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AUTHOR Pupley, William H.
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ABSTRACT

This paper argues that the first step in research aimed at identifying what constitutes the effective reading teacher should be the establishment of criteria which deals with effectiveness. A conceptual model is presented which could be used to identify the effective teacher. The focal point of the model is that effective reading instruction should be based on measures of students' outcome and then look for process variables which could explain the product. This approach is based on the assumption that students' end of school year reading achievement is directly affected by the reading instruction which they received during that school year. The model is then discussed in terms of three alternative assessment instruments, determining the appropriate unit of analysis, and making decisions about how to best examine these data. (TS)

A Conceptual Research Model For Identifying Effective Teachers of Reading

Paper Presented at the Annual Meeting of the College Reading Association, Bethesda, Maryland, October 31, 1975

William H. Rupley
Education Curriculum and Instruction
Texas A&M University

Although the literature on teacher effectiveness and various hypothesized predictors of success is extensive, there is a general consensus among reviewers of this research that the variables under investigation, considerations for control, and the criteria used to identify effective teachers make the results questionable. In the opinion of McNeil and Popham (1973), researchers have not focused on the best criterion to judge teacher effectiveness (modification in the learner), but have used more readily available criteria. Saadeh (1970) expressed a similar concern and indicated that the identification of effective teaching must be based on pupil outcome measures and not just on the teaching process. Further evidence supporting the deficiency of research on teacher effectiveness is evidenced by the findings of Rosenshine (1970). He concluded from a review of 35 studies which attempted to relate low inference teaching behaviors to pupil achievement, that the more important variables are being overlooked in studies employing systematic observation.

Effective Teachers of Reading

A review of the research aimed at effective reading instruction in relation to student achievement in reading, is infinitesimal in comparison with the plethora of reading research which has been conducted.

However, there are some research findings which do relate to the various instructional components of an elementary developmental reading program, and some of these do relate to student outcome measures. For example, Harris (1969), focused on teacher criticism in reading instruction and found that strong criticism negatively affects student achievement. Blair (1974), looked at the effort exerted by teachers

of reading in their use of supplementary materials, differentiated instruction, and monitoring of student progress. He found significant differences in pupils' reading achievement in favor of the high effort teachers. Harris and Sewer (1966), discovered that teachers who were competent with a particular reading method and followed its prescription had higher achieving students in reading.

Although these investigations and others may look at process in relation to product, and the results are beginning to further delineate characteristics associated with effective reading instruction, there still exists a tendency to investigate only a small portion of the total reading program. This myopic view of attempting to identify credible variables and then relate these to pupil achievement is, in all probability, more a result of methodological incarceration than a reflection of the capabilities of the investigators.

Identification of Effective Reading Teachers

The first step in research aimed at identifying what constitutes the effective reading teacher should be the establishment of criteria which deals directly with effectiveness. This tact would first require looking at product, pupils' reading achievement, then identifying process variables which could account for this achievement. Figure 1 presents a conceptual model which could be used to identify the effective reading teacher.

Insert Figure I

The focal point of this conceptual model is that effective reading instruction should be based on measures of students outcome and then look for process variables which could explain the product. Logically, students' end of year achievement would be the product criteria for

determining teacher effectiveness. This approach is based on the assumption that students' end of school year reading achievement is directly affected by the reading instruction which they received during that school year.

As the model indicates there are at least three alternatives available to the researcher -- norm referenced tests, criterion referenced tests and informal measures - for assessing pupils' end of year reading achievement. The decision about which of these is the most appropriate would best be made by the investigator. However, the final decision should be based on factors which consider the reliability and validity of the instrument and how the results could most effectively be used to reach some final decisions about pupils' reading achievement.

Regardless of which type of instrument is chosen, an important consideration for the investigator is determining the appropriate unit of analysis. From both a logical and empirical point of view, the unit of analysis for determining end of year reading achievement would be to use the mean reading achievement scores of classes rather than the reading achievement score of individual students. This concept is based on the idea that the variance within a group of students having a common experience is significantly smaller than the variance of individual students within the class (Stech, 1965). An exception to this procedure would be one in which students are instructed on a totally individual basis, i.e., remedial reading programs employing a diagnostic prescriptive approach. In this type of program the appropriate unit of analysis would be the reading achievement of the individual students.

