

" A Comparative Study of Three Methods of Rating Teachers,  
viz; Rating by the Building Principal, Self-rating by the Teacher,  
and Composite Judgment Rating."

by

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## THESIS OUTLINE

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## EDUCATIONAL SIGNIFICANCE OF PROBLEM

Among the various duties of the school administrator which have evolved from our public school organization is that of teacher selection. Upon the proper use of this function will depend to a large extent the efficiency of the instruction in the classroom. This function of the school administrator is defined by E. P. Cubberly<sup>1</sup> as responsibility for his teachers. " The selection, assignment, designation for retention and further training of these ( teachers ) constitutes, where he is permitted to exercise such functions, an important part of the work of the superintendent of schools ". Thus, in exercising this function, the school administrator becomes responsible to the Board of Education and they in turn to the community for the efficiency of the teaching staff of the schools. Therefore the teacher before she is selected, assigned, or retained must be evaluated or rated in order to ascertain whether or not his work will be or has been successful in the school system.

Again the rating of teachers forms a basis of salary determination. In his report to the National Educational Association in 1919, E. S. Evenden makes the following statement as one of his conclusions: "When better and more accurate supervisor's tests are developed so that it will be possible to rate a teacher justly into one of three or four classes, not alone in relation to other teachers, but more particularly in regard to her own previous work, the administration of (salary) increases to insure and

<sup>1</sup> Cubberly, E. P. "Public School Administration" p 263

reward progress will be relatively simple." <sup>2</sup>

Harold Steele gives expression to the following theory in determining the salary for teachers in the Saginaw, Michigan schools; " The theory has been that the value of a teacher's service ( salary ) to a school district depends upon three varying factors. These factors consist of: First, in the teacher's educational preparation for her work; Second, in the extent of her teaching experience up to a certain limit; Third, those personal attributes and characteristics which tend to make her desirable or undesirable regardless of her education and experience." <sup>3</sup>

In a survey conducted by J. F. Hasic, of ninety returned questionnaires out of one hundred sixty five sent out to as many school systems, he found " that the factors that appear to be taken into account in determining the salary of a given teacher at a given time include: (1) academic and professional training, (2) length of service, (3) degree of merit, (4) sex, in several cases. The practice as to merit varies widely. There is evident a tendency to avoid connecting it directly with salary. Only a minority attempt to distinguish degrees of merit and apportion salary increases accordingly. ----- The trend appears to be toward rating the teacher as satisfactory or unsatisfactory. " <sup>4</sup>

Many school systems in the United States have adopted definite salary schedules for their teachers. Among the larger cities using a

2-Evenden, E. S. " Teachers' Salaries and Salary Schedules " Report to National Educational Association 1919

3-Steele, Harold. " Salary Determination in the Saginaw Schools " American School Board Journal February 1925

4-Hasic, J. F. " The Single Salary Schedule in Practice " Teachers' College Record December 1924

salary schedule at the present time are: Denver, Colorado; Des Moines, Iowa; Minneapolis, Minnesota; Washington, District of Columbia; San Antonio, Texas; Spokane, Washington; St. Louis, Missouri; and Youngstown, Ohio. The larger school systems of Kansas using the salary schedule in one form or another are: Atchison, Coffeyville, Lawrence, Salina, and Junction City.<sup>5</sup> Thus it is evident that there is a wide use of the salary schedule which is based upon the efficiency of the teacher in her work.

With the basing of salary upon the efficiency of the teacher's work, necessity demands a method of measuring this efficiency fairly and accurately. This measurement of teacher efficiency has been attempted by various methods now in use in different in different school systems.

