A STUDY OF RESULTS OF STATE ELEMENTARY ACCREDITING TESTS IN BEAVER COUNTY OKLAHOMA

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T.E.E.

CONTENTS

PREFACE

In the northwestern portion of Oklahoma there are many one room schools with enrollments of less than twelve pupils. School is sometimes maintained for one two, or three pupils. The state legislature has passed laws in recent years, an ultimate purpose of which is to discourage the existence of such schools.[1] Economically they may not justify their existence, but this study does not consider the economical aspect of the schools. Much discussion has arisen as to whether or not satisfactory school work can be done in these very small schools. These arguments, which have not been based on facts, have proved nothing.

Likewise, experience, college preparation, and tenure have been discussed in their ralation to pupil learning. Salary schedules and the promotion of teachers have often been based on college work, experience, and tenure of the teacher. The salary for state aid schools in Oklahoma is based on college hours and experience.[2]

So far as the author knows, no study of these items in their relation to the learning of pupils has thus far been made.

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1. School Laws of Oklahoma, 1937, Compiled Under the Direction of A. L. Crable, State Superintendent of Public Instruction. Article XXIX, Section 505. pp. 146-149.

2. Ibid. pp. 146-149.

CHAPTER I

PURPOSE OF THE STUDY, THE PROBLEM, AND THE SOURCE OF DATA

The purpose of this study is to find what relation, if any, exists between the size of schools in rural districts, the experience, college preparation, and tenure of the teacher, on the one hand, and the achievements of the pupils on the other.

Each semester tests are sent out from the office of the State Rural School Supervisor, Mr. E. A. Duke. Satisfactory results in these tests are necessary as a part of the requirements for accrediting of elementary schools.[1] These tests are based on the state course of study and the text books used in grades five, six, seven, and eight. The tests are of the objective type.

In the case of Beaver County, they were administered personally by the county superintendent and checked in his office. A record of the scores made by each pupil is kept in the county superintendent's office, and the scores for all children of the county were compiled and sent to the State Department of Education.

From the records of the scores made by each pupil in the county the scores were obtained for this study.

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1. Bulletin 18-E, Oklahoma State Department of Education. July, 1933.

From the teachers' term reports, teachers' first week reports to the county superintendent, and from copies of teachers' contracts in the county superintendent's office, data regarding experience, college hours, and tenure of the teachers were obtained.

From the State Department of Education offices in the State Capitol in Oklahoma City, data concerning the making of the tests, the nature of the tests, and the number of questions on each test were obtained.

CHAPTER II

DESCRIPTION, TREATMENT, AND ANALYSIS OF DATA

The data covers a period of ten semesters, beginning with the first semester of the school year 1933-34 and ending with the second semester of 1937-38. The scores made by the pupils of only the seventh and eighth grades are studied. Tests were not given in all the schools each semester of the ten, but were given in most of the schools once each year and in some twice during a year. When data concerning experience, college hours, and tenure of the teacher could not be obtained, the scores of the pupils of that teacher were not considered for such item. For this reason, though 1,701 were obtained for the four groups of schools,[1] 1,545, 1,575, and 1,548, respectively, were obtained for the study of the relationship of experience, college hours, and tenure of teachers to the results of the pupils on the tests.

The study includes 51 one room schools with an average annual enrollment of 12 or less, 28 one room schools with an average enrollment of more than 12, 5 two room schools, and 4 consolidated schools. The qualifications of teachers

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1. The groups the author has arbitrarily divided the schools into are: One room schools with an average enrollment of less than 12, One room schools with an average enrollment of more than 12, Two room schools, and Consolidated schools.

ranged from no college work to bachelor's degrees, from no experience to 31 years, and from the first to the thirteenth year in tenure.

With the exception of the last semester, when there were 56 questions for the eighth grade and 58 for the seventh, all tests consisted of 100 questions. All tests have been considered of equal value.

In order to make the comparisons desired, all raw scores were changed to standard "T" scores.[2] Scores were tabulated into four groups according to the size of the school attended by the pupil making the score, five groups according to the experience of the teacher, five groups according to the number of college semester hours the teacher had earned, and four groups according to the tenure of the teacher. The total number of scores and the mean for each group and for all scores were calculated. These were put into four tables. From each of these tables a table was made to show differences in means, σ differences and critical ratios based on facts in the table.

Table I shows the number of scores for each group of schools according to size, the mean of each group, the total number of scores in the study, the mean of all scores in the study, and the excess of the mean of each group over the mean of all the scores.

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2. E. F. Lindquist. A First Course in Statistics, Houghton Mifflin Company. 1938. Chapter IX: pp. 129-136.

