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ABSTRACT

Currently, there are so many research studies in journals that a review board should be established to screen quality research from research without merit. Each school system should consider conducting research to confirm the quality of a selected, implemented, plan of instruction. First, school systems need to study what should be researched in the school curriculum--problem areas need to be analyzed to determine which one is the most worthy to pursue. A vital area for consideration might be using a well selected series of basal readers versus the Big Book approach in first grade reading instruction. A major problem of conducting research is which measurement instrument to use in the pretest and the posttest. Generally, standardized tests are used. Which design might researchers use when doing an experimental study? A common design may use a pretest for both the experimental group, which uses the new approach in teaching such as the Big Book, as well as the control group which uses the traditional approach of the basal reader. Directions for test administration should follow those given in the Manual section of the standardized test being used. A literature review on use of basals versus the Big Book may provide much background information and insight regarding the research being conducted. By being cautious in implementing research results, teachers and administrators become careful and judicious in becoming good researchers. (NKA)

Experimental Research and the Reading Curriculum.

by Marlow Ediger

EXPERIMENTAL RESEARCH AND THE READING CURRICULUM

Many writers in education extol the virtues of conducting research in schools to ascertain that which works best in teaching. Research results should provide the basis for school improvement. Proper methods of conducting research need to be in the offing. There are to many research studies which are footnoted in journal articles that lack credibility. A Review Board needs to be established which screens quality research from that which was done hastily and lacks merit.

Each school system should consider conducting research to confirm the quality of an implemented, selected plan of instruction. Which considerations should be given to do exemplorary research in a school system? There are a plethora of variables to assess when implementing quality research (Ediger, 2000, 210-211).

Selection of the Problem

First, school systems need to study what should be researched in the school curriculum. There are numerous problem areas which any school system may pursue for a research study. The problem areas need to be analyzed to determine which one is the most worthy to pursue. The problem area needs to be significant, relevant, doable, and valuable for faculty member consideration. A vital problem area for consideration might be using a well selected series of basal readers versus the Big Book approach in first grade reading instruction. There is much emphasis placed upon having every child be on grade level in reading instruction by grade three. How might reading then be taught to maximize reading achievement?

First grade students may then be placed into two groups -- one group receiving instruction with basal reader use and the other with the Big Book philosophy of teaching. Intact classrooms perhaps are the only feasible way of conducting research. It is difficult to use randomization to select students for each of the two classrooms. When using intact groups, the two groups need to be equivalent to start out with in reading achievement. The mean test score of the two reading groups at the beginning of the new school year need to be analyzed to notice equivalency. A statistical procedure known as analysis of variance provide data on this equivalency factor. If the means differ significantly at the .05 level, analysis of covariance may be used statistically to equate the tow groups --- the basal reader versus the Big Book group. If possible, there should be a minimum of two roomfuls of students in each group for reading instruction. A Director of Research or a professor of research at a local university may provide considerable leadership in conducting research. However, faculty members should definitely be involved in doing the research. Faculty members learn, grow, and

develop when conducting research. Interest in conducting research and in reading instruction provide motivation and interest in improving teaching and learning situations (See Ediger, 1996, 34-40).

Which Measurement Instruments To Use in the Study

A major problems of conducting research is which measurement instrument to use in the pretest and the post test. Generally, standardized tests are used. These kinds of tests have been tried out in pilot studies before being used in the public schools to measure student achievement. In pilot studies, the company which publishes the standardized test has chances to notice computer print out results. Here, the supervisors may notice which of the multiple test items all students in the study tended to miss as well as those having correct responses. Test items, too, which lack clarity are omitted from the final test. Standardized test writers notice which test items are answered correctly by those highest of the total test. These then may well become a part of the finalized standardized test. Those test items missed by students who were lowest in scoring on the total test, also are accepted as a whole for the finalized standardized test. A major goal of these test writers is to spread students out from high to low on the final form of the standardized test. Why is the spread of sores important? When the published test is taken by school students, there will usually be a range from the 99th to the 1st percentile. The thinking here is this will separate the sheep from the goats. The good students then will be clearly separated from those of lesser achievement after having taken the standardized test.

The standardized test approach philosophy was necessary to change, according to advocates of criterion referenced testing (CRT). In CRTs, there are precise, measurably stated objectives, related to subject smatter content on the criterion referenced test, which was developed for teachers to use in classroom teaching. These objectives may then be used in teaching students in the classroom. Tests from the CRTs, also generally developed on the state level of instruction, are aligned with the objectives used in teaching. The CRT, if well written and pilot tested, should be much more valid as compared to standardized test items. The teacher has much more assurance that what is on the CRT has been covered in classroom teaching, as compared to that being on a standardized test which has no accompanying objectives for teacher use in teaching students. On a CRT, there will not be nearly the spread of test scores as compared to student results from standardized testing. Why? The teacher when teaching toward the objectives may have may students achieve the stated objectives, aligned with the test (See Krathwohl, 1993).

However, most doing research studies use standardized tests due, in part, to their being well documented in the following areas:

1. how their validity and reliability were obtained.
2. how they were standardized on different population groups of students such as rural, urban, and suburban in order to have a representative sampling of those in society.
4. time length for administering each subtest and where the test results are to be machine scored.
5. how these tests are to be administered, their costs, and other mechanics of supervision in test taking (See Mental Measurements Yearbook, 1998, for reviews on specific standardized tests).

