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AUTHOR Goldsmith, Josephine S.; Fry, Edward
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ABSTRACT

A test was made to determine whether high expectancy prediction (the Rosenthal effect) would significantly effect reading achievement and IQ scores for tenth-grade students. Random samples of 112 students each were drawn from the tenth grade of a New Jersey high school representing a wide distribution of socioeconomic levels. The Sequential Tests of Educational Progress (STEP) were used to measure reading achievement and the Tests of General Ability (TOGA) to measure IQ. Pretests and post-tests were given to all tenth graders in the school. Teachers were given bogus high expectancy predictions for the experimental students and were reminded of these predictions three times during the 5-month experiment. Correlations of pretest and post-test scores showed no significant differences in IQ or reading for experimental or control groups. It was concluded that teacher bias did not effect performance by high school students. Tables and references are included. (MS)

THE EFFECT OF A HIGH EXPECTANCY PREDICTION ON READING ACHIEVEMENT AND IQ OF STUDENTS IN GRADE 10*

by

Josephine S. Goldsmith and Edward Fry
Rutgers - The State University
New Brunswick, New Jersey

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A test was made of the effect of a high expectancy prediction: the Rosenthal effect, on reading achievement and IQ of students in grade 10.

Previous studies found teacher expectancy significantly associated with increments in IQ (Rosenthal and Jacobson, 1968) and reading achievement (Palardy, 1969; Rosenthal and Jacobson, 1968) of pupils in grades 1 and 2, and with improved deportment and test grades in institutionalized female adolescents (Meichenbaum, Bowers and Ross, 1969). The present study tested the generalization of this effect to a departmentalized high school situation.

Experimental Questions

The major experimental question was: Will a high expectancy prediction make a significant difference in IQ or reading achievement of 10th grade students?

Two minor questions were investigated.

1. Will gains in IQ or reading reach significance when examined by track?

2. Will a high expectancy prediction make a significant difference in fullfilment of reading potential? (Pearson Product moment correlation coefficient between IQ and reading scores)

The goal of reading instruction is to have each student reading to the level of his potential ability, implying a linear relationship between reading and IQ. A tendency for the Pearson r to become significantly higher under bias would reflect the power of expectancy to encourage students to fullfil MA potential and would provide strong indication of the power of teacher attitude as a developmental reading tool.

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Method

Population

Random samples of 112 students were drawn for the experimental and control groups from the 10th grade of John Stevens High School, Edison, New Jersey. Drawing largely from a middle class population, Stevens has a student body of 1800. Approximately 10% of the students could be characterized as deprived. There is a four track English class system (Track 1 is college preparatory, Track 4 for slow students). In 1967-68 over 59% of the deprived students were in Track 4 groups.

Tests

Reading achievement was measured on STEP, alternate forms 2A and 2B. IQ was measured on TOGA 9-12, Flanagan's non-reading test of g. TOGA consists of two sections: vocabulary and reasoning. All comparisons for this study were made on the basis of total IQ.

To minimize halo effect, pretests and posttests were administered grade-wide.

Procedures

After the pretests (TOGA and STEP 2B) were completed, teachers were given a bogus high expectancy prediction for the 112 experimental children. Lists were distributed with the names of the experimental group and a statement that these students showed significantly higher potential when IQ was measured on TOGA than they had on previous reading contaminated group measures. During the five month experimental period all teachers were given three reminders; English teacher with whom one investigator worked most closely. was reminded five times.

Results

A high expectancy prediction did not make a significant difference in IQ or reading scores when results were examined for main effect or by track. Posttest correlations: .71 for the experimental group, .66 for the control group showed no significant increase over the pretest rs of .69 for the experimental group, and .61 for the control group.

Main Effect

Pretest mean IQ for the experimental group was 114.1, for the control group 110.85. For these figures, t is 1.33, not significant at $p < .05$. Differences diminished at the posttest. The TOGA mean

score of 118.05 for the experimental group and 116.75 for the control group yielded a non-significant t of .52.

