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ABSTRACT

This report describes the methodology and results of the "incentives only" experiments at Mesa, Arizona and at Stockton, California. The incentives only experiment -- one facet of the performance contracting experiment -- involved contracting to provide incentives to teachers and students, rather than contracting with particular private technology firms to provide instructional technique packages. The document reports that, at both Mesa and Stockton, teachers were given about half the maximum amount they could earn in bonuses to purchase incentive rewards for the children, to buy supplementary instructional aids, or to use in any other way they wished. The experiment results indicate that the incentives experiment failed to have any effect on reading and math skill achievement gains for the students in Stockton and in Mesa. A related document is ED 060 546. (JF)

OFFICE OF ECONOMIC
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A DEMONSTRATION OF INCENTIVES

IN EDUCATION

Office of Planning, Research, and Evaluation

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INCENTIVES-ONLY SITES

When the OEO first decided to mount the performance contracting experiment, there was some thought that the most crucial aspect of the new concept might be the incentives to teachers and students, rather than a particular instructional technique or package of audio-visual materials. It was hoped that the effects of the incentives themselves could be isolated by including in the experiment a few sites that would not involve private technology firms. Instead, school districts would contract with their own teachers' organizations, which would provide the instruction using the normal school curriculum and which would be paid bonuses, in addition to the regular teachers' salaries, according to the children's performance.

The two school districts and their teachers' groups selected for this "incentives-only" demonstration were Mesa, Arizona, and the Mesa Teachers' Association, and Stockton, California, and the Stockton Teachers' Association. Both groups were local affiliates of the National Education Association. Because negotiations at the two sites were rather lengthy, however, the demonstration was not operational until late December and early January. Thus, the Mesa and Stockton results cannot be compared to the full-year results of the 18 sites where private technology firms provided the instruction.

At both Mesa and Stockton, teachers were given about half the maximum amount they could earn in bonuses to purchase incentive rewards for the children, to buy supplementary instructional aids, or to use in any other way they wished.

At neither site does this form of performance contracting seem to have succeeded, at least in terms of improving reading and math skills. As expressed in raw scores, the achievement gains of the demonstration group in Stockton appear to be a little greater than those of the control group in the first and second grade, but the control group gained more than the demonstration group in the ninth grade. In Mesa, again in terms of raw scores, the second grade demonstration group gained more than the control group, but the reverse was true in the third grade.

The results are equally disappointing in terms of absolute gains. It had been hoped that the incentives-only sites would be able to produce gains of at least eight-tenths of a year -- less than the full-year sites were expected to produce but considerably greater than under-achieving youngsters normally gain in a year. However, only in eighth grade math in Mesa and second, eighth, and ninth grade math in Stockton were the average gains of the demonstration group as great as eight-tenths of a year.

Thus, the addition of incentives to the regular classroom routine cannot be said to have had any effect on children's achievement in Mesa and Stockton.

A complete description of the incentives-only program is included in the following report from the local project directors in Mesa and Stockton.

PROJECT DIRECTORS' PERCEPTION OF "INCENTIVES ONLY" PROJECT

BY

Douglas P. Barnard
Hollie W. Crawford
Robert M. Jones
James R. Turner

The purpose of this chapter is to allow Mesa and Stockton to provide insight into how the "Incentives Only" projects were perceived and conducted at each site. Both sites realized that the project was experimental, and that many problems would and did emerge. Therefore, it is the project directors' purpose to discuss the "Incentives Only" projects for the value it might have in organizing and implementing future research endeavors.

Both sites are indebted to the U. S. Office of Economic Opportunity for providing the opportunity for us to participate in this innovative program. Both sites compliment the Office of Economic Opportunity for having the courage to test the idea that incentives alone might be enough to increase the motivation of children to learn. The incentives proposed were to be concrete and readily available upon completion of tasks determined by students and teachers. The OEO made available the money needed to provide the incentives and to provide a coordinator for the program responsible for filing reports and keeping records needed for a valid experiment. Without the financial help from the OEO, this experiment would not have been carried out at this time at either site. The fact the Office of Economic Opportunity did sponsor the program in view of the controversy of using incentives in education is commendable.

