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ABSTRACT

Project GAIN was designed to meet the special needs of the academically retarded junior high school student. This federally funded project has been on-going in Broward County (Florida) since January 1966. The project was conceived of as a means to motivate and educate those students whose "dull normal" intellectual ability might otherwise doom them to failure. Although this has remained the goal of Project GAIN, through the years various facets of the program have been considered less than stable; a thorough and competent evaluation has been very difficult to achieve. The authors of the 1969-70 evaluation conclude from their data that Project GAIN was not a success this year. Further, some reasons for questioning the positive trends in the past have been put forth. These trends have usually been due to interactions between schools and treatment (differential effects) and may well have reflected mere artifacts. Many associated with the project can point to individual pupils whom they believe have profited from the GAIN program. However, in terms of outcomes for groups of students rather than for individual cases, the program is considered to have little, if any, effect. (Author/JW)

Superintendent of Schools

PROJECT GAIN EVALUATION: 1969-70

School Board of Broward County
Fort Lauderdale, Florida

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PROJECT GAIN

Project GAIN is a program designed to meet the special needs of the academically retarded junior high school student. It is a federally-funded project which has been ongoing in Broward County since January, 1966.

The project was conceived of as a means to motivate and educate those students whose "dull normal" intellectual ability might otherwise doom them to failure.

Although this has remained the goal of Project GAIN, through the years various facets of the program have been less than stable. As a result, a thorough and competent evaluation has been very difficult to achieve.

METHOD

Selection of Subjects

During the 1969-70 school year there were eight junior high schools in Broward County meeting the criteria for ESSA Title I funds. In each of these schools the students who participated in 1968-69 GAIN projects as seventh graders were again participating as eighth graders. Unfortunately, the criteria originally used to select these students were rather obscure, and as a result they were dropped from this year's study.

The sample for the 1969-70 Project GAIN was, therefore, restricted to the incoming seventh graders in each school. Selection of the sample was carried out by the Diagnostic Center of the Broward County School System. The criteria for selection were as follows:

Ability--student should be within the 70 to 90 I.Q. range as measured by a standardized test ("Dull Normal").

Achievement--student should be two or more grade levels below the seventh grade as measured by a grade placement score or a standardized achievement test.

The Diagnostic Center provided each school with two lists of seventh grade students meeting these criteria. The students on one list were placed in GAIN classes while the other students were used as controls.

Selection and Training of Teachers

Individual school administrators selected teachers from their own faculties to participate in the GAIN project. Unfortunately, no single set of criteria for the selection of teachers was used.

Training for participating teachers was in the form of inservice seminars held after school at the County Office. At these sessions the Project Director as well as guest speakers attempted to introduce the GAIN teachers to new and specialized techniques useful with the academically retarded student.

Treatment

Students participating in the GAIN program attended a special two-period class every day. This class was in lieu of their usual English and social studies classes. Attention within this class was focused upon an individualized language arts - social sciences curriculum. The intention was to use a creative and motivating approach with an emphasis on thematic materials and participation in activities pertaining to the topic being considered. To this end numerous field trips were planned and carried out.

In order to insure some measure of individual attention, class size was kept down to about fifteen students. During the 1969-70 school year

an additional attempt to individualize instruction for the GAIN students was made through the use of a series of MINI-UNITS. These were simply short pamphlets (usually two to four pages) with a pre-test, some motivational material, text to be studied, and a post-test. Orderly progress through the series of MINI-UNITS at the student's own individual rate was supposed to allow learning to take place without the frustration and failure he might otherwise have experienced in a normal class situation.

Plan for Evaluation and Instruments Used

In educational research the clarity of the evaluation and the appropriateness of the measures used are directly correlated to the specificity of the objectives of the project under study. In the present case this leaves much to be desired.