Statements quoted from three educational writers will show a lack of agreement with reference to the method of rating teachers. Boyce reported in 1915 that ; " With slight variations principals are able to get the same results ( using the principal's analyzed rating sheet ) at two different times without reference to the first record made. Tests show that the use of an analytical blank of this kind may raise or lower judgments previously formed. General impressions and unanalyzed judgments are not reliable. ----- The presence of a definite standard for efficiency would of itself be a spur to improvement by laying emphasis on important points. ----- An even more effective spur to efficiency would come through the application of definite measurement to the determination of promotion and dismissal."<sup>6</sup>

5- "Public School Salaries"  
Research Bulletin of National Educational Association, January and March 1925

6- Boyce, A. C. "Methods of Measuring Teachers' Efficiency"  
14th Year Book National Educational Association 1915.

Rugg says, " It is the viewpoint of the present writer, that a rating scale to be truly helpful, its chief element must be self-improvement through self-rating. The improvement of teachers rests directly upon the initial step of self-criticism."<sup>7</sup>

Knight pleads for the composite judgment method, " The analyzed rating card- a snare and a delusion - is the first pitfall. What we get when we ask a supervisor to rate a teacher on forty items is the supervisor's general estimate expressed in forty different ways. The way to avoid this pitfall is to use the superior technique of a few ratings by many judges instead of many ratings by a few judges."<sup>8</sup>

In a recent study, LeRoy King of the University of Pennsylvania sent a questionnaire to the superintendent of schools in one hundred three cities of the United States, the cities having 25,000 or more population. From the ninety three replies, every state being represented, he found the following conditions: (1) 70 percent use a definite system of teacher rating, (2) the principal, superintendent, and supervisor, in the order named do most of the rating, (3) 66 percent use combined or cumulative ratings, (4) in 34 percent of the school systems, the teachers rate themselves, (5) the practice is quite general of combining teacher rating with salary schedule.<sup>9</sup>

It is evident from these facts that in practice there is not full agreement at present as to the most efficient method of rating teachers.

7- Rugg, H. O. "Self-improvement through Self-rating"  
Elementary School Journal May 1920.

8- Knight, F. B. "Analysis of Teaching and Teachers"  
Journal of Educational Research October 1924

9- King, LeRoy. "The Present Status of Teacher Rating"  
American School Board Journal February 1925

## SCOPE AND CONTENT

This investigation deals with the important problem of the rating of teachers, the problem which of necessity confronts most school administrators in one or more ways.

The plan followed involved three ratings of all the teachers in several city school systems of Kansas. The three ratings represent the three different types comprising, (1) a rating (analyzed rating sheet) by the building principal, (2) a self-rating by the teacher, and (3) a composite judgment rating obtained as the median of the three or more judgments of the superintendent, principal, and one or more supervisors of instruction. The teaching staff of eight different school systems in as many cities, constituting in all 440 teachers participated in the development of this study.

The rating sheet which was used by the principal, was similar to that used in the Schenectady, New York schools. Only minor changes necessary to this study were made in the original form of the rating sheet.

For the self-rating method, the Rugg Self-rating score card was employed.

For the composite judgment method of rating, it was simply necessary that each of the three or more persons, superintendent, principal, and supervisors, indicate his judgment of the teacher's efficiency in the terms: Superior, Good, Fair, or Poor.

In addition to the rating of each teacher by each of the three

## SOURCE AND MANNER OF SECURING DATA

The confidential nature of the information desired, was such that it would have been very improbable that it would be available by personal request to one not known to all of the superintendents of the school systems participating in the study.

It was through the request of the Bureau of Educational Research of the University, and assurance that the information contributed for this study by each of the school systems would be considered strictly confidential that the cooperation of the participating schools was secured. To those school systems agreeing to cooperate in this study, sufficient copies for each teacher of the teaching staff were supplied of both the principal's analyzed rating sheet and the Rugg Self-rating score card.

The following school systems, through their superintendents and teaching staffs cooperated in this study: Hiawatha, Lawrence, Ottawa, Junction City, Paola, Chanute, Leavenworth, and Atchison. The last two are cities of the first class. The others are cities of the second class. These cities have from twenty five to one hundred five teachers employed in their school systems. Other city school systems were invited to cooperate in the study but did not find it convenient to do so.