Following the selection of the most appropriate measurement

instrument and determining the correct unit of analysis the investigator needs to make a decision about how to best look at these data. There are at least three alternatives available for this purpose: (1) predicted reading achievement in comparison with actual reading achievement, (2) actual end of year reading achievement compared to students' grade level, and (3) comparison of pretest results administered in the fall with posttest results taken in the spring.

Of these three alternatives the least desirable procedure would be to compare end of year reading achievement with the grade level of the students. In reading research dealing with teacher effectiveness researchers cannot be certain that the observed differences between the students' grade level placement and their reading achievement is due to teacher effectiveness. Such observed differences may be an artifact of maturation, or the observed difference in reading achievement may not differ significantly from what would be expected.

Another alternative, which is historically firmly ensconced in educational research, is a pretest-posttest design. This design typically includes a control group and an experimental group, with a treatment administered to the experimental group. The power of this design is well recognized by educational researchers, however, it most likely is a premature decision for research aimed at identifying effective teachers of reading. This design dictates that apriori decisions must be made for identifying and testing credible variables which may or may not account for teacher effectiveness. Too often, this design results in methodological incarceration and the variables under investigation are not those related to teacher process and student product, but are

selected on the basis of their accessibility. The pre-posttest design is a powerful design; however, for identifying effective reading teacher it should be employed to look at the observed reading achievement differences in relation to what a class would be expected to achieve.

Of the three aforementioned design alternatives the most appropriate would be the use of expected mean class reading achievement in relation to actual mean class reading achievement. This allows the investigator to determine teacher effectiveness in a more objective manner - those classes who significantly achieve above what would be predicted would be associated with effective reading teachers.

There are two statitistical procedures which can be used to predict at what level a class should be reading. One is the use of a least squares prediction line (Glass & Stanley, 1970) and the other is computing the mean monthly expected reading gain.

An example of the use of the prediction line would be the use of end of year mean IQ and reading achievement scores, for a large sampling of classes at a specific grade level, to generate the prediction line; then plot the individual classes and note where they are in relation to it. Those classes who deviate significantly above the prediction line would be associated with effective teachers of reading. Conversely, those classes who deviated significantly below the prediction line would be associated with less effective teachers of reading.

Insert Figure 2

A similar procedure, but one which eliminates the currently controversial aspect of IQ, is to compute the mean monthly reading growth

for a class of students entering a specific grade level and use this previous reading growth rate to compute the exptected end of year reading achievement. To compute the expected reading achievement for a class at the end of a grade level the mean monthly reading achievement is multiplied times the number of months of formal reading instruction (excluding kindergarten) up to the point in time where the end of year reading achievement will be formally assessed. The class mean expected reading achievement would then be compared with the class mean actual reading achievement. A significant difference noted between expected and actual reading achievement would then be used to identify effective and less effective teachers. For example, a third grade class is in the 1st few days of current school year. The class was administered a reading achievement test at the end of the 10th month in second grade. Their mean class reading achievement score was 2.0. The mean expected monthly reading achievement is .1. At the end of third grade (30 months) the mean expected reading achievement of the class would be 3.0. At the end of third grade (10th month) the actual mean reading achievements is 4.1. Comparing the actual class mean reading achievement with the mean predicted reading achievement (1/2 standard deviation) this class exceeded the predicted by 1.1, which is significant, and this teacher could be considered an effective teacher of reading.

