingual Education, etc). The basic method to measure the success---or failure, of a program has been achievement tests.

This paper describes a system that has successfully been used in tracking student achievement over several years. It was originally developed for evaluating a school district's Title I and Experimental Schools Programs. It was also used to compare Title I, Title VII, ESAA, State Bilingual, Migrant and SCE Programs. This system easily fulfills the sustained effect requirements of the Title I regulations. For schools wishing to use this system, an assumption is made that implementation evaluation has already taken place before test data is used to measure program impact. Approximately 17,000 students were tracked using this system.

STUDENT TRACKING SYSTEM MODEL

The student tracking system was designed to provide test results for use in completing required federal program evaluation reports. It also allows for the comparison of various instructional programs using test data. In this system, each student is assigned a unique nine digit ID number. A description of nine digits in the number is:

changes	never changes		
A	B	C	D
0 0 /	9 /	0 4 /	1 2 4 5

The numbers in section A indicate the assigned program code. For example, a Title I Reading Program may be assigned a program code number of 10. A Title I Math Program may be assigned a program code number of 11. If it is possible for the same student to be in both programs, the combined program code number could be 13. The 00 in column A would be changed to reflect the instructional program in which students participate.

The number under B indicates the year that the student entered the tracking system. Once this number is assigned, it never changes. During the 1978-79 school year, this number would have been 8; during the 1979-80 school year, it was 9; during the 1980-81 school year, it is 0. Column B allows one to determine how many years of test data should be on file for a student. These numbers are never changed.

The number in column C indicates the grade that the student is in when entering the tracking system. Once this number is assigned, it never changes.

The numbers in column D consist of unique computer generated numbers to assure no duplication. Numbers under D allow for 9999 students to enter the tracking system at the same time. No two students would have the same ID numbers. However, all could have the same numbers in columns A, B and C.

A sample of support programs for which the system was used are:

INTERVAL	PROGRAM CODE	PROGRAM
10-19	00	Not in any special program
	10	Title I Oral Language
	11	Title I Reading
	12	Title I Aides
	13	Title I, both Reading & Aides
	14	Migrant Communication Skills
	15	Migrant Math
	16	Migrant both C.S. & Math
20-29	20	ESAA Bilingual
	21	ESAA Oral Language
	22	ESAA Cultural Arts
	23	ESAA, both Oral Language & Cultural Arts
30-39	30	State Bilingual
	31	State Bilingual & Title I Oral Language
	32	State Bilingual & Title I Reading
	33	State Bilingual & Title I Aide
	34	State Bilingual & Title I Reading Aides
	35	State Bilingual & Migrant
	36	State Bilingual & ESAA
	37	State Bilingual & ESAA Oral—— Language
	38	State Bilingual & ESAA Cultural Arts
	39	State Bilingual & ESAA Oral Language & Cultural Arts

As an example, a student has an ID number of 396001212. This student is in the State Bilingual Program and has also participated in the Emergency School Aide Act (ESAA) Program in Oral Language Development and Cultural Arts Enrichment. The student entered the tracking system during the 1976-77 school year and was in kindergarten. During the current school year, 1980-81, the student should be in the 4th grade. This should be the fifth year that the student has been tested.

This system has been used to complete the Title I Annual Evaluation Report in the following manner. At the beginning of the school year, ID numbers were printed on Cal-stik labels by the Education Service Center, Region 20, Data Processing Center. Inservice was conducted with all the counselors to explain the tracking system and their roles. The counselors held an inservice with the classroom teachers and distributed the labels. The classroom teachers affixed a label to each student's Permanent Record Card (PRC). Using the PRC's, each teacher encoded the appropriate ID number on the pretest student answer sheet. It was not necessary to assign program codes for the pretest, so the first two digits were 00. All coding was done during the week of testing (the actual testing was done on Tuesday, Wednesday and Thursday). The same procedures were used for the posttest, only the 00 was replaced by an appropriate program code.