As happens in many programs where a multitude of goals are sought, few of the goals of Project GAIN are stated with any degree of objectivity. They simply boil down to a desire to educate and motivate the child. That being the case, it was decided that a simple pre-post design utilizing, primarily, teacher ratings and achievement test results was appropriate.

In order to carry out our evaluation with a minimum of interference to the GAIN classes, all pre-measures were taken from the students' articulation cards, filled out at the end of their sixth school year.

These pre-measures were:

1. Total Reading Score - California Test of Basic Skills (CTBS), 6th grade
2. Total Language - California Test of Basic Skills (CTBS), 6th grade
3. Psycho/Behavioral Variables - Ratings by 6th grade teacher

    a. Intellectual Curiosity
    b. Creativity
    c. Completes Assignments
    d. Student Cooperation
    e. Behavior
    f. Emotional Stability
    g. Social Adjustment
    h. Personal Appearance
    i. General Health
    j. Attendance

Post-testing was carried out during the second week of April, 1970. All GAIN students were tested on April 7, and all Control students were tested on April 9. Personnel from the Research Department administered the tests in order to insure uniformity of procedures.

At this time students took the reading section of the elementary version of the California Achievement Test. This test was used because it was believed that the items were of an appropriate level of difficulty for the

students involved in the study. A standardized test designed for seventh graders would have probably resulted in a more restricted range of performance. Many pupils would have simply been lumped together at the floor of the test. Thus we used raw scores (number of items right) on the subsections of the simpler reading test in order to increase the possibility of detecting differences among pupils. These subtests were: Reading Vocabulary, Reading Comprehension--Following Directions, Reference Skills, and Interpretation of Material.

A five-question Student Survey was also administered at this time. This survey was developed locally and was designed to measure satisfaction with school. It was felt by GAIN administrators that the positive experiences in GAIN classes should generalize to the entire school situation. Thus we simply asked students to rate how well they liked several school subjects. Their total score represented an overall rating that should reflect their general attitude toward school.

Since a major portion of the individualization attempted in the GAIN classes was done by the use of MINI-UNITS, it was felt that some measure of their use was in order. Therefore, the week following testing a list was compiled of each GAIN student and the number of MINI-UNITS they had completed. Our definition of "completion" did not include a set level of competency. If a child went from one MINI-UNIT to the next in the series, the former was considered completed.

One important goal of GAIN was to effect a generalized improvement in behavior in all areas of the student's school functioning. To measure this, a teacher not involved in the GAIN program (math teacher) was asked to rate both GAIN and Control students on the same ten Psycho/Behavioral Variables that were on the articulation cards. To control for biasing effects, the names of the GAIN and Control students were randomly listed and given to the math teachers to rate.

In summary, the post-measures were:

1. Reading Tests (CAT)
2. Student Survey
3. Number of MINI-UNITS completed
4. Psycho/Behavioral Variables - Ratings by 7th grade math teachers

RESULTS

Explanation of Analysis

The statistical technique used to evaluate much of the data in this evaluation is called Analysis of Covariance. This technique allows us to equate pupils' scores on pre-measures so that any differences that are found on post-measures can be attributed to the particular treatment being used. In this study we were interested in comparing GAIN students with a Control group.

These pre-measures are called covariates and must meet certain statistical requirements to be valid. We attempted to run all of our analyses with five covariates. When any of the covariates did not meet the criteria, we removed it and worked with the rest. This was repeated as necessary until all statistical requirements were met. Therefore, on any chart or table all means (average scores) are adjusted for the maximum number of valid covariates.

All covariates were taken from the articulation cards. The ten psycho-behavioral variables on these cards were subjected to a Factor Analysis. (A Factor Analysis attempts to find groupings of variables that correlate highly within groups but not between groups.) The three resulting factors were used as covariates and also as post-test (criterion) scores. These factors were called:

1. Intellectual Adjustment (Items a + b + c on page 4)
2. Social Adjustment (Items d + e + f + g on page 4)
3. Health (Items h + i + j on page 4)

Coefficient Alpha is a measure of the internal consistency of a test. For our three factorally-derived pre-measures, coefficient Alpha ranged from 0.75 to 0.89 while for the post-measures, the range was from 0.64 to 0.81. We can, therefore, state that the psycho-behavioral and student survey measures used to evaluate Project GAIN were adequately reliable.