In the face of opposition from the National Teacher Organizations, the local units of the American Federation of Teachers and the National Education Association are to be commended for permitting the experiment to go on. The Mesa Teachers' Association and the Stockton Teachers' Association served as subcontractors. At Mesa, the immediate past president of the MEA was selected to coordinate the project. At Stockton, the association president was selected to be the coordinator of the project. (He resigned from the presidency after being selected coordinator.) But those who did the most, and who deserve the greatest credit, were those dedicated teachers willing to search for a more effective way to motivate children to learn. Their task was not easy. They, above all others, were on the firing line. They should receive the highest praise for their willingness to participate. Would the children in their classes respond to material incentives? Would the achievement level increase in reading and mathematics?

Mesa and Stockton were two unique sites serving different populations. Mesa, Arizona has a growing population of approximately 63,250 in the city limits and is located in close proximity to an estimated one million persons in the Phoenix metropolitan area. Mesa's school population is comprised of approximately 21,365 students with an ethnic breakdown of 2,151 Mexican-Americans; 18,065 Caucasians; 324 Negroes; 51 Orientals; 730 American Indians, and 45 other non-white students.

The ethnic breakdown for the Mesa schools in the experimental and control groups follows:

	Experimental*		Control*		District (K-12)*	
Caucasian	307	58.0%	182	41.9%	18,065	84.6%
American-Mexican	137	25.9%	143	32.2%	2,151	10.1%
Indian	69	13.0%	59	13.2%	730	3.4%
Negro	10	1.8%	58	13.1%	324	1.5%
Oriental	3	0.6%	1	0.2%	51	0.2%
Other	3	0.6%	1	0.2%	45	0.2%

* (Grades 1, 2, 3 and 7, 8, 9)

The Stockton experiment was to take place in grades 1, 2, 3, 7, 8, and 9 in two schools located in low income areas with children classified as "disadvantaged." The Roosevelt elementary school had 24 teachers in grades K-6 with a student body numbering about 700. All 328 first, second and third graders at the school participated in the experiment. The racial composition of the school was 31.8% Spanish surname, 48.4% other white, 14.8% black, and 5.0% non-white.

The Hamilton Junior High School had 51 teachers in grades 7, 8, and 9. Total student body numbered about 1,300. The racial composition of the school was 30.6% Spanish surname, 23.0% other white, 38.8% black and 7.6% other non-white, approximately 100 students at each grade level (7, 8, and 9) participated in the experiment.

Control schools were the Jefferson elementary school and the Fremont Junior High School. The student body at Jefferson totaled 472 while Fremont had 1,373 students. The racial composition of each control school follows:

School	Spanish Surname	Other White	Black	Other Non-White
Jefferson	38.4	51.9	5.7	4.0
Fremont	27.5	57.7	11.7	3.1
District	22.2	55.6	14.5	7.7

PROGRAM GOALS, OBJECTIVES & DESCRIPTION

The purpose of the "Incentives Only" projects was to investigate whether or not the introduction of incentives alone into an existing educational program would motivate economically and educationally disadvantaged students to higher achievement in reading and mathematics. No more, no less. Each district had an objective to introduce an "Incentives Only" project into the educational program to determine if disadvantaged youth with poor achievement records could be motivated to higher achievement by offering material incentives to students and teachers. Approximately 600 students were to be involved in the experiment. This objective was achieved. Each school in the experiment carried on the regular program with the added ingredient "material incentives." The control schools operated the traditional program.

The subcontractors, Mesa Educational Association and Stockton Teacher Association, project goals and objectives were similar as follows:

1) To engender in students the desire to learn for the sake of learning. Thus, knowledge becomes the incentive.

2) To involve the teacher association in educational processes and decision-making which directly affects the education of children.

