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AUTHOR	Barnard, Douglas P.
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ABSTRACT

The Mesa School District (Arizona) "Incentives Only" Project--carried out via a performance contract with the U.S. Office of Economic Opportunity in 1970-71 through the Mesa Education Association (MEA)--is described in terms of rationale for the use of incentives, background, program procedures, the incentives model, the delivery system, evaluation (including student and teacher reactions to the project), and general conclusions. Specific project goals, as developed by the MEA, were (1) to participate in research to determine if the use of student and teacher incentives can accelerate achievement in reading and mathematics for disadvantaged students, (2) to engender in the student the desire to learn for the sake of learning (knowledge becomes the incentive), and (3) to functionalize the MEA's involvement in process and decision-making which affects the education of children. Experimental- and control-group students in grades 1-3 and 7-9 at project schools were selected to participate on the basis of 2 criteria: low achievement and low family income. It was concluded that the notion of attacking educational problems through national research is valid and desirable; funding sources must allow researchers to be more realistic in their goals; and the use of incentives did not accelerate achievement for disadvantaged students as per the guaranteed achievement gains of .8 months in the basic skills. (PS)

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THE EFFECT OF INCENTIVES ON ACHIEVEMENT & BEHAVIOR OF DISADVANTAGED STUDENTS *

by

Douglas P. Barnard

INTRODUCTION

Awaiting the Nuremburg trials, Albert Speer related in his memoirs that he contemplated suicide to avoid his trial. After serious thought, he discovered that "... from the intention to the deed is a very long way."[1] Throughout the history of education our intentions, although sincerely conceived, have rarely, if ever, been matched by deed. The Mesa "Incentives Only" Project had admirable intentions, but again, we realized that there is, indeed, a long ways from intent to the deed.

The purpose of Mesa's performance contract with the U. S. Office of Economic Opportunity was to determine if the addition of incentives to a typical educational curriculum would, in fact, accelerate reading and mathematics achievement of disadvantaged students. This paper will present the rationale for the use of incentives, background, program procedures, Mesa's incentives model, evaluation including staff reaction to the project, and general conclusions.

Rationale

It has long been recognized that disadvantaged students do not achieve one year's growth for one year of instruction. One can observe

*Paper presented at the American Educational Research Association annual meeting, April 4, 1972, in Chicago, Illinois.

the Mesa Schools test results or probably many other school districts and note that at the first grade level, the students do not make the month-for-month gain, but come fairly close. In the second grade, they drop further behind and by the end of the third grade, the evidence is clear that they are about a year behind their peers. Various programs have attempted to alter this picture; most have failed. Mesa was more than willing to try incentives as a possible means to motivate disadvantaged students to learn. It was apparent that the normal incentives, i.e., praise, report cards, and learning for the value of learning did not work as motivational devices for children accustomed to failing or with no desire to learn. As John Cline of Alpha Systems stated, "We hear from people that the kid should want to succeed. Well, god-damn yeah, he should. But he doesn't."[2]

Haywood has suggested that "what appear to be deficits in cognitive ability, particularly in disadvantaged children, and according to my own research program, particularly in the cultural-familial mentally retarded, instead may very well be deficits in inclination to achieve or deficits in motivational systems."[3] Although incentives to motivate students have been a practice in American Education for over 100 years,[4] the use of rewards, especially material rewards, carried an illegitimate or immoral connotation. These were techniques used in atypical classrooms, not in the typical classroom.

Others have alluded to the fact that the reason these children do not learn can be attributed to poor teaching, lack of appropriate

preschool experiences, language problems, attitude of educators, or the Getzel concept of economics -- the whole idea of education is not rewarding in the future for the lower class child. As Getzel stated at a White House Conference on Education in 1965:

> "... the lower class child has experienced only a survival or subsistence ethic (not achievement ethic) with consequent high valuation on the present (not the future) on immediate gratification (not deferred gratification) and concrete commitment (not symbolic commitment.) Where the lower class child lives, hardly anyone ever gets to the top -- often one can hardly move across the street. And time is not important or potentially valuable if there is not going to be anything to do with it anyway. The commitment is to immediate and concrete gratification -- to the satisfaction of here and now -- for what does an appeal to symbolic success mean where success is measured only by subsistence or survival?"[5]