Design of an Experimental Study

Which design might a researcher use when doing an experimental study? A common design may use a pretest for both the experimental group, which uses the new approach in teaching such as the Big Book procedure in reading instruction, as well as the control group which uses the traditional approach in teaching with the basal reader. The pretest then is given at the same time for both the experimental and control groups. Thus, a standardized test provides results from both groups to notice if they are not significantly different, generally on the .05 level of significance. This basically means that the chances are one out of a hundred that the two groups are uniform enough in initial achievement to go on with the study. Should the two groups differ at the .05 level of significance initially, then a statistical procedure known as analysis of co-variance should be used to equate the two groups --- the experimental group and the control group. The two groups must start out at the same place initially in achievement so that growth or lack of it from the new approach in teaching reading (the Big Book) may be compared with the traditional procedure of using the basal readers. All other variables should be kept out of the research study, except the comparisons made between the two approaches in reading instruction. That is why the standardized test should be administered at the same time to the two groups in the research study. The directions for test administration should follow those given in the Manual section of the standardized test being used. If the directions are not followed carefully, as given in the Manual, the results from students are not valid. The term "standardized" means that there is a right way to administer the test to obtain valid test results. In the pilot study, the standardized test was based on results from those test takers. The students now taking the standardized test are compared with the norms of those involved in taking the same test in the pilot study. The norm group from the pilot study then provides information on making comparisons with those presently having completed taking the standardized test. Pilot study results came from those students whom the test was standardized on. That is how data such as the following are provided on which the present

test takers may be compared to notice variation:

1. percentiles. Thus, if a student is on the fiftieth percentile, there were fifty below and fifty above out of every one hundred having taken the test.

2. standard deviations. By looking at the Manual of the standardized test being used and print out of test scores, it states what the standard deviation is in terms of being above or below the mean. The mean is the point whereby all students having taken the test on whom it was standardized receive an average score. One standard deviation above the mean includes 34.13 % of the total students in terms of achievement. Fifty percent plus 34.13 % under the normal distribution curve equals the 84.13th percentile. Thus for every one hundred students having taken the standardized test, almost 16 % are above and nearly 84 % below that point or score obtained by a test taker.There also are data pertaining to a student being 2 and 3 standard deviations above and below the mean.

3. grade equivalents. In the Manual, it will mention what a score, for example, of eighty right equals in terms of grade equivalent, such as 6.8 grad level, regardless of the present grade level of he test taker. Stanines may also be given to indicate the level of achievement of the involved student. Thus, the raw score of items gotten correct on a test may be matched in the Manual with the related stanine.

The author here recommends teachers and administrators study in depth the meaning of various statistical procedures and different ways of conducting school research, using university textbooks on this important topic. By studying research nomenclature and doing research, the participants are growing in knowledge pertaining to teaching and learning (See Wiersma, 1986).

Review of the Literature

A review of the literature on use of basal readers versus the Big Book approach may provide much background information and insight pertaining to the research being conducted. The following results should accrue from a thorough study of the literature from different reference sources on basal readers and Big Book philosophy (See, for example, recent issues of The Reading Teacher):

1. definition of terms such as phonics, graphemes, phonemes, morphemes, whole language approaches, context clues, critical and creative reading, reading to solve problems, and merits and disadvantages of each procedure in reading instruction.

2. delimitations of a study, random sampling versus quasi experimental designs, measurement instruments used in doing research, and rival alternative hypotheses.

3. statistical terms in conducting research including levels of significance; mean, median, and mode; standard deviation and quartile deviation; standard error of measurement and standard error of the mean; pretest and post test versus post test only research design; and analysis of variance, covariance, as well as T tests versus F tests to test the differences of the means in pretest as well as in the post test results.

How are the Research Results to be Used?

There are a plethora of questions which arise here:

1. how much credence should be placed upon one research study conducted in the local school setting and its results?
2. how high in quality was the research study to indicate that the independent variable --- the basal reader versus the Big Book philosophy of reading instruction --- made the difference in reading achievement, assuming that one or the other was significant at the .05 level.
3. researchers generally recommend that additional studies be made in order to obtain more conclusive results, other than from one study only. They may also recommend using other measurement instruments than those used in the present study. A very important item is that the study be carried on for several years which then becomes a longitudinal study. Why? Initial gains in achievement using one procedure in reading instruction may be lost along the way as the learner progresses to higher grade levels.
4. it might be that the researchers are sold on using the new procedure in teaching reading, as a result of conducting research, meaning that the statistical results strongly provides evidence that way.
5. teachers and principals may desire more evidence before making any changes in reading methodology (See Ediger, 2000, 173-178).

By being cautious in implementing research results, teachers and administrators become careful and judicious in becoming good researchers. When reviewing the literature on basals versus the Big Book philosophy of reading instruction, researchers become increasingly knowledgeable about reading instruction and research methodology. With increased background information, teachers and administrators become more interested and motivated in doing purposeful research. When choosing the area of instruction to do research, participants feel ownership of the project. The Research endeavor comes from the thinking of teachers and administrators locally and these individuals have pursued a research project with supporting reasons involved.

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