3) To participate in research to determine if the use of student and teacher incentives can accelerate achievement in reading and math for disadvantaged students.

Evaluation of the experiment was to be based on the comparison results of standardized pre and post tests in the subject areas of mathematics and reading between the experiment and control groups at each site.

Payment of incentives money was to be made on the basis of the gains reflected by the difference in the pre tests and post tests scores.

PAYMENT DIFFERENCES

The contractual agreement on student objectives for payment purposes were different. Mesa contracted for payment of $3.40 per subject if a student achieved 8 months growth in reading and mathematics. For each additional gain of 1 month, Mesa would receive an additional $1.50 with the average maximum unit price not to exceed $17.00 per student per subject. Stockton had the same type of arrangement with $5.00 per subject per student, and each month's growth increment would be worth $2.20, with the average maximum unit price not to exceed $24.94 per student per subject. The reason for the differences in contractual monies is in the method used originally which was calculated on teachers base pay. Stockton had higher average teacher base salaries than did Mesa. While the contract called for a payment for each student who gained one month for each month in the experment as determined by the difference between the pre and post tests, subsequent contract renegotiations may provide a more realistic formula involving an adjustment factor to determine payment.

CRITERIA FOR PROGRAM PARTICIPATION

The methods used to select schools, teachers, and students at both sites differed. At Mesa, the initial selection was limited to Title I schools since they contained the largest number of economically and

educationally disadvantaged students. After schools were selected, the students were identified first, as being below grade level; and second, as being from a low income family. For the low achievement, the following procedures were utilized in Mesa:

1) The Murphy-Durrell Diagnostic Readiness Test was administered to all first graders in September, 1970. All students who scored in the lowest quartile on this test were listed and considered for possible participation.

2) The Gates-MacGinitie Reading Test was administered to all students in grades 2 through 6 in September, 1970. Students from 2nd and 3rd grades who were reading below grade level by at least six months were considered candidates for the program. It was felt that six months retardation at this level was significant retardation.

3) At the junior high level, district testing was again utilized and students considered who were at least 1 1/2 years below grade level.

To satisfy the low income requirement, an attempt was made to secure the welfare list without success. Attempts to obtain census data were to no avail. Therefore, the procedure listed below were followed:

1) Title I schools were selected with matching experimental and control schools from similar sections of the city.

2) Students surname and home address were coordinated to locate students from low income sections of the city.

3) The food services division was consulted to provide us with a list of all students on the free lunch program.

4) Teachers and principals were asked to indicate students whom they knew to be in low income families with a $5,000 annual income being the consideration.

5) The district nurse identified students who were in need as determined from home visits, knowledge of community, etc.

OEO did explore the possibilities of bussing students to one location for the program; however, Mesa under a Title IV grant had just completed boundary changes to have an equal balance of minority groups in each school. Another reason Mesa refused to group these students is one of philosophy. Mesa does not believe in homogenous grouping or segregating students for any program. Therefore, the students were in various classrooms in each of the four schools, and not grouped together.

At Stockton, schools were located in areas with a high level of low income and a significant number of low achieving students and strong administrative support at the school level. Teachers at the schools selected for the experiment had the choice of remaining at the school and in the program or of transferring to any other school in the district needing a teacher. No teacher chose to transfer to another school.

Students were selected to participate in the experiment by the following methods. At the elementary school, the number of children in the first, second, and third grades closely matched the desired number for the experiment so all children participated. At the junior high school, the children were selected on the basis of test scores from previously administered standardized tests, class rankings and scattergrams. Many student schedules had to be completely changed since the experiment began after school had started and classes had been organized. This experience was upsetting to the teachers and to the students.

PROGRAM SIMILARITIES

Each project was under the direction of a project director, a district representative who had responsibilities coordinating the various components.

The project was operated within house under the direction of a project administrator. In Mesa, Mr. Robert Jones served in this capacity and Mr. James R. Turner served this role in Stockton. Both men were immediate past-presidents of the local NEA affiliate teacher associations.