TABLE I

NUMBER OF SCORES, MEAN, AND EXCESS OF MEAN OF EACH GROUP OVER MEAN OF ALL SCORES FOR GROUPS ACCORDING TO SIZE OF SCHOOL

Group	Number of Scores	Mean	Excess of Group Mean Over All Score Mean
I	414	48.79	-.21
II	504	48.19	-.81
III	210	47.75	-1.25
IV	573	50.32	1.32
ALL	1701	49.00	.00

In Table I, Group I includes the scores of all pupils in one room schools that enrolled an average of 12 or less per year for the five year period in the study; Group II those of pupils of one room schools that enrolled an average of more than 12; Group III, scores of pupils of two room schools; and Group IV scores of pupils of consolidated schools.

The number of scores in Group I is 414, with a mean of 48.79, which is .21 score point below the average for all scores. In Group II the number of scores is 504, the mean 48.19, or .81 score point below the all score mean. In Group III, 210 scores yield a mean of 47.75, which is 1.25 below the all score mean. Group IV has 573 scores with a mean of 50.32 or 1.32 above the all score mean. There is little difference in the means of the four groups. The range is 2.54 score points. The pupils of the two room schools made the lowest mean, while those of the consolidated

schools made the highest. The smaller one room school made a slightly higher mean than the larger one room school. There is no correlation of the ranking of the schools for size and their means.

TABLE I-A

DIFFERENCES, σ DIFFERENCES, AND CRITICAL RATIOS BASED ON FACTS IN TABLE I

Group	Difference	σ Difference	Critical Ratio	In Favor of Group
I - IV	1.53	.63	2.428	IV
II - IV	2.13	.60	3.550	IV
III - IV	2.57	.802	3.204	IV

Table I-A shows all critical ratios in favor of Group IV, the consolidated schools. There is a significant difference in favor of the consolidated schools over the larger one room and the two room schools. In the case of the small one room school the difference approaches certainty in favor of the consolidated school.

Table II shows the number of scores for each group according to the experience of the teacher, the mean for each group, and the excess of the mean for each group over the mean for all scores in the study.

TABLE II

NUMBER OF SCORES, MEAN, AND EXCESS OF MEAN OF EACH GROUP OVER MEAN OF ALL SCORES IN GROUPS ACCORDING TO EXPERIENCE OF TEACHER

Group	Number of Scores	Mean	Excess of Group Mean over All Score Mean
I	165	46.10	-2.90
II	182	50.47	1.47
III	281	49.15	.15
IV	575	48.58	-.42
V	342	50.30	1.30

In Table II, Group I includes the scores for pupils of teachers who had no prior experience; Group II, the scores for pupils of teachers who had one prior year experience; Group III, the scores for pupils of teachers who had two and three years prior experience; Group IV, the scores for pupils of teachers who had from four to nine years prior experience; and Group V, scores for pupils of teachers who had ten or more years prior experience.

In Group I the total number of scores is 165 and the mean is 46.10, or 2.90 score points below the mean of all scores in the study. Group II has 182 scores with a mean of 50.47, or 1.47 above the mean for all. Group III has 281 scores with a mean of 49.15, or.15 above the all score mean. Group IV has 575 scores with a mean of 48.58, or .42 score point below the all score mean. Group V has 342 scores with a mean of 50.30, or 1.30 score points above the all score mean. While the

highest mean score is of the group in which the teacher had one prior year experience, the lowest is of the group in which the teacher had no experience. The next lowest mean was made by pupils of the group in which the teacher had four to nine years prior experience, while the next to the highest was made by pupils of teachers who had ten and more years experience. These results indicate that the teacher does not consistently improve with experience. There is a decided improvement from the first to the second year in teaching efficiency. The results indicate a falling off of efficiency after the second year of teaching till about the tenth. After about the tenth year the teacher again improves.

TABLE II-A

DIFFERENCES, σ DIFFERENCES, AND CRITICAL RATIOS BASED ON FACTS IN TABLE II

Group	Difference	σ Difference	Critical Ratio	In Favor of Group
I - II	4.37	1.07	4.06	II
I - III	3.05	.98	3.112	III
I - IV	2.48	.882	2.81	IV
I - V	4.10	.947	4.329	V

Table II-A shows a difference in achievement in favor of pupils of teachers with experience. The difference is significant for all groups, but the improvement has no relationship to increase in experience above one year.

TABLE III

NUMBER OF SCORES, MEAN, AND EXCESS OF MEAN OF EACH GROUP OVER THE MEAN OF ALL SCORES IN GROUPS ACCORDING TO COLLEGE HOURS OF TEACHER

Group	Number of Scores	Mean	Excess of Group Mean over All Score Mean
I	91	48.37	-.63
II	206	46.12	-2.88
III	717	48.58	-.42
IV	267	49.01	.01
V	294	49.81	.81

Table III shows the number of scores for each group according to the college hours of the teacher, the mean for each group, and the excess of the mean of each group over the mean of all scores in the study.