The test instruments were scored by the publisher's scoring center.* The center was instructed to merge the Title I codes and provide a computer printout of pre and posttest scores for each student by grade level. The reports included a frequency distribution of GE gains for each subtest. The gains were then converted into tenths-of-a-month by the school district evaluator in order to comply with the Title I Annual Evaluation Report format. In previous years, it had taken several weeks to compile and complete the section of the report concerning test scores. Using this system, it took approximately one-half hour per grade level.

* Since the development of this system, the scoring contract has been transferred to ESC, Region 20 which also has the software for implementing this student tracking system.

The tracking system was easily implemented at the elementary school level. The teachers maintained the PRC's and therefore had easy access to the ID numbers. At the secondary level, the PRC's were kept in the counselors' office and were not easily accessible. Also, there was more teacher resistance toward the increased work of encoding ID numbers on their students' answer sheets. However, when the teachers saw the print-outs and how useful the system was, this resistance was alleviated.

A second problem was the assignment of ID numbers. At first, several persons were responsible for assigning ID numbers. The result was the same number being assigned to two different students. This was resolved by having the numbers generated by computer and printed on labels.

The student tracking system has been in use since the 1975-76 school year. Although originally designed to provide data for completing the annual Title I Evaluation, it has been used to compare all federal programs and LEA programs. It is also currently being used to collect data to meet the Title I sustained effects requirement.

EDUCATIONAL SIGNIFICANCE

Most federal programs require the reporting of achievement test results in the annual evaluation reports. The Title I requirements include a sustaining effect report. This tracking system allows school districts to fulfill these reporting requirements and to conduct longitudinal studies using achievement test data in measuring the impact of instructional programs.

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APPENDIX

PRE/POST FREQUENCY DISTRIBUTION

PROGRAM CODE

LETTER TO SCORING CENTER

CLASS RECORD SHEET

	GE	GE	GE	GE	GE	GE	GE	GE	GE	GE	GE	GE	GE	GE	GE	GE
GR NURE	2	6	3	12	7	13	6	3	3	7	0	1	14	5	5	
	0	1	0	0	0	0	0	1	1	0	0	0	0	0	1	
	0	0	1	2	0	2	1	1	1	0	3	1	2	3	1	
	0	2	3	1	0	0	2	1	0	2	1	4	1	2	0	
	2	2	0	0	0	1	1	2	2	0	1	2	0	2	3	
	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	
	4	2	1	1	0	1	0	1	1	3	0	0	4	0	0	
	1	1	1	2	0	0	4	0	0	1	1	0	1	1	1	
	1	3	3	0	3	0	1	6	1	1	1	0	0	1	0	
	2	0	2	0	1	1	0	2	3	0	7	3	1	2	0	
	1	0	1	2	4	3	3	2	1	1	0	0	0	1	4	
	2	1	1	1	0	3	3	2	2	2	7	1	1	0	2	
	1	0	1	0	5	0	3	2	2	2	2	5	2	0	4	
	2	3	4	2	0	0	0	1	0	0	0	2	0	3	2	
	2	2	1	0	1	0	0	1	2	2	2	5	1	2	1	
	0	2	1	0	0	3	1	3	8	3	3	2	0	1	1	
	2	1	2	1	2	1	3	3	0	3	0	0	2	0	2	
	2	1	2	1	1	1	0	0	1	1	0	0	3	2	0	
	3	1	1	0	0	1	1	1	3	1	3	6	0	1	2	
	0	1	0	0	0	0	1	1	0	0	2	1	0	0	0	
	1	2	4	4	2	0	2	0	1	1	0	0	0	0	0	
	2	0	1	0	0	1	1	0	1	1	1	0	0	0	1	
	0	1	0	0	2	3	0	0	1	0	1	0	1	1	1	
	0	1	0	2	1	0	0	2	0	1	1	0	1	2	2	
	2	0	1	2	1	1	0	2	0	1	0	0	0	1	1	
	2	1	1	0	1	0	0	1	0	0	1	0	1	0	3	
	0	0	0	0	2	0	1	0	0	1	0	0	3	0	0	
	0	1	0	1	1	0	0	0	0	1	0	0	0	0	0	
	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	
	0	0	0	1	1	0	0	0	0	1	0	0	0	1	0	
	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	