Each site served the same grade levels of approximately 100 students at each of the 1, 2, 3, 7, 8 and 9th grade levels. Each site had a high proportion of project students participating in both reading and math programs, and both sites offered incentives to students.

While neither site placed major emphasis on teacher incentives, Mesa's teachers were aware of teacher incentives from the outset while this was not an initial concern at Stockton. However, it should be pointed out that from the beginning of the program, teachers placed major emphasis on student incentives.

PROGRAM DIFFERENCES

A major difference was classroom organization. At Mesa, the philosophy and district policy prevented grouping of the nature desired by OEO. Therefore, Mesa had project students dispersed throughout classes in the school involved. A class of 30 students might have only one or two project students in which case all students in the class received incentives.

At Stockton separate classes were set up at grades 7, 8, and 9 on the basis of participation criteria to become "incentives only" classes.

Other differences included financial involvement, start-up dates, and the incentives delivery systems. Mesa's MEA underwrote the project with $2,000, and another $2,000 was underwritten by the district. Mesa

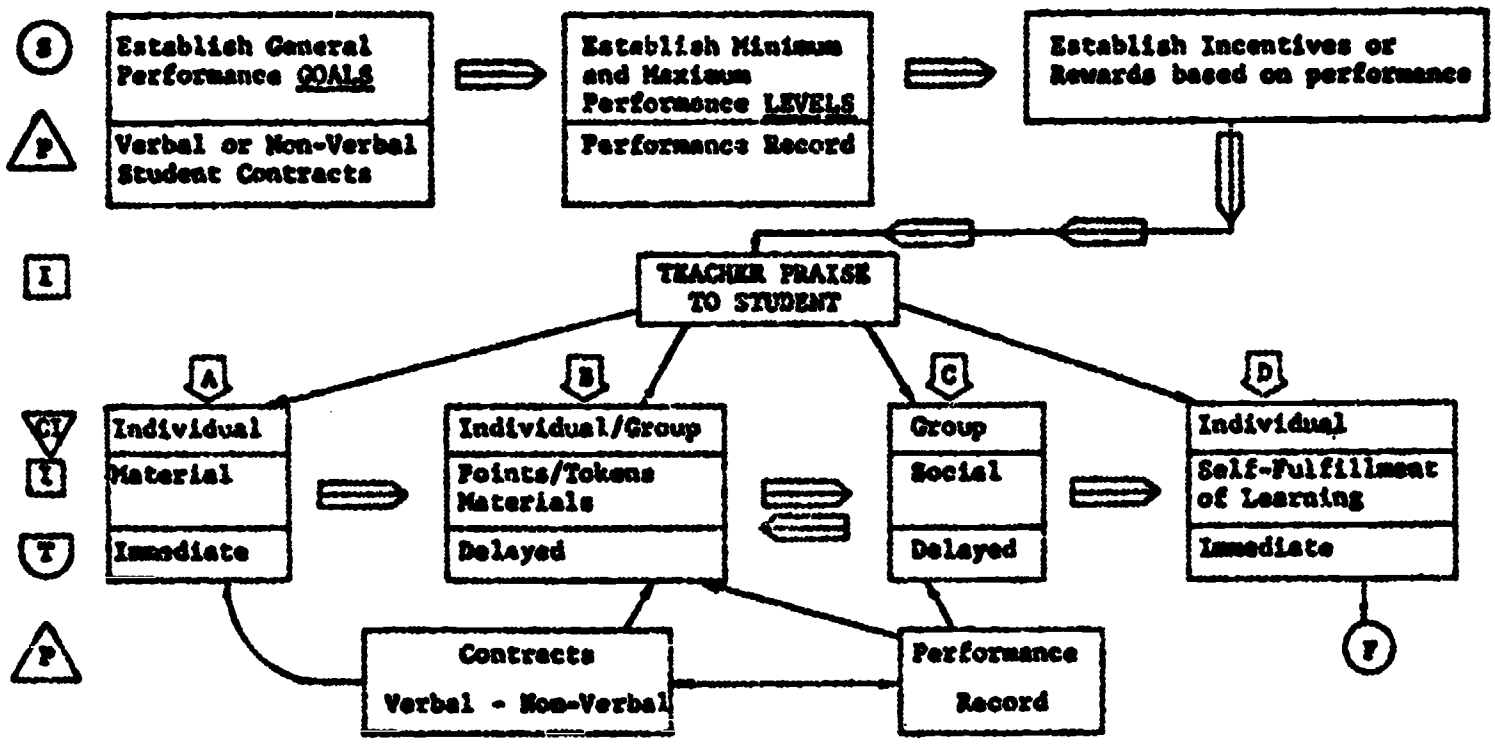
did not receive any funds from OEO until December 21, 1970. As a result, incentives did not really commence until after the New Year's holidays.