The letter of explanation and direction which was sent to each superintendent of the school system participating in the study is on page 8.

The principal's rating sheet used in this study is on page 9.

A copy of the Rugg Self-rating score card is on page 10.

Lawrence, Kansas, Dec. 18, 1924.

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Supt. \_\_\_\_\_,  
City School System,  
\_\_\_\_\_, Kansas.

My dear Sir:

I am informed by Dr. F. P. O'Brien that you have expressed your willingness to cooperate with me in developing an experimental study pertaining to teacher rating- to be carried out under his direction. It was my earnest purpose to have the material reach you for securing the necessary data before the Christmas holidays, but it has been impossible to secure the printed forms in time to carry out that intention.

You will be asked to secure a rating of each teacher in your school system by each of three methods. The first method will consist in the rating of the teacher by the principal if possible, otherwise by the superintendent or a supervisor of instruction. The second method will consist of a composite judgment (median) of three or more persons in administrative or supervisory positions. These persons should be the superintendent, the building principal and at least one supervisor who directs some portion of the teacher's work. The third method will consist of a self rating by the teacher. For this purpose the Rugg Self-rating score card will be provided.

I am sending you under separate cover in today's mail ----- printed copies of the rating scale which is to be used by the principal for each of his teachers. For the composite judgment rating, no special form will be required. It will be necessary for the three or more persons concerned to hold a conference in which each one expresses his judgment of each individual teacher as Superior, Good, Fair, Poor. The letters S, G, F, and P may be used to designate these judgments. It will be more satisfactory to have each judgment recorded separately allowing us to determine the median for each teacher. The Rugg Self-rating scales have not yet reached me although they have been ordered more than two weeks. I shall send you a sufficient number for each member of your teaching staff as soon as they have been delivered to me.

All information provided with reference to this study will be treated confidentially. Only central tendencies or general distribution will be disclosed. If it seems more satisfactory to you or to the members of your teaching staff, it will be entirely satisfactory that you should designate the members of your teaching staff by numbers, employing the same number for each individual in each of the rating plans. It will however be very important for you to retain a key to this list of numbers in order that you may meet specific inquiry or check errors if necessary at a later date. If the number plan is used it will not be necessary for us to have the names of your teachers for they will be distinguished entirely by number. It will be left optional with you whether you will use names or numbers in designating your teachers.

It will be appreciated especially if you will make such portions of this information available during the Christmas vacation as you find it possible to complete.

I want to assure you that I am grateful to you for the assistance of your cooperation and I shall make available for your use such portions of the results of this study as soon as any reports of such results are available.

Very truly yours,

# RATING OF TEACHER

(BY BUILDING PRINCIPAL)\*

Name of Teacher....., Age..... yrs., School.....  
 Grade....., Subject....., No. of pupils in Class.....  
 Education above High School.....hours, Present yearly salary \$.....  
 College or Normal School credit in Education.....hours, Degree held.....  
 Experience in Teaching (a) present position..... yrs., (b) elsewhere..... yrs.  
 Has this teacher been rated by any method this year, previous to this time?.....

	F		P		M		G		E	
	=	-	=	+	-	=	+	-	=	+
<b>1. PERSONALITY</b>										
Teacher as example										
Adaptability (resourcefulness, and initiative)										
General courtesy										
Personal appearance (dress, neatness)										
Voice										
Self-control										
Culture										
Reliability										
<b>2. PROFESSIONAL EQUIPMENT</b>										
Interest in work										
Interest in pupils										
Understanding of children										
Knowledge of subject matter										
Professional loyalty										
Language										
Accuracy										
<b>3. TEACHING ABILITY</b>										
Power to hold attention										
Power to get results										
Tact										
Enthusiasm										
Discipline										
Skill in habit formation										
Skill in stimulating thought										
Skill in teaching how to study										
Skill in cultivating appreciation										
Skill in questioning										
<b>4. HEALTH</b>										
Vigor										
Energy										
Attendance										
<b>5. HOUSEKEEPING</b>										
Care of report, register, desk, etc.										
<b>6. INTEREST IN COMMUNITY LIFE</b>										
<b>TOTALS</b>										

F—failure      P—poor      M—medium      G—good      E—excellent

NOTE—The + and - columns to the right and left of the letters P, M, and G, mean greater or less than resp. than the indicated quality in the center column.