Ask any educator who has visited many school districts, especially in the cities, but certainly not excluding the suburban communities, if there appears to be a general lack of motivation. Teachers are striving for new means of changing student behavior and have found a few techniques that work for a while, but soon wear thin. A poll conducted by the Houston Teachers Association revealed that 70% of the teachers felt they needed special inservice training programs on handling inappropriate classroom behavior.[6]

Realizing that we have not succeeded with this population and despite the late start-up date, Mesa was willing to ask the question in the national limelight: do incentives, in fact, accelerate achievement in the basic skill areas for educationally and economically disadvantaged students?

Background

The U. S. Office of Economic Opportunity approached the Mesa School District with the concept just before school opened in the fall of 1970. Negotiations continued for over a month with two OEO members visiting Mesa in September, 1970. Since OEO desired busing and homogeneous grouping, the project was rejected by the Mesa District as we did not choose to bus students to a learning lab with all low income, low achieving students in one room. Mesa has a Title IV grant, and we had recently completed boundary changes to have an equal balance of minority groups in each school. Another reason Mesa refused to group students was one of philosophy. Mesa does not believe in homogeneous grouping or segregating students for any program.

Before any contracts were signed, the district administration proceeded through normal channels for approving new projects. The project was presented to the MEA Executive Board and the MEA Building Representatives and approved by both groups. Community approval was received from "Adelante Con Mesa," a Community Action Agency, and the Title I Advisory Board since the schools involved were Title I schools. The local Board of Education, the State Board of Education, and the Governor of Arizona also approved the "Incentives Only" Project.

The unique aspect of the project was that the Mesa School District (the prime contractor) subcontracted with the Mesa Education Association to guarantee achievement gains of .8 months in the basic skills areas.

The MEA developed the following project goals:

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

2) to engender in the student the desire to learn for the sake of learning. Thus, knowledge becomes the incentive.

3) to functionalize the MEA's involvement in process and decision-making which affects the education of children.

PROCEDURES & METHODS

Student Selection

Students were selected for participation on the basis of two criteria -- low achievement and low family income. This limited our students and schools to Title I schools. To satisfy the low achievement criterion, first grade pupils who scored in the lowest quartile of the Murphy-Durrell Reading Readiness Analysis Test were considered for possible participation. Second and third grade students were candidates if they placed six months below grade level on the Gates-MacGinitie Reading Test. Seventh, eighth, and ninth grade students who scored one and one-half years below grade level on previous tests were potential participants for the project.

Determining the low income criterion was more difficult. District Title I schools submitted the number of students considered to be on a low socio-economic level. Census data and welfare lists were not available to the district, therefore teachers, principals, nurses, and the Food Services Department (nutrition subsidy program) assisted in

identifying low income families and students.

The ethnic breakdown for the experimental and control schools as it relates to district percentages are presented below:

	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)

School & Teacher Selection

After student lists were established, the schools containing sufficient students meeting the criteria were geographically grouped so that the experimental and control schools would be in the same area of the city. In order to obtain the numbers requested, three elementary and one junior high were necessary to serve as the experimental schools. A like number were selected as the control schools. Designated experimental schools were presented with an overview of the project task. After the presentation, each faculty voted to be a part of the project or to be excluded. One elementary school staff elected not to participate and consequently was not involved as an experimental or control school. No teachers or students were transferred nor were any students bused or homogeneously grouped for this study.

Daily Program

In all schools, normal classroom teaching methods and materials

were utilized. Project classes remain basically as they were when the school year began with the addition of incentives being the only variation. Under these conditions, some classrooms of thirty students contained only seven or eight designated as project students. In such classes, all students receive incentives.

Program Constraints

The total contract of $38,903 was not negotiated until November, 1970. This late start-up date caused many problems that could have been avoided with adequate lead time. The total amount of $20,400 represented the escrow account, the amount the teachers association would earn minus the cost of incentives to students. Teachers spent $3,200 for incentives, leaving a total of $17,200 possible to earn.

