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AUTHOR	Evans, Judith T.; Rosenthal, Robert
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ABSTRACT

Research on interpersonal self-fulfilling prophecies has recently turned to an examination of the effects of teachers' expectation on their pupils' learning. Only two of the earlier studies, however, employed as subjects an entire elementary school population. The present replication found that those boys of whom teachers had been led to expect unusual intellectual gains, showed significantly greater gains in reasoning IQ than did the boys of the control group while for girls the results were significantly reversed ($p < .003$). Analysis of the results of four studies suggested that, in general, reasoning IQ may be more susceptible than verbal IQ to the effects of teacher expectation. Possible explanations are discussed. (Author)

Interpersonal Self-Fulfilling Prophecies: Further Extrapolations from the Laboratory to the Classroom.[1]

Judith T. Evans and Robert Rosenthal
Harvard University

Abstract

Research on interpersonal self-fulfilling prophecies has recently turned to an examination of the effects of teachers' expectations on their pupils' learning. Only two of the earlier studies, however, employed as subjects an entire elementary school population. The present replication found that those boys of whom teachers had been led to expect unusual intellectual gains showed significantly greater gains in reasoning IQ than did the boys of the control group while for girls the results were significantly reversed ($p < .003$). Analysis of the results of four studies suggested that, in general, reasoning IQ may be more susceptible than verbal IQ to the effects of teacher expectation. Possible explanations are discussed.

Interpersonal Self-Fulfilling Prophecies: Further Extrapolations from the Laboratory to the Classroom.[1]

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Harvard University

There is a growing body of evidence to suggest that in the conduct of psychological research, the expectation of the experimenter may sometimes serve as an unintended, self-fulfilling prophecy. This conclusion is based on the work of over 30 laboratories, the vast majority of which have found evidence in support of the proposition with a combined p infinitely small and with an associated standard normal deviate > 10 (Rosenthal, in press). Earlier, the methodological implications of this conclusion warranted intensive discussion (Rosenthal, 1966). More recently, however, interest has shifted from the methodological to the substantive implications. More and more investigations now are addressed to the question of the generality, in real-life situations, of the operation of interpersonal self-fulfilling prophecies.

Thus, Meichenbaum, Bowers, and Ross (1968) found that an increase in teachers' favorable expectations led to a significant increase in the appropriateness of their students' classroom behavior. Their students were institutionalized adolescent female offenders. Similarly, Beez (1968) found a significant effect on the symbol-learning behavior of Project Headstart pupils of their teachers' experimentally increased expectations. Other dependent variables affected by systematically varied teacher expectations include performance by disadvantaged children on a standardized swimming test (Burnham and Hartsough, 1968), and a variety of achievement and IQ measures (Rosenthal, in press). Not all the results, of course, are in support of the hypothesis of interpersonal self-fulfilling prophecies and some workers (Anderson & Rosenthal, 1968; Claiborn, 1968) have found evidence that, under some

conditions, greater gains in IQ are made by the children for whom the teacher is not given any special favorable expectations.

Only two of the studies of the teacher as self-fulfilling prophet, however, employed as subjects an entire elementary school population, grades 1 - 6. One of these was conducted with lower socio-economic background children to the West Coast (Rosenthal & Jacobson, 1968) while the other was conducted with upper-middle class children on the East Coast (Conn, Edwards, Rosenthal, & Crowne, 1968). The purpose of the present study was to examine the effects of teacher expectancy on pupil performance in a school that would be intermediate to the earlier two in the social class background of the children as well as geographically.

Method

Subjects. All of the children attending two schools in the same small Midwestern city were chosen for our target population. The two schools were in the same middle-class section of town, within three blocks of each other. The final sample consisted of those 477 students who took both the pre-and the one-year post IQ tests.

Procedure. During the spring of 1966 all the kindergarten through fifth grade children were given the Flanagan (1960) Tests of General Ability (1960), an intelligence test which consists of two subtests, verbal comprehension and reasoning. This test was disguised as the "Harvard Test of Inflected Acquisition." Allegedly on the basis of this testing, approximately 25% of the children were selected at random for the experimental group. These children were designated as potential "academic bloomers."

In the fall of 1966 the 20 first to sixth grade teachers (two teachers shared one class) were given mimeographed sheets explaining that their school was part of an experimental program studying children with unusual intellectual growth potential. The teachers were interviewed during the third week of the school term; and they were given the names of the children labeled as potential academic bloomers during a special

meeting held at the end of the school week.