Indicate your opinion of the degree of each quality possessed by the teachers by placing an X in the proper column.

\*If the person making the above rating is not the Building Principal, please give position in School System

*Jan 10 1927*  
*Met 10 1927*  
*Met 10 1927*

Name of Teacher.....  
 School..... Date of Rating.....  
 Subjects.....

# A Rating Scale for Judging Teachers in Service

HAROLD RUGG

## SELF-IMPROVEMENT THROUGH SELF-RATING

FORM A—For analyzing and rating the teacher's qualities—by the teacher himself, and by the administrator.

(Rate by checking in one of three groups for each question)

I. SKILL IN TEACHING			II. Skill in the Mechanics of Managing a Class			III. Team Work Qualities			IV. Qualities of Growth and Keeping Up-to-date			V. Personal and Social Qualities		
Low	Aver.	High	Low	Aver.	High	Low	Aver.	High	Low	Aver.	High	Low	Aver.	High
To what extent: Does he know the subject matter of his own and related fields: 1. In subjects like history, geography, etc., does he make effective use of material outside the text book..... 2. Does he relate lessons to material in other fields and use illustrations outside his own subject (e. g., mathematics and science)..... 3. Does he select subject matter effectively for class reading and discussion..... 4. Are his aims of teaching clearly defined..... Does he give evidence of having: 1. Formulated clearly his aims of teaching, as shown by his written statement of aims and outcomes..... 2. Planned his lessons specifically to carry these out..... 3. Distinguished clearly between (a) "formal skill" (either in manual or academic subjects), (b) "information" and (c) "problem solving" as proper outcomes from his class work..... 4. Given pupils clear ideas of the purposes of lessons..... Has he skill in conducting the class discussion..... Resourcefulness in organizing a discussion and in "thinking on his feet"..... 1. Is he fertile and quick in taking advantage of pupils' questions..... 2. Are his questions systematically planned, yet spontaneously given..... 3. Does he express himself clearly..... Skill in conducting "drill" exercises..... 1. Does he make use of economical, "timed," drill-devices (such as Courts' Practice Exercises, etc.)..... 2. Does he properly subordinate drill to clear exposition; that is, keep a proper balance between drill and "development"..... Ability to "develop" new phases of the work..... 1. Are lessons well related to previous ones..... 2. Is material "organized"..... 3. Do lessons show the use of material in the solution of present or future problems: a. In his subject..... b. Outside his subject..... Ability to secure class participation in the recitation..... 1. Do all pupils in the class take part in the discussion..... 2. Do the pupils question each other and conduct the class independently of his formal direction..... Skill in making the assignment..... 1. Is it an attempt to teach pupils how to study the lesson..... 2. Is it more than mere formal announcement of the number of pages in the text, etc..... 3. Is its scope and purpose clearly recognized by pupils..... Has he insight into "how children learn"..... 1. Does he keep the discussion within the pupils' comprehension..... 2. Does he endeavor to discover pupils' difficulties by keeping records of errors and studying these..... 3. Does he adapt discussion to individual differences in pupils..... Summary Rating on Skill in Teaching.....			To what extent: 1. Does the class work proceed smoothly (without artificial interruptions and transitions from one kind of discussion to another)..... 2. Do the pupils attend naturally and spontaneously to the work of the lesson..... 3. Does order, or discipline inhere in the work (not maintained by compulsion or suppression)..... 4. Is routine, as passing material, moving to the blackboard, etc., economically and systematically organized... 5. Is material and equipment in the room effectively arranged 6. Does he pay attention to the details of heat, light and ventilation..... Summary Rating.....			To what extent: 1. Does he co-operate with other teachers in school activities (committee work, Parent-Teacher Association, etc.)..... 2. Does he contribute to faculty meetings..... 3. Is he loyal to the administration and to other teachers..... 4. Does he suggest plans for group improvement of the school..... 5. Does he shoulder responsibility for his own acts..... 6. Do pupils go to him voluntarily for advice and conference..... 7. Does he go out of his way to advise and help students 8. Does he acquaint himself with pupils' home conditions where it is wise..... 9. Does he participate in community activities outside the school..... 10. Are his records and reports in on time and in complete form..... Summary Rating.....			To what extent: 1. Does he read professional literature—books, journals, etc. 2. Does he participate in and contribute to the discussion of educational meetings (teachers' association, etc.).. 3. Does he take extension courses, attend summer sessions, etc..... 4. Does he experiment with new methods in teaching which others have suggested..... 5. Does he invent and experiment with new methods of teaching..... 6. Does he heartily cooperate in investigational work in which various schools participate..... 7. Does he participate on committees of associations in his own subject..... 8. Does he contribute to educational literature..... Summary Rating.....			To what extent: 1. Does he attract people to him (i. e., is he interested primarily in what others are doing)..... 2. Does he meet people easily..... 3. Does he recognize the importance of trimness in dress and general personal appearance..... 4. Is he "fine-grained" (i. e., is he sensitive to social proprieties)..... 5. Does his impression of his own ability operate to handicap his effectiveness..... 6. Is he effectively aggressive in conversation and conference..... 7. Is he tactful in dealing with pupils, colleagues, and patrons..... 8. Does he "eventuate," i. e., does he carry through projects which he starts..... Summary Rating.....		