All analyses were carried out within races; that is, no comparisons between races were made on any variable.

Comparisons

In general our analyses of the data indicated that there were no differences between GAIN students and Control students.

Table 1 gives the adjusted mean scores on the eight post-measure variables for white and black students in both GAIN and Control groups. In no case were these differences statistically significant. In other words, after taking initial differences into account, there were no systematic differences between GAIN students and Control students whether white or black.

In the case of the analyses of the data for black pupils, students from five schools were used. Because of the small number of white pupils in the program, students from only three schools could be used in the comparisons among whites. One school was excluded from these analyses because only a few students were available for a control group. On the other hand, all students were used in the analyses designed to explore the impact of the MINI-UNITS.

Looking at differences between schools that could have been due to Project GAIN gave us only a slightly different picture. On one variable,

Table 1

Mean Scores for Negroes and Whites
in Both GAIN and Control Groups for Eight Variables

Variable	White			Negro		
	Number of Covariates	GAIN (N=50)	Control (N=29)	Number of Covariates	GAIN (N=189)	Control (N=153)
Interpretation of Material	5	44.37	45.42	5	42.33	42.91
Intellectual Adjustment	0	5.10	5.13	5	4.98	4.88
Social Adjustment	0	7.35	7.25	5	7.92	7.74
Health	0	6.07	6.30	1	6.44	6.52
Student Survey	0	11.15	10.90	5	12.11	12.37
Reading Vocabulary	5	82.14	84.97	5	74.71	74.18
Following Directions	5	33.98	34.93	5	31.93	31.77
Reference Skills	5	32.54	32.08	1	29.43	29.65

Health, there was a significant interaction effect (P less than .001) for black students. Inspection of Chart A shows us that in two of the five black schools, participation in GAIN did make a difference. In school number thirty-four GAIN students ended the year with a lower score on the Health factor than the Control students. GAIN students in school number thirty-six, on the other hand, ended the year with a higher score on the Health factor than did the Control students.

On no other variable was there a difference between GAIN students and Control students due to a differential impact of GAIN from school to school. In general, the effect of GAIN was the same in every school, and as noted above this effect was of insufficient magnitude to be of statistical significance.

MINI-UNITS

Analysis of the data on MINI-UNITS was carried out by a statistical method called Partial Correlation. As in the Analysis of Covariance method discussed above, it is helpful to regard these statistical techniques of adjusting for initial differences as follows: Given a group of GAIN pupils with identical scores on each of the five pre-measures, did the students who completed more MINI-UNITS do better on any of the post-tests than those who completed fewer? We hold pre-tests constant and let the number of units completed vary with scores on the criterion measures.

When initial differences were taken into account, the correlation between the number of MINI-UNITS completed and most other post-measure scores were not significant. The one exception to the above statement was in the case of the score on the Following Directions sub-test of the Reading Test among white students. The partial correlation between the number of MINI-UNITS completed and the Following Directions score for these students was 0.34 which was significant at the 0.05 level of probability. See the appendix for a summary of the partial correlations calculated in this phase of the study.

