

**AN INVESTIGATION OF VARIABLES
THAT PREDICT GAIN SCORES
IN TITLE I READING PROGRAMS
IN PENNSYLVANIA**

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Historically, reading instruction has played an important and accepted role in the curriculum of the elementary school. Knowledge of how to read is essential for one to function and to contribute to society. Student growth in reading skills is the single most important goal of the reading program (Farr, 1969).

Eliminating illiteracy is of national concern. The Economic Opportunity Act became effective in 1964 as part of President Johnson's "War on Poverty." In 1965 the United States Congress passed the Elementary and Secondary Act (Fromboluti, 1979). This act initiated Federal aid to education on a broad scale. Title I of this act provided funds to improve elementary and secondary school programs for educationally deprived children in low-income areas. Early evaluative studies of the effectiveness of Title I were inconclusive partly due to infancy and diffuseness of the program (not focused on basic skills and not serving the most needy students) and also due to the lack of adequate evaluative data (Executive Summary, ETS Study, 1976). However, research has continued and in most areas the programs have improved.

Recently, the International Reading Association published a book, *Teaching Reading in Compensatory Classes* (Calfee & Drum, 1979), which provides a relatively complete description of various aspects of compensatory reading instruction. These descriptive data were gathered from a survey of over 500 schools and 1500 teachers. The original study was conducted in 1971 by the Educational Testing Service (ETS) under a contract from the United States Office of Education. This nationwide survey included principals and teachers in all types of schools. The results of the ETS data were analyzed and interpreted by a committee of International Reading Association members at the request of the IRA Board of Directors.

In addition to national surveys regarding the overall effectiveness of the Title I programs, investigations have been conducted on various aspects of Title I Reading programs at the state level. (Brooks, 1975; Kaufman, 1976, 1977; Kean, 1979).

The question frequently asked is what variables are predictors of reading achievement. However, the question is seldom answered with conclusive results. Thousands of teachers with considerable years of teaching experience have testified that no one, simple, magical solution is available. A review of the literature suggested that the following variables contributed to success in reading: (1) socio-economic status of the school and community; (2) student attitude; (3) teacher competence and experience; (4) school organization; (5) per pupil expenditure; (6) amount of instruction time; and (7) instructional approaches and materials used by teachers.

The question is continually raised as to the effectiveness of federal efforts in compensatory education. The answer to this is still undetermined. Rand (1978) reported that numerous surveys have attempted to resolve the question, with generally mixed and uncertain results. It seems obvious that educators and researchers need to collaborate to further study what factors promote the most successful development in terms of growth and achievement in reading.

Because some school districts in Pennsylvania appear to be more successful than others in terms of reading achievement, the purpose of the study was to identify which of the following variables were associated with significant growth in reading achievement as determined by Normal Curve Equivalent (NCE) gain scores. The variables considered were as follows: (1) percentage of boys in the program; (2) length of program as measured in terms of weeks; (3) classification of the residence area; (4) per pupil expenditure; (5) number of aides utilized per teacher; (6) years of teaching experience as a reading specialist; (7) pupil-reading specialist ratio; and (8) number of specialists for the fourth grade.

The population for this study consisted of 50 school districts in Pennsylvania who utilized the 1965 Gates MacGinitie Reading Test and had student populations over 150 in the public schools. Using a table of random numbers, every eighth district involved in a Title I Program with a student population over 150 was chosen until the study had 50 districts.

The data collected were from the 1978-79 annual reports submitted to the Title I Office in Harrisburg, Pennsylvania, computed statistical reports from the Bureau of Research and Evaluation in Harrisburg, Pennsylvania, and from an information sheet completed by the Title I project directors. The data represented all fourth-grade students participating in public school Title I programs in the selected 50 districts.

Stepwise Multiple Regression Analysis was the statistical technique employed to determine which of the independent variables were the best predictors of the criterion variable.

The results of the study indicated the following:

- (1) School districts with fewer boys showed significant gains in NCE scores at the .05 level.
- (2) School districts involved in the Title I program for a fewer number of weeks showed greater NCE gain scores.
- (3) Metropolitan, other than center city students displayed significant gains over nonmetropolitan community students in achieving higher NCE gain scores.
- (4) Although not significant at the .05 level, per pupil expenditure appeared to contribute to the amount of variance in NCE gain scores.
- (5) School districts employing more aides showed lower NCE gain scores.
- (6) The years of teaching experience as a Reading Specialist did not contribute significantly to higher gain scores.

(7) The larger the number of students per Reading Specialist, the higher the NCE gain score.

(8) The number of specialists utilized appeared to make no difference in the gain scores.

Discussion

The literature suggests there tends to be more boys than girls in remedial reading classes. Since one cannot eliminate boys from the reading program, the data were computed without the percentage of boys to determine whether there were other variables that would contribute significantly to higher gain scores. An analysis of this statistical data revealed that type of residence area (metropolitan-other than center city, or suburban) contributed significantly to greater gain scores.

The researchers's analysis as to why greater gain scores with fewer weeks in the program appeared to occur was because some districts began the program in September, one month prior to the pretesting. Those districts which started the program after the pretesting tended to show greater gain scores.

There is no conclusive evidence to support why school districts employing more aides showed lower NCE gain scores, but it is theorized that aides were often given "teaching duties" and were only occasionally supervised by the Reading Specialist.

In the future, additional research needs to be conducted in order to foster improved instruction and greater achievement growth in reading. Some areas recommended for further study are: (1) investigate instructional practices in compensatory classes; (2) include attitude as one of the variables; (3) investigate time on task by the students; (4) conduct a replica of this study including more school districts in the state; (5) research the achievement test utilized for evaluation and the curriculum of the schools; and (6) investigate the relationship between student gains in reading and general academic performance.

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