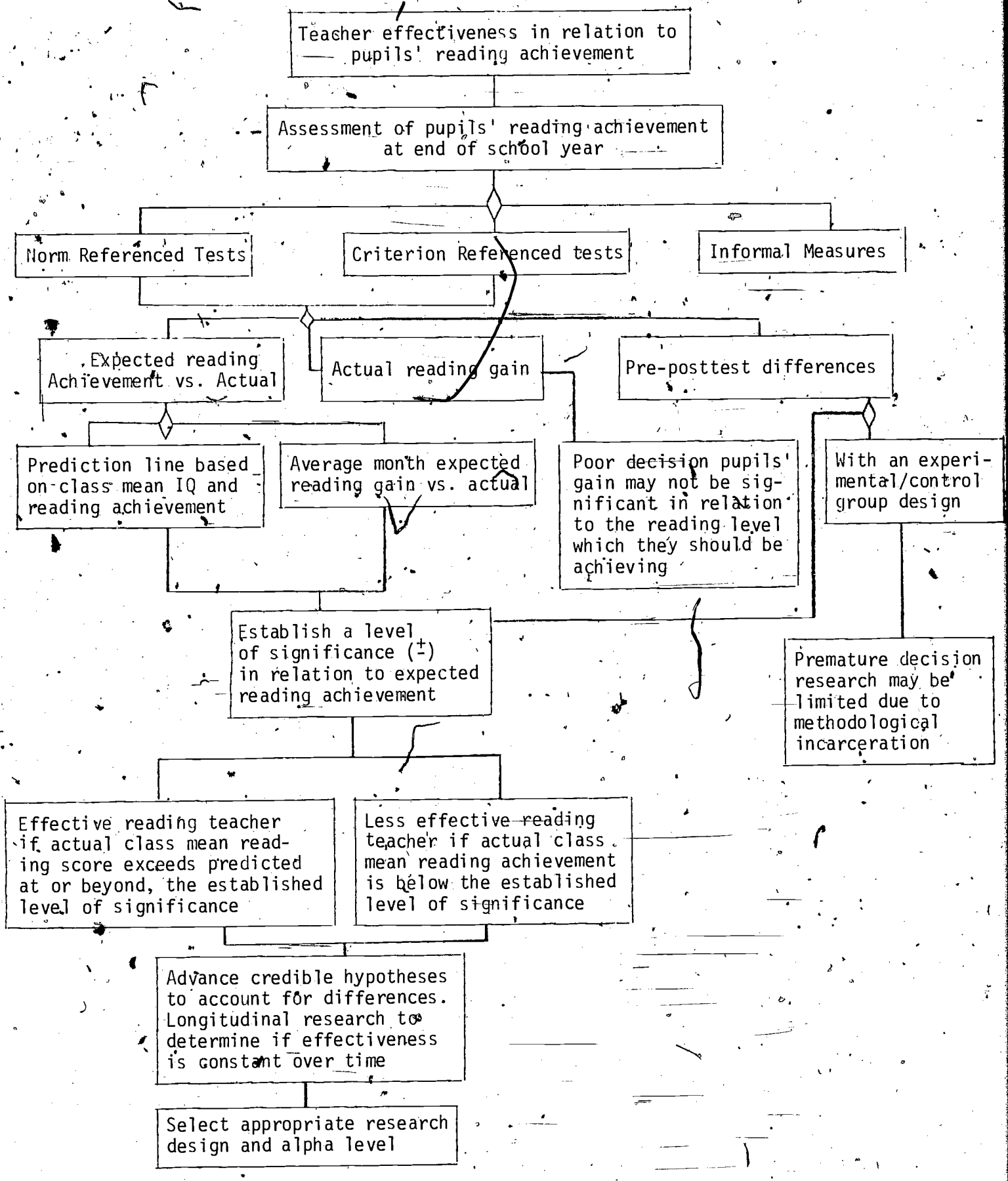
Both of these statistical procedures require the establishment of a level of significance around the predicted reading achievement. If a prediction line is used, the level of significance could be ± one-half a standard error of estimate. If average monthly gain is used, the level of significance could be ± one-half a standard deviation around the

predicted reading achievement.

One-half a standard error of estimate or one-half a standard deviation above and below the predicted score is necessary to increase the degree of confidence in identifying teacher effectiveness, to account for the standard error of measurement, and to account for the chance probability score on the criterion instrument.

At this point a researcher should be able to identify effective teachers of reading and less effective teachers of reading. It is here that research decisions can now be made. Credible hypotheses which could account for the differences in teacher effectiveness can be formulated and tested, longitudinal research which attempts to determine if teacher effectiveness is stable over time can be initiated, observational instruments can be employed to record teacher behavior, and various types of research designs can be used to further delineate what constitutes effective teaching of reading.