GE = GRADE EQUIVALENT

PROGRAM CODE NUMBERS

PROGRAM CODE	PROGRAM
00	All Students who ARE NOT in Programs Listed Below
10	Title I
11	Title I student attending Reading Lab
12	Title I Migrant
20	ESAA Bilingual
21	ESAA & Title I (K-1 ONLY)
22	ESAA & Migrant (K-1 ONLY)
24	ESAA Basic
25	ESAA Pilot
26	Edgewood High School Special Program
30	State Compensatory Education
50	State Bilingual

PROGRAM COMBINATION CODES

51	State Bilingual, Title I
52	State Bilingual, Title I attending Reading Lab
53	State Bilingual, Migrant
54	State Bilingual, Title I, ESAA (K-1 ONLY)
55	State Bilingual and ESAA
56	State Bilingual, Migrant, ESAA
57	State Bilingual, State Compensatory Education
40	Plan A (Special Education)
58	State Bilingual, Plan A

INDEPENDENT SCHOOL DISTRICT

March 15, 1979

Ms. Rhonda Dillon
CTB/McGraw-Hill
Customer Service
Del Monte Research Park
Monterey, CA 93940

Dear Rhonda:

The following is a description of the scoring services which we will require. Although the format of this is different, the services are the same as those received last year.

I. List of Schools/Grades Tested:

(See attached list of schools.)

II. Special Codes

A. Columns A & B contain 2-Digit Program Codes.

Program	Column		Bubble
1. All Students who are not in programs listed below	A B	– –	0 0
2. Title I	A B	– –	1 0
3. Title I Student attending Reading Lab.	A B	– –	1 1
4. Title I Migrant	A B	– –	1 2
5. ESAA Bilingual	A B	– –	2 0
6. ESAA and Title I	A B	– –	2 1
7. ESAA and Migrant	A B	– –	2 2
8. ESAA Basic	A B	– –	2 4
9. ESAA Pilot	A B	– –	2 5

	Program	Column		Bubble
10.	Edgewood High School Special Program	A B	– –	2 6
11.	State Compensatory	A B	– –	3 0
12.	State Bilingual	A B	– –	5 0
13.	State Bilingual and Title I	A B	– –	5 1
14.	State Bilingual & Title I Reading Lab	A B	– –	5 2
15.	State Bilingual & Migrant	A B	– –	5 3
16.	State Bilingual, Title I and ESAA	A B	– –	5 4
17.	State Bilingual and ESAA	A B	– –	5 5
18.	State Bilingual, Migrant and ESAA	A b	– –	5 6
19.	State Bilingual and State Compensatory	A B	– –	5 7

B. Columns C-I or C-J contain 7-digit district derived student ID number. All pre-post matching will be by these 7-digit ID numbers, beginning with Column C.

III. Matching Design

Pre-Test Fall, 1978					Post-Test Spring, 1978	
Grade	Level	Batch #	Matched To		Grade	Level
K	A	A6A0	"	"	K	A
1	B	A6A1	"	"	1	B
2	C	A6A2	"	"	2	C
3	1	A6A3	"	"	3	1
4	1	A6A4	"	"	4	1
5	2	A6A5	"	"	5	2
6	2	A6A6	"	"	6	2
7	3	A6A7	"	"	7	3
8	3	A6A8	"	"	8	3
9	4	A6A9	"	"	9	4
10	4	A6AB	"	"	10	4
11	4	A6AA	"	"	11	4

Pre/Post Combined Code Matches

	Grades	Program
00	K-8	Other
10, 21, 51, 54	K-6	Title I
11, 52	3-6	Reading Lab
12, 22, 53, 56	1-11	Migrant
20, 21, 22, 54, 55, 56	K-4	ESAA Bilingual
24	7-8	ESAA Basic
25	9-10	ESAA Pilot
30	1-8	SCE
50, 51, 52, 53,54,55,56,57	K-6	State Bilingual

We will need the 2 digit codes that cover the listed programs merged, and a PPMCRS for each program.

Sincerely,

Al

Al Noonan
Evaluator

AN:mas

Attachment