Gain scores on STEP showed an experimental group increase from a mean converted score of 291.1 to 292.45 at posttest. This represented a rise from the 63rd to the 67th percentile. The control group mean increased from 288.65 at pretest to 290.35 on posttest, an increase from the 59th to the 63rd percentile. Neither the pretest t of 1.07 nor the posttest t of .82 was significant at $p < .05$.

Results by Track

TOGA The average TOGA gain by track was 4.32 IQ points for the experimental group, and 5.11 for the control group. The largest gain was shown by the Track 3 control group: 8.05, the smallest by the Track 4 control group: 1.1. Comparing TOGA means by track with Kuhlmann Finch .95 confidence bands established for 1967-68, the Track 1 pretest mean at 131 was 10 points higher on TOGA. Discrepancies between TOGA and Kuhlmann Finch means narrow as tracks go from 1 to 4. The TOGA pretest means for Track 4 (experimental group: 91.34; control group: 87.45 are low for the 1967 band: 90.98--97.78). The non reading test designed to release potential for disadvantaged students had, in fact, this effect for the bright students of Track 1.

STEP The average reading gain for Tracks 1, 2 and 3 was 2.07 points for the experimental group, 2.47 points for the control group. Track 4 showed a decline in reading score of 1.7 points for the experimental group, 1.35 points for the control group indicating a low effort performance hardly indicative of increased performance expectancy.

A Test for Teacher Bias

The question of teacher bias induction, crucial to expectancy effects (Bootzin, 1969) was tested with a questionnaire sent to teachers in January. Results of a chi square test showed belief in the high potential of the experimental group at $p < .02$, but this was valid for only 29 of the 61 teachers who returned usable questionnaires. Successful bias induction on the part of the teachers as a group could not, therefore, be inferred.

Significance of Results

Within the limits of the present study, the efficacy of the teacher bias effect on the high school level failed to be supported. Artifacts in the high school situation: the complexity and brevity of student-teacher interaction, varying interpretations by teachers of the high bias prediction, the inclination of adolescents to take

models from the peer group rather than from adults may have been associated with diffusion of the bias effect.

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TABLE 1

TESTS OF THE SIGNIFICANCE OF THE DIFFERENCE OF PRETEST AND POSTTEST SCORES FOR THE MAIN EFFECT: TOGA AND STEP

		Experimental		Control		t for experimentals and controls[a]
		N	Mean	N	Mean	
STEP	Pretest	112	291.1	112	288.65	1.07
	Posttest	102	292.45	102	290.35	0.82
TOGA	Pretest	112	114.1	112	110.85	1.33
	Posttest	104	118.05	106	116.75	0.52

[a] t of 1.98 required for significance at the .05 level, 2 tail.

TABLE 2

TESTS OF THE SIGNIFICANCE OF THE DIFFERENCE OF PRETEST AND POSTTEST TOGA SCORES BY TRACK

Track		Experimental		Control		
		N	Mean	N	Mean	t
1	Pretest	15	131	14	129.4	0.46
	Posttest	14	133.35	13	135.3	0.55
2	Pretest	42	119.65	35	121.55	0.59
	Posttest	39	124.9	34	126.95	0.63
3	Pretest	48	107.5	54	103.3	1.32
	Posttest	43	113	51	111.35	0.48
4	Pretest	6	91.34	9	87.45	0.63
	Posttest	6	95.5	9	88.55	0.72

TABLE 3

TESTS OF THE SIGNIFICANCE OF THE DIFFERENCE OF PRETEST AND POSTTEST STEP SCORES* by TRACK

Track		Experimental N	Experimental Mean	Experimental %ile	Control N	Control Mean	Control %ile	t
1	Pretest	15	305.35	87	14	305.85	90	0.013
	Posttest	14	309.8	93	12	310.9	93	0.25
2	Pretest	42	299.3	78	35	301.15	81	0.68
	Posttest	41	300.05	81	32	301.45	81	0.53
3	Pretest	48	282.9	43	54	280.05	39	0.45
	Posttest	45	283.9	49	51	282.1	43	0.59
4	Pretest	6	268	20	9	265.8	18	0.45
	Posttest	6	266.3	18	7	264.45	17	0.29

* converted scores