At the end of the academic year, the children were again given the "Harvard Test of Inflected Acquisition" to see if the experimental children, those students given the expectancy-inducing labels of academic bloomers, would in fact demonstrate a significantly greater gain in IQ than the unlabeled children of the control group. Interviews were conducted at the end of the school year to see if the teachers remembered the names of the special children. Just as was the case in the other study testing for teacher recall (Rosenthal & Jacobson, 1968) teachers were remarkably inaccurate in their memory for these children's names.

Results and Discussion

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Insert Table 1 about here
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Table 1 shows the mean gain in IQ after one year by the boys and girls of the experimental and control groups. The analysis of variance showed only a significant interaction of experimental treatment with pupil sex for reasoning IQ ($F = 9.10$, $\underline{df} = 1,473$, $\underline{p} < .003$). The nature of this interaction as shown in Table 1 was that the boys of the experimental group made significantly greater gains in reasoning IQ than did the boys of the control group. Among the girls, however, just the opposite result occurred. The girls who had not been labeled as potential bloomers gained more in reasoning IQ than did the girls of the experimental group. This result while quite unexpected, was nevertheless a fairly sturdy one as shown by the fact that just the same interaction was found in each of the two schools considered separately ($\underline{F}_1 = 4.68$, $\underline{df} = 1,261$, $\underline{p} < .04$; $\underline{F}_2 = 3.22$, $\underline{df} = 1,175$, $\underline{p} < .08$). Although there is no apparent explanation for this anomalous result it was of considerable interest to find that just as in the study by Anderson and Rosenthal (1968), reasoning IQ was more affected by teacher expectation than verbal IQ.

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Insert Table 2 about here
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Table 2 shows the expectancy advantage (gain by experimentals less gain by controls) for verbal and reasoning IQ for all three of the experiments employing entire elementary schools. In all three studies it was reasoning IQ that showed the greater effects of teacher expectation and five of the six significant findings occurred for reasoning IQ rather than verbal IQ. Just why the reasoning subtest should be more affected by teacher expectations is not at all clear but some clues may be derived from differences in the demands placed by each upon the child.

The reasoning task requires the child to work more independently than the verbal task, since the child is required to answer all the test items without the administrative aid of the examiner. In contrast, on the verbal task the examiner directs the child's attention to each item by using such explicit prompts as, "In the next row, number 20, find the one that is like the care a mother gives her young child." Furthermore, the reasoning task is timed which may be a source of test-taking anxiety to many students whereas the verbal subtest is not timed but rather paced by the examiner. These differentiating subtest characteristics raise as questions for further research the possibility that teacher expectancy effects operate effectively on such "motivational" components of performance as perseverance, independence, and feelings of competence.

At the present time we are analyzing additional data such as teachers' pre and post-treatment ratings of the children, grades, amount of textbook work completed by each child, standardized tests of achievement and personality, and other objective measures. These analyses may help to suggest potential mediating factors affecting the intellectual performance of children in teacher expectancy studies.

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Footnotes

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Table 1

Mean Gain in IQ after One Year by Experimental and Control Group Children

	Control		Experimental		Expectancy Advantage
	N	Gain	N	Gain	
Verbal IQ					
Boys	179	5.16	72	1.36	-3.80
Girls	169	3.06	57	2.27	-0.79
Total	348	4.14	129	1.76	-2.38
Reasoning IQ					
Boys	179	8.59	72	16.38	+7.79*
Girls	169	15.08	57	5.40	-9.68*
Total	348	11.74	129	11.53	-0.21
Total IQ					
Boys	179	5.14	72	5.88	+0.74
Girls	169	6.57	57	3.51	-3.06
Total	348	5.83	129	4.83	-1.00

* $p < .05$, two-tail.

Table 2

Expectancy Advantage in Verbal and Reasoning IQ
for Three Experiments

	Verbal IQ			Reasoning IQ		
Experiment	Boys	Girls	Total	Boys	Girls	Total
1. Rosenthal & Jacobson, 1968	+5.6	-1.4	+2.1	-3.9	+17.9***	+7.1**
2. Conn et al., 1968	+8.6*	-0.7	+3.6	+5.0	+ 7.2	+6.3*
3. Present study	-3.8	-0.8	-2.4	+7.8**	- 9.7**	-0.2

* $p < .05$, one-tail, or .10 two-tail.

** $p < .025$, one-tail, or .05 two-tail.

*** $p < .0002$, one-tail.