Group I in Table III includes scores for the pupils of teachers who had completed less than 40 hours of college work; Group II, scores for pupils of teachers who had completed from 40 to 59 hours of college work; Group III, scores for pupils of teachers who had completed from 60 to 89 hours of college work; Group IV, scores for pupils of teachers who had completed 90 hours or more, but had not earned a degree; and Group V, scores for pupils of teachers who had college degrees.

Group I has 91 scores with a mean 48.37, which is .63 score point below the mean for all scores. Group II has

206 scores and a mean of 46.12, or 2.88 below the all score mean. Group III has 267 scores with a mean of 48.58, or .42 below the all score mean. Group IV has 267 scores with a mean of 49.01, or .01 above the all score mean. Group V has 294 scores with a mean of 49.81, or .81 above the all score mean.

The range of scores is 3.69. The trend of the means is slightly upward with the increase of college hours for the teacher. It will be noticed that the lowest mean was made by pupils of teachers with 40 to 59 hours rather than by those who had less than 40 hours. The difference in the means of these two groups is 2.25 score points.

TABLE III-A

DIFFERENCES, σ DIFFERENCES, AND CRITICAL RATIOS BASED ON FACTS IN TABLE III

Group	Difference	σ Difference	Critical Ratio	In Favor of Group
I - II	2.25	1.26	1.790	I
II - III	2.46	.79	3.113	III
II - IV	2.89	.92	3.107	IV
II - V	3.69	.91	4.054	V
I - V	1.44	1.120	1.200	V

In Table III-A, if Group I is compared with Group II, probable superiority of teachers with fewer hours is indicated. Groups III, IV, and V are significantly superior to Group II. Groups IV and V are superior to Group I, though

not significantly. The results are equivocal, therefore no definite conclusion can be based on hours.

TABLE IV

NUMBER OF SCORES, MEANS, AND EXCESS OF GROUP MEANS OVER ALL SCORE MEAN IN GROUPS ACCORDING TO TENURE OF TEACHER

Group	Number of Scores	Mean	Excess of Mean of Group over Mean of All Scores
I	818	48.63	-.37
II	395	48.90	-.10
III	117	51.70	2.70
IV	218	50.40	1.40

Table IV shows the number of scores for each group according to the tenure of the teacher, the mean of each group, and its excess over the mean for all the scores in the study.

In Table IV, Group I includes the scores for pupils of teachers who had no prior tenure in the school; Group II, of teachers who had one prior year tenure; Group III, of teachers who had two and three prior years tenure; and Group IV, of teachers who had four or more prior years tenure in the school.

Group I has 818 scores and a mean of 48.63, or .37 score point below the mean of all scores in the study. Group III has 395 scores with a mean of 48.90, or .10 below the all score mean. Group III has 117 scores with a mean of 51.70, or 2.70 score points above the all score mean.

Group IV has 218 scores with a mean of 50.40, or 1.40 above the all score mean. The trend is toward a slight improvement with tenure to the fourth year.

TABLE IV-A

DIFFERENCES, σ DIFFERENCES, AND CRITICAL RATIOS BASED ON FACTS IN TABLE IV

Group	Difference	σ Difference	Critical Ratio	In Favor of Group
I - III	3.07	.987	3.11	III
I - IV	1.77	.761	2.32	IV
II - III	2.80	1.05	2.66	III

Table IV-A shows that two and three years tenure is superior to no tenure, but that one and four or more years tenure is not so significantly superior to no tenure. There are several implications about the effectiveness of teachers who remain in small schools a long period of time.

CHAPTER III

SUMMARY AND CONCLUSION

In this study 1,701 scores made by seventh and eighth grade pupils on the accrediting tests for elementary schools have been treated. The scores were taken from tests of ten semesters, beginning with the first semester of 1933-34 and ending with the second semester of 1937-38. The results have been related to the size of schools, the experience, college hours, and tenure of the teachers. The following results and conclusions accrue:

1. The chances for making a higher score is definitely better in the consolidated school than in one or two room schools. One room schools which enroll 12 or less than 12 pupils per year have significantly more efficient teaching than two room schools, and probably more efficient teaching than one room schools with a larger enrollment.

2. Experienced teachers are significantly superior to in-experienced teachers, except for the group of teachers who had from four to nine years experience, who were only slightly superior. There is no improvement in the order of years of experience above the second year.

3. There is no definite or consistent relation between the number of college hours completed by the teacher and the achievement of the pupils.

4. Two and three years tenure is significantly superior to no tenure, while one and four years or more probably are superior to no tenure.

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