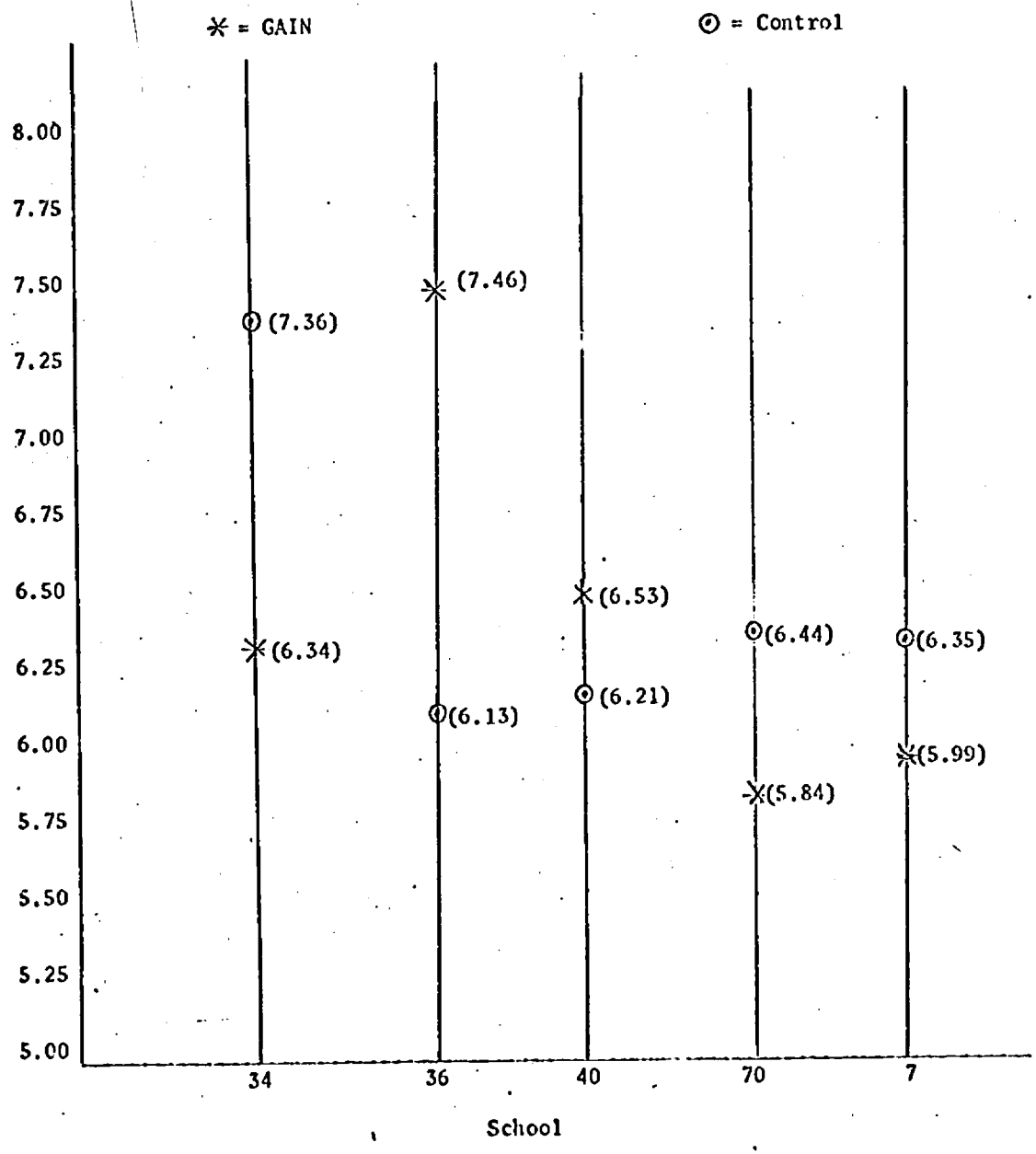
Discussion and Limitations

In previous years results such as those reported in the case of Health have been taken as an indication that GAIN showed a "tendency" to be successful. It was argued that with more time to consolidate the program, an increase in its effectiveness would be seen. The present data, unfortunately, do not lend themselves to that conclusion. Part of the reason for this is that this year's evaluation is more rigorous than previous ones. Some of the findings of previous studies may have reflected lack of uniformity in procedures rather than "true differences" which had to do with the GAIN program.