CONCEPTUAL RESEARCH MODEL FOR INDENTIFYING EFFECTIVE TEACHERS OF READING



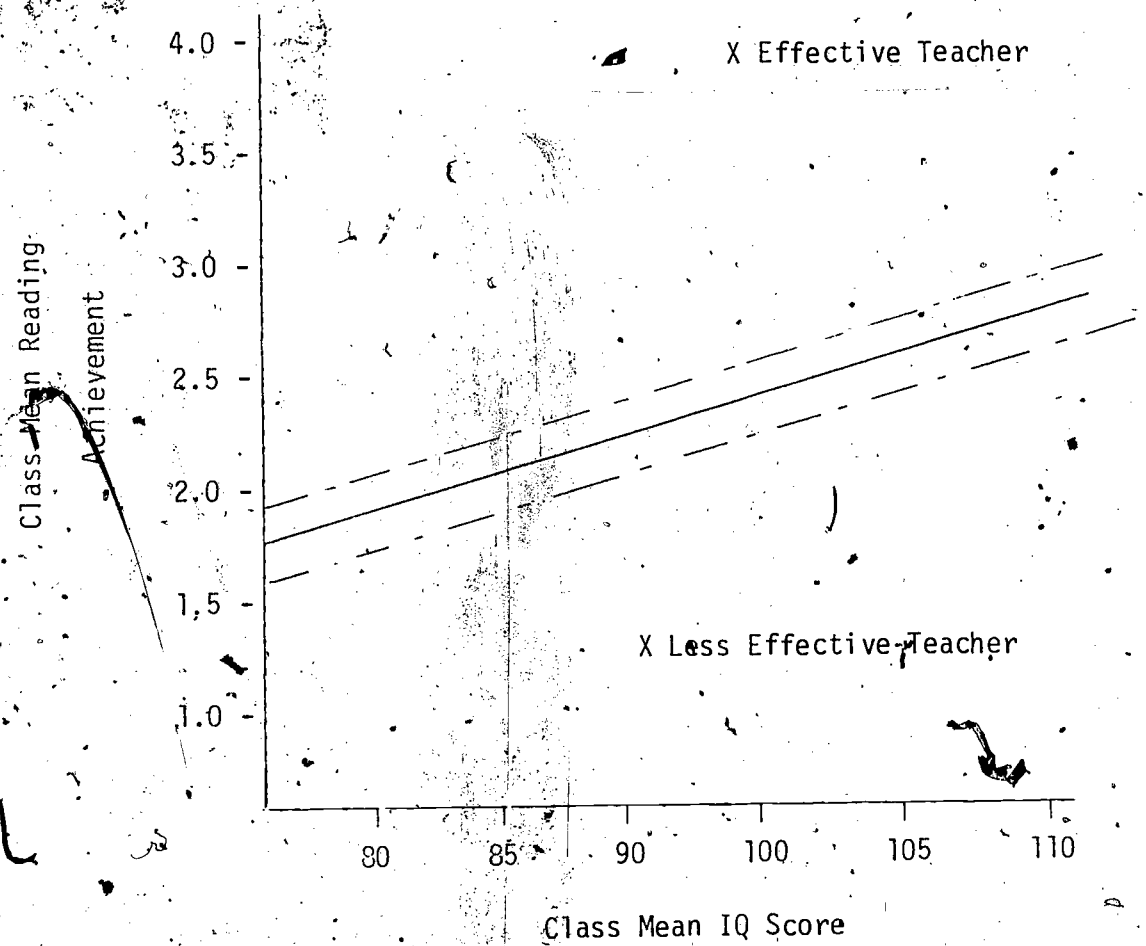


Figure 2. Example of the use of a Prediction Line to Identify Effective and Less Effective Teachers of Reading.

$$\frac{\text{Most recent class } \bar{X} \text{ rdg. ach. score}}{\text{Total mos. of rdg. inst. (prior to assessment)}} \times \text{Total mos. of rdg. inst.} +$$

No. inst. mos. up to next formal assessment = Expected Reading Achievement.

If end of year assessment $\bar{X}$ than predicted end of year $\bar{X}$ = Effective Reading Teacher.

Example:

$\frac{2.0}{14} \times (14 + 8) = .1428 \times 22 = 3.13$ ($\pm$ error) expected $\bar{X}$ at end of 8th month of current grade placement.

If actual rdg. $\bar{X}$ = 4.1

The difference between actual and expected is significant and this teacher would be deemed effective.

Figure 3. Example of Procedure for Computing $\bar{X}$ Expected Reading Achievement Based on Average Monthly Reading Gain.