The Stockton Teachers' Association did not have funds to participate in the escrow fund. The Stockton Unified School District underwrote the Association share. Without this arrangement, it is doubtful if the project would have been attempted. The Stockton Unified School District teachers in the project did invest the full escrow amount in the student aspect of the program. If the OEO interpretation of the contract had been made clear, the full escrow account might not have been spent. However, the incentive program was fully operative December 1, 1970.

Mesa teachers desired an incentives delivery system designed to wean students from incentives after motivation to learn was achieved. As a result, the following model was devised as a suggested guide to teachers.

MESA - "INCENTIVES ONLY"

STUDENT INCENTIVES MODEL



Symbols

S / F — Start - Finish

P — Process

CI — Classification of Incentive

I — Incentive

T — Time

At Stockton, each teacher established general performance objectives for both individual and group incentives. Students and teachers participated in material incentives selection. Students earned incentives by achieving individual performance objectives.

SUMMARY CHART

SIMILARITIES AND DIFFERENCES

Area	Mesa	Stockton
Contract		
Total Contract Price	$38,903.00	$60,071.00
Subcontract	Local Education Association	
Total Escrow Amount	$20,400.00	$29,929.00
Administration	Same - 1 parttime Director 1 fulltime Administ'r	
Support Agencies	Same	
Guaranteed Grade Level Gain	.8	.8
Payment Below .8	None	None
Payment - Minimum Gain	3.40	5.00
Payment - Per Unit Gain Above .8	1.50	2.20
Payment - Maximum Gain	17.00	24.94
Schools		
Schools Involved - Experimental	4	2
Schools Involved - Control	4	2
Number of Teachers Involved	54	24
Curriculum	Same - Regular District Program	
Days from Pretest to Posttest	124	138
Students		
Grade Levels Involved	Same (1, 2, 3, and 7, 8, 9)	
Number of Students	Same (Approx. 100 per grade level)	
Ethnic Breakdown	Different (see text)	
Student Selection	Different (see text)	
Average Daily Attendance	114	
Class Organization	Different (see text)	
Incentives		
Type of Incentives	Essentially the same	
Incentives Delivery Systems	Different (see text)	
Amount Spent for Student Incentives	$3,200	$15,000
Start-up Date with Incentives	January 1, 1971	December 1, 1970
Time with Incentives	5 months	5 1/2 months

PROGRAM CONSTRAINTS

The program was not presented to the districts until very late and contracts were not negotiated until November, 1970. This caused many problems that could have been avoided with proper lead time. Problems at each site were:

1) Time limitations necessary to secure approval from schools, teachers organizations, community action agencies and local and state boards of education set up barriers for effective communication to implement the program. Ineffective communications alienated some teachers in both Mesa and Stockton and the community action agency in Stockton.

2) Lack of adequate lead time required that the administration of the testing program take place well after school started and schedules and programs were in operation.

   a) Hurriedness and improper planning for the pretest due to the lack of time resulted in inadequate testing conditions and pretest score validity may be open to question.

   b) Inadequate testing conditions were cause for concern among teachers and counselors at Stockton.