In the past, methods of collecting data were less systematic and controlled. Teachers administered the tests and returned mark-sensed cards to the Research Department. By administering and scoring the tests

Chart A

Scores on the Health Variable
for Negro GAIN and Control Students in Five Schools



ourselves this year, we probably reduced variability between schools due to differential data-collecting procedures. We were also able to substantially reduce the amount of missing data.

This year the selection of GAIN and Control students was carried out by the Diagnostic Center. Unfortunately, strictly random procedures were not adhered to in making these selections. On the other hand, these selection procedures were probably better (or at least less haphazard) than in preceding years. In some schools GAIN may have been viewed as a dumping ground for behavior problems.

This year, as was probably true in the past, not all schools followed proper procedures for replacing students in GAIN classes who had moved away or dropped out. In some cases Control pupils were shifted into GAIN classes.

In spite of these problems, the total impact of this year's selection procedures probably also contributed to reducing differences between schools which would be attributed to GAIN by our statistical procedures; but could in fact merely be due to a lack of uniformity in the selection of students and the collection of data from school to school.

While two of our variables did prove to be statistically significant, they may lack true meaning and usefulness in the absence of a corroborating pattern of other significant differences.

It is all well and good to say that the GAIN program has raised the score on the Health factor in one school and lowered it in another, but what does this mean? There is no similar pattern of significant differences on other variables within the two schools affected by Health. We can as easily consider the statistically-significant findings in the area of Health as due to real differences between the GAIN programs in the two schools or as due to mere chance artifacts of no real use or meaning.

We cannot as easily dismiss the findings in the area of MINI-UNITS. The partial correlations between the number of MINI-UNITS and variables other than Following Directions are not statistically significant, but by their magnitudes and directions indicate a consistent tendency to be associated with successful performance on the part of white pupils. There is, however, no such trend among black students who represent the numerically largest group of the students served by the GAIN project. Eighty-one percent of the pupils included in this evaluation were black.

Thus this very small bright spot does not negate the overall conclusion we are forced to reach. Our evidence indicates Project GAIN was not a success this year. Further, we have posited some reasons for questioning whatever positive trends have been found in previous evaluations. These trends have usually been due to interactions between schools and treatment (differential effects), and may well have reflected mere artifacts.

Undoubtedly many persons associated with this project can point to individual pupils whom they sincerely feel have profited greatly from the

GAIN program. However, when we examine the program in terms of its outcomes for groups of students rather than for individual cases, the program appears to have had little, if any, effect.

Recommendations

Future programs similar to GAIN would probably be more likely to succeed if the following recommendations were strictly implemented:

1. Objectives should be clearly defined. At least some specific goals and procedures for achieving these goals should be established and then adhered to by project participants. Without such a common kernel, each project school and, for that matter, each class will represent a different version of the program. If each class represents a unique implementation of the project, there can be no common outcomes attributable to the program.

2. Specific criteria should be set for the selection and replacement of project teachers. These criteria should include both special competencies and experience. Teachers should be given incentives for remaining with the program.

3. A strong program of inservice education should be provided for project teachers. One goal of such a program should be the development of a common understanding of the program. Inservice training should include provisions for monitoring the project to insure that a common core of project-oriented procedures is being properly implemented in each class.

4. Criteria for the selection of pupils to participate in the program should be applied consistently. Pupils with emotional problems who do not meet the aptitude and achievement criteria of the program should not be placed in the program. For purposes of evaluation, the Research Department should control the selection of pupils to be included in assessments of the program.

Appendix A

Partial Correlations Between Number of MINI-UNITS Completed and Eight Post-Measure Variables

Variables	Negroes	Whites
Student Survey	.03	.10
Reading Vocabulary	.07	.23
Following Directions	.00	.34*
Reference Skills	.03	.19
Interpretation of Materials	.03	.24
Intellectual Adjustment	.07	.06
Social Adjustment	.04	.05
Health	.02	.03

*Significant at .05 level of probability