There was a "hurry-up and wait" element throughout the project. Not all facts were explained or even presented at the time of contract, but introduced as the project progressed. These "add-on's" did not help the implementation of the program. It was clear that OEO did not fully realize the daily constraints of a school system and admitted their concern was the testing of a concept, not the implementation of a program.

The need to secure approval from schools, teachers association, community action agencies, local and state Boards of Education, and the Governor of Arizona took much time during the early phase of the project. Before the aforementioned was even complete, Battelle was

on-site for pretesting. School schedules had been operating and the hurriedness of pretesting did not increase the project's esteem in the eyes of the teachers.

Once everyone had more or less accepted the project, there were no funds on site. In fact, the money was received within-house on December 21, 1970. The purchase of incentives for school programs did not really begin until January, 1971.

INCENTIVES MODEL & DELIVERY SYSTEM

From the outset, how incentives were to be utilized was a decision of the individual teachers. It became clear early in the project that incentives were difficult to administer without individual standards and a management system. Some students were capable of greater achievement than others, and to demand the same performance from all students was useless and would defeat the purpose of the project. Teachers agreed that the welfare of the students always came first so that the incentive program did not become the insensitive program.

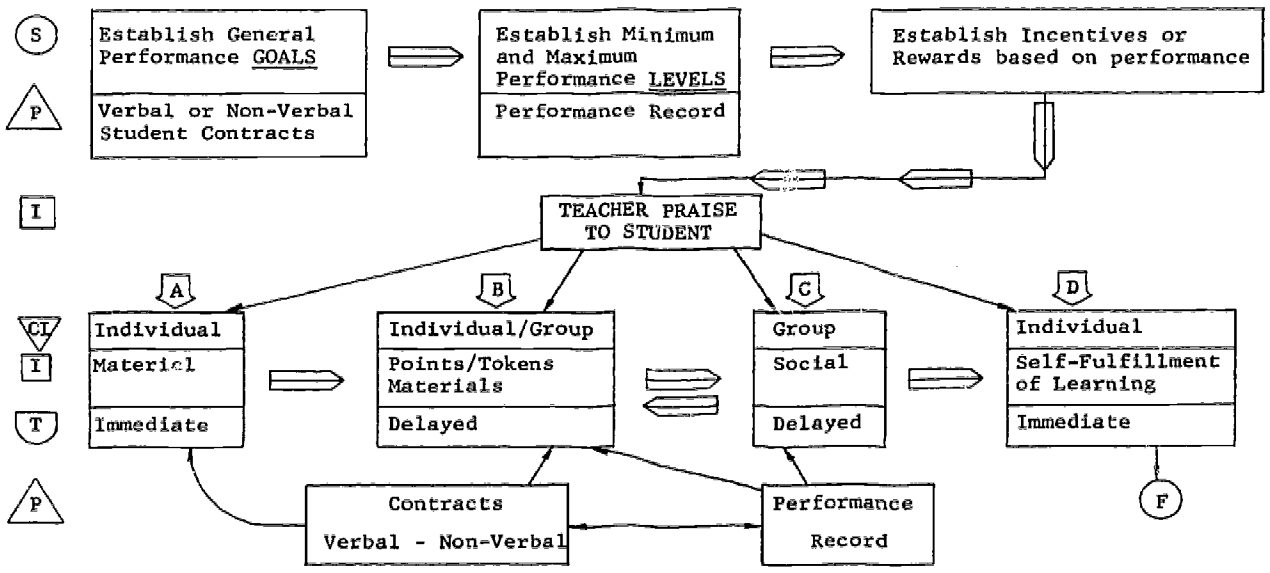
In some cases, teachers met and devised various schemes to manage the program; however, the majority of teachers expressed the need for some guidance in how to use incentives so that when the material rewards cease to be, the child would continue to be motivated without a "what will you give me" attitude when asked to perform a school related task.