## SELF-IMPROVEMENT THROUGH SELF-RATING

TO THE TEACHER—Rate yourself on each quality on this form. It will be a first step in self-improvement. It is important that you stand high in these qualities.

TO THE PRINCIPAL OR SUPERINTENDENT—Let the teacher rate himself on each question at least once each term. Self-analysis is the first step in self-improvement. To analyze human qualities well, one needs a definite and detailed guide. For effective teacher rating, both teacher and administrator should rate and confer on specific qualities which make for good teaching. A valuable file of the administrator's analyses of his teachers can be kept in the office.

## RATING BY DIRECT COMPARISON

FORM B—The Rating Scale: Containing the names of typical teachers who can be compared with the teacher to be rated.

(Primarily for Principals and Superintendents in the Rating of Teachers)

I. Skill in Teaching		II. Skill in the Mechanics of Managing a Class		III. Team-Work Qualities		IV. Qualities of Growth and Keeping Up-to-Date		V. Personal and Social Qualities	
Best Teacher.....	38	Best Teacher.....	38	Best Teacher.....	38	Best Teacher.....	38	Best Teacher.....	38
Better than Average.....	30	Better than Average.....	30	Better than Average.....	30	Better than Average.....	30	Better than Average.....	30
Average.....	22	Average.....	22	Average.....	22	Average.....	22	Average.....	22
Poorer than Average.....	14	Poorer than Average.....	14	Poorer than Average.....	14	Poorer than Average.....	14	Poorer than Average.....	14
Poorest Teacher.....	6	Poorest Teacher.....	6	Poorest Teacher.....	6	Poorest Teacher.....	6	Poorest Teacher.....	6
Summary Numerical Rating.....		Summary Numerical Rating.....		Summary Numerical Rating.....		Summary Numerical Rating.....		Summary Numerical Rating.....	

# Purposes and Use of the Rating Forms for Either High School and College Students and for Teachers

(The forms for I (the teacher), and II (the high school and college student), differ only in content of the groups of qualities and definitional questions. Therefore, the same description applies to either.)

## I. THE TWO FEATURES OF THIS SCALE.

It is important to recognize that there are two separate and distinct features to this rating form.

**First—Self-Improvement Through Self-Rating.** It is designed primarily for