3) Lack of adequate lead time for training teachers in how to use incentives to motivate children effectively resulted in a significant delay in implementing the program.

4) At Mesa, adequate lead time would have permitted money to be inhouse so that program implementation could have begun upon completion of the pretesting program. As it was, monies were not received until the end of December making the actual starting date January, 1971.

5) The aforementioned problems resulted in initial negative attitudes on the part of many teachers toward the program.

TEACHER ATTITUDE

Visible changes in student behavior may have affected some change in teacher attitude as the project progressed. In Mesa, a questionnaire was mailed to each teacher involved in the project. At the elementary

level, 61% responded while 62% replied at the junior high level. Most elementary and junior high teachers who responded indicated that ---

--- incentives were effective in stimulating achievement;

--- incentives were effective in modifying student behavior;

--- students were able to attend to a given task for a substantially longer period of time;

--- incentives used were appropriate and usually desired by the student;

--- it was somewhat difficult to monitor student progress;

--- the attitude toward school of incentives students was better than that in non-incentives classrooms;

--- parental reaction at the elementary level was favorable, whereas the junior high teachers indicated neither favorable nor unfavorable parent reactions; (only two parents had unfavorable reactions);

--- philosophically, teachers favored the use of incentives with disadvantaged students;

--- most teachers did undergo, philosophically, some change in attitude toward the use of incentives during the time the project was in operation;

--- the majority of teachers favor the performance contracting concept;

--- most elementary teachers would be willing to participate in another year of performance contracting whereas most junior high teachers were undecided or gave a qualified "yes" to another year; 25% of the junior high teachers were definitely not interested in another year;

--- most elementary teachers felt that the project helped whereas most junior high teachers indicated that it helped students somewhat during the year, approximately 25% reported that it helped quite a bit;

--- incentives are still being used at both levels; approximately 45% of the elementary teachers are using incentives at the same level or greater than last year. Most junior high teachers are using incentives at a reduced level because of lack of funds;

--- pretesting conditions were rated poor with one-third indicating average testing conditions;

--- posttesting conditions were rated average or above at elementary level and poor at the junior high level.

The above data does not adequately reflect the feelings of the junior high teachers. Generally, there was a negative attitude toward the program, especially the organization. Since there was no ability grouping, the students were dispersed among all classes causing the organization to be cumbersome to handle. Although this was true at all levels, it was especially difficult at the junior high level. It should also be pointed out that the junior high faculty and students were on double sessions, attending school only in the afternoon. The faculty was heavily involved in meetings to draw up specifications for a new junior high in designing curriculum, selecting furniture, etc. The incentives program was just one more thing they had to do, even though they voted to participate in the program.

At the conclusion of the project in Stockton, 87.5% of the participating teachers at this project site indicated that they would participate in another incentives project. The STA, an NEA affiliate, agreed to support a continuing program of "incentives only." Both participating principals agreed to continue the program if funding became available.

ROLE OF TURNKEY EDUCATIONAL SYSTEM

This corporation served as the Management Support Group for both sites. While this group was responsive to most of our questions, the voluminous reports required by this group had little or no value to any aspect of the "incentives only" projects. These reports consumed a

vast portion of teachers' and project administrators' time and did not enhance favorable teacher attitudes toward the project.

RECOMMENDATIONS

Recommendation #1 - That any future "incentives only" project be given sufficient time to permit screening of classroom teachers. Teachers need to be aware of the program goals and objectives and their responsibilities. Teachers should then be able to evaluate the program and determine whether or not they want to participate. The key to success is the degree of teacher commitment to the program.

Recommendation #2 - That any future "incentives only" project be given sufficient time to permit adequate pre and inservice training.

Recommendation #3 - That any future "incentives only" project be made more uniform in payment procedures.

Recommendation #4 - That any future "incentives only" project involving more than one site, for comparison purposes, be designed to provide better control of the variables.

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