Meetings were held and diagnostic tests were administered to those

students with a discrepancy between achievement and capacity levels. To develop an organization system to accomplish the goals of the project, the following model was designed as a suggested guide for teachers, however teachers still had the option of following whatever system they felt appropriate for their students.

MESA - "INCENTIVES ONLY"

STUDENT INCENTIVES MODEL



Symbols

S F — Start - Finish

P — Process

CI — Classification of Incentive

I — Incentive

T — Time

Teachers established objectives and performance standards for appropriate incentives. The concept was to start with immediate material type incentives and move to a "token" or "point" type systems with delayed incentives. Once these levels were functioning, and by oscillating between individual and group incentives, the program progressed to group incentives. Some classrooms never reached the "C" and "D" columns of the model, while other teachers were able to work through the model during the course of the year.

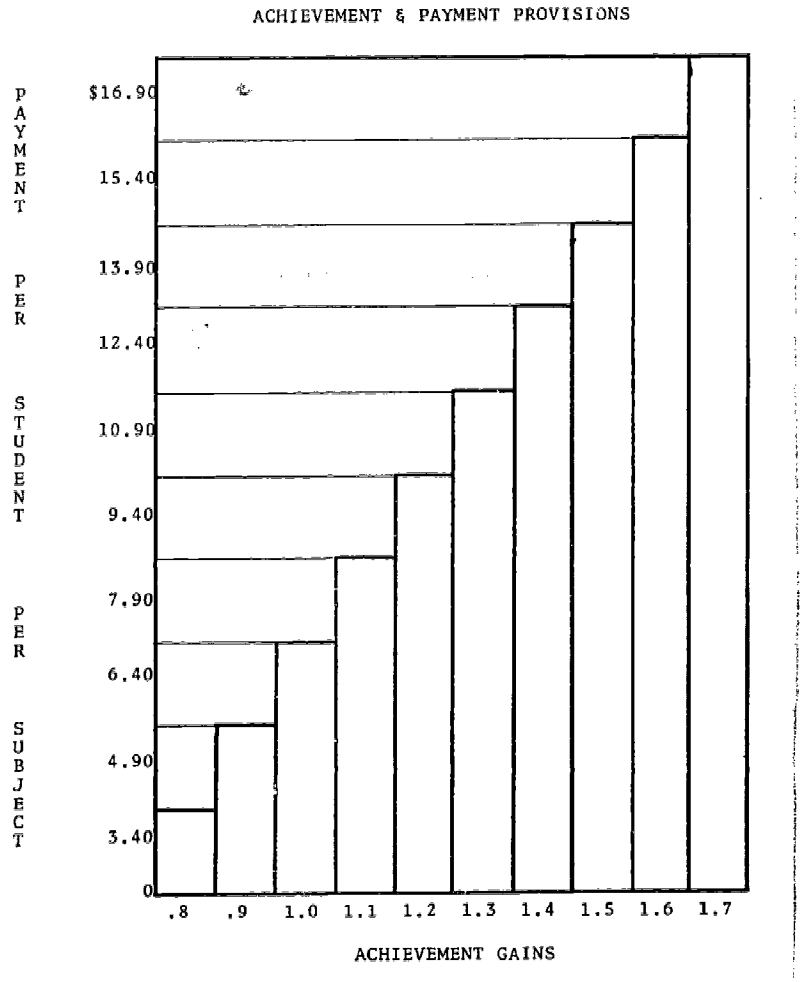
Student Incentives

The most used immediate rewards were cereal, M & M's, and other forms of candy and food at the elementary level. Immediate rewards used at the junior high level consisted mainly of candy. After the points were earned, the teachers used educational games, free time, and small toys, i.e., small balls, tops, dolls, pocket combs, soap, cosmetics, etc. as rewards. In addition, the junior high teachers used record albums, books and items of more interest to the junior high student. Social rewards consisted of room parties, field trips, and movies.

Teacher Incentives

In addition to the normal rewards of teaching, teachers did not receive any incentives during the school year. The contract stated that the teachers association would receive a monetary reward based upon pre-post-test results. With the exception of one school, the teachers

elected to receive the monetary rewards based upon how the students had fared by the test scores. At two elementary schools, the teachers did elect to share the earnings with the principals. Initially, schools were to receive the money one month after the project ended; however, it has been over ten months and the teachers association has not received any funds for teachers. The amount that could be earned per child per subject is illustrated in the following graph:



If a student gained .8 months growth, the payment was $3.40 per student per subject. For each additional month's growth, $1.50 would be added. The total amount possible was $17.00 per student per subject or $34.00 per student. The final payment for the teachers association has not been finalized as of this writing but should be in the $12,000 range because of contract renegotiations.

PROJECT ASSESSMENT

Student Evaluation

The project had an independent evaluation to prevent some of the difficulties experienced at Texarkana. A very elaborate research design was planned by Battelle Memorial Institute of Columbus, Ohio. Since we were late in approving the project, Battelle was on site before the individual schools were selected. Testing plans and arrangements had to be worked out in a hurried manner.

Each child took two achievement tests (names of the test blanked out) at the 1st, 2nd, 3rd, 7th, 8th, and 9th grade levels in October, 1970. The tests were extremely long for 1st and 2nd graders involved who had difficulty reading anyway. The teachers rated the overall pre-test conditions as low (see item 14 on teacher questionnaire.) In May, the post-test was administered to all grades involved, and a follow-up retention test was administered in December, 1971 to the 2nd and 3rd grade students (now 3rd and 4th graders) in the project. Mesa has not received any data indicating the analysis conducted. We have been

furnished with Mean Gains for the experimental and control groups as presented in Tables I and II below:

TABLE I

Reading Evaluation Test Results

Grades	Experimental			Control			Diff.
	Pre	Post	Gain	Pre	Post	Gain	
1	---	1.5	---	---	1.5	---	---
2	1.5	2.0	.5	1.4	1.9	.5	---
3	2.3	2.5	.2	2.2	2.5	.3	-.1
7	4.9	5.3	.4	4.8	5.3	.5	-.1
8	5.5	6.2	.7	6.4	7.1	.7	---
9	6.2	6.6	.4	6.9	7.4	.5	-.1

TABLE II

Math Evaluation Test Results

Grades	Experimental			Control			Diff.
	Pre	Post	Gain	Pre	Post	Gain	
1	---	1.5	---	---	1.6	---	-.1
2	1.4	2.0	.6	1.4	1.7	.3	+.3
3	2.3	2.4	.1	2.2	2.4	.2	-.1
7	5.2	5.6	.4	5.1	5.7	.6	-.2
8	6.0	6.8	.8	6.6	7.1	.5	+.3
9	6.4	6.8	.4	6.8	7.3	.5	-.1

OEO reported that "the experimental and control groups in Mesa, on the whole, differed very little. In the 2nd grade, the experimental group did significantly better, while in the 3rd grade, the opposite was true. There were no significant differences in any other grades."[7]

It must be pointed out that Mesa was in the program for 114 days which is the least amount of time for any site. It should also be noted that the 3rd grade was subject to several tests throughout the

year. They had taken the Gates-MacGinitie Reading Test and an intelligence test in September. In October, they had been given the district achievement test battery. When Battelle pre-tested in October with two more tests, we really sympathized with the students when they would say, "Not another one!" The state also administered the 3rd grade reading test in January, 1971 to all 3rd grade students throughout Arizona. With the post-testing, it is an understatement to say that the 3rd grade students were overtested. The attitude was such that the validity of the tests is questionable.

The reason for the two achievement tests is that one served as the evaluation test, and the other was used for payment purposes. The payment mean scores are presented in Table III.

TABLE III

MEAN GAIN SCORES - Payment Test

Grades	Reading	Math
1	1.1	1.0
2	.6	.6
3	.7	.5
7	.6	.6
8	.9	.9
9	.3	.4

The statistical treatment of the data will be available in the technical report being prepared by Battelle Memorial Institute and released by OEO later in 1972.

Teacher Evaluation

A major lack of the overall research design of OEO was the teacher reaction to the project and concept. Although an entire faculty of a school voted to enter the program, in some cases there were one or two teachers who did not really believe in rewards from a philosophical point of view. To some extent there was passive resistance to the program especially at the junior high level where this type of resistance was demonstrated throughout the project.

It was interesting, however, that as the project progressed and teachers could see students change, there was a definite change in attitude toward the idea of rewards. To determine how teachers did feel, on November 15, 1971, a questionnaire (see pages 16-18) was sent to all teachers involved in the study. Twenty out of 33 primary teachers responded as did 13 of 21 junior high school teachers. The response rate was 61% and 62% respectively.

The Index of Consensus[8] was used to determine to what extent the teachers concurred in their choices, i.e., to what extent there was a consensus of opinion. For the purpose of this report, a consensus index of .65 and above will be considered as a high consensus; an index of .50 to .64 a moderate consensus, and an index below .50 to be a low consensus. For ease of comparing elementary and junior high teacher consensus, the following table is provided:

CONSENSUS TABLE

QUESTIONS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Elementary	H	H	M	H	M	H	H	H	M	H	M	H	H	H	M
Junior High	M	H	M	H	H	H	H	H	M	M	L	H	H	H	H

H - High Consensus M - Moderate Consensus L - Low Consensus

"INCENTIVES ONLY" SURVEY

1) To what degree do you feel the use of incentives is effective in stimulating achievement in reading and/or math?

	Very Much	Quite a Bit	Some	A Little	Not at All	Index of Consensus
Elem	5	11	4	0	0	.78
Jr High	3	6	1	2	1	.57

2) To what extent do you feel the use of incentives is effective in modifying student behavior?

	Great Extent	Quite a Bit	Some	A Little	Not at All	Index of Consensus
Elem	6	11	1	2	0	.73
Jr High	0	8	3	1	1	.69

3) Did you feel that students were able to attend to a given task for a substantial longer period of time with incentives versus no incentives?

	Def. Yes	Qual. Yes	Undecided	Qual. No	Def. No	Index of Consensus
Elem	10	6	2	0	2	.55
Jr High	3	5	3	1	1	.57

4) Were the incentives used by you appropriate for and desired by your students?

Elem	10	8	2	0	0	.70
Jr High	3	8	1	1	0	.77
	Very Much	Usually	Somewhat	Not Very	Not at All	Index of Consensus

5) To what extent did you find it difficult to monitor student progress to deliver incentives?

Elem	2	7	5	6	0	.58
Jr High	0	3	6	1	2	.67
	Very Much	Quite a Bit	Some	A Little	Not at All	Index of Consensus

6) How do you feel the attitude of students was during the project compared with classrooms without incentives?

Elem	2	13	4	0	0	.84
Jr High	1	8	4	0	0	.81
	Much Better	Better	About Same	Worse	Much Worse	Index of Consensus

7) If you had parent comments on the use of incentives, were they ---

Elem	2	10	7	1	0	.73
Jr High	0	2	10	1	0	.88
	Very Fav.	Favorable	Neither	Unfav.	Very Unfav.	Index of Consensus

8) Philosophically, do you now favor the use of incentives for disadvantaged students?

Elem	8	8	2	2	0	.65
Jr High	5	5	1	1	0	.67
	Def. Yes	Qual. Yes	Undecided	Qual. No	Def. No	Index of Consensus

9) Philosophically, did you undergo a change toward the concept of incentives from the beginning to the end of the project?

Elem	3	3	8	4	2	.58
Jr High	1	3	5	2	2	.58
	Very Much	Quite a Bit	Some	A Little	Not at All	Index of Consensus

10) Philosophically, do you now favor the performance contracting concept?

Elem	2	12	3	1	2	.68
Jr High	2	6	3	1	1	.61
	Def. Yes	Qual. Yes	Undecided	Qual. No	Def. No	Index of Consensus

11) Would you be willing to participate in another year of performance contracting with the use of incentives?

Elem	6	9	1	2	1	.63
Jr High	2	3	4	1	3	.46
	Def. Yes	Qual. Yes	Undecided	Qual. No	Def. No	Index of Consensus

12) Overall, do you feel that the project helped students?

Elem	4	9	4	3	0	.65
Jr High	1	3	6	2	1	.65
	Very Much	Quite a Bit	Some	A Little	Not at All	Index of Consensus

13) To what degree do you now use incentives in relationship to use during the project?

Elem	0	1	8	11	0	.75
Jr High	0	0	2	9	2	.85
	Very Much Greater	Greater Than Last Year	About the Same	Less Than Last Year	Don't Use at All	Index of Consensus

14) On a scale of 1 to 5, indicate what overall evaluation you would give the pre-testing program.

Elem	0	2	5	7	2	.66
Jr High	0	1	4	5	2	.67
	Very High	High	Average	Low	Very Low	Index of Consensus

15) Using a scale of 1 to 5, what overall evaluation would you give the post-testing program?

Elem	0	7	6	1	2	.63
Jr High	0	1	3	7	2	.73
	Very High	High	Average	Low	Very Low	Index of Consensus

CONCLUSION

Based upon the limited statistical results received, it would appear that incentives did not accelerate achievement in the basic skill areas for disadvantaged students. The problems encountered, the testing situation, and the test alone cast some doubt on the conclusions of OEO. Perhaps standardized tests are not sensitive enough to measure differences when students score in the lower or higher percentile range. Since achievement tests measure a narrow band of skills, the results could imply that what was measured did not coincide with what was taught. Teachers, however, felt that students did achieve more albeit not reflected in test scores.

How Mesa teachers and administrators felt about the project was similar to the feelings in Grand Rapids. Melvin Leasure, president of the Michigan Education Association reflects the change in attitudes when he stated:

> "At first it was very hard to accept the extrinsic motivation. When we were able to see how it was in Grand Rapids, however, we saw that kids were motivated and that after awhile, the extrinsic motivation became less and less important. Apparently, it was doing the job without any possibility of permanent damage."[9]

The OEO study did not assess other effects of the project that should be noted. In addition to attitude changes, numerous incentive plans are presently being used in schools. Most of these plans do not involve material rewards, but utilize token or point type arrangements. There was a carry over of the incentive concept that was incorporated

into several other schools as well as being continued in the project schools.

Teachers have stated repeatedly that the students who really worked harder were the brighter pupils. The Mesa plan had heterogenous grouping with project students included so they could observe the "good student" as well as the low achiever. It is clear to the teachers involved that incentives did accomplish the task of motivating students and changing student behavior.

Other changes were noted as teachers became more concerned with adequate diagnosis and subscription. One principal related that a junior high teacher decided to teach reading versus grammer for students who were poor readers. Teachers were paying more attention to individual needs and expressed the need for individualized materials versus state-adopted textbooks designed primarily for mass instruction.

The value of incentives is in securing a student's attention and to sustain his efforts on tasks he can learn and master. This can be accomplished if the materials utilized are designed to allow the student to work on his instructional level and to progress as fast as he can master the material. Material of this nature would help provide the student with the <u>real incentive</u> of successful achievement, allowing the child to reach the final goal of any incentive program - that of learning for the sake of learning.

If incentives did nothing more, they did allow the reward concept,

common in all other aspects of our society, to become a legitimate component of public education. Based upon our experiences, extrinsic rewards such as toys, radios, etc. will probably not be used to any extent in typical classrooms because of teacher criticism of material rewards. Token and social type rewards will probably gain momentum in schools as motivational devices.

In summary, the notion of attacking educational problems through national research is valid and desirable. If such studies are well planned and executed by personnel with expertise in the area being investigated, we could begin to collect the data needed to solve some of our problems. However, funding sources must allow us to be more realistic in our goals and not force us to oversell our intents to secure funds. As Lessinger points out, "Accountability is the matching of intents to results ..."[10] Obviously, we need to be more honest in stating our goals and the critical components needed to match our intent with actual deed if we expect to increase the achievement of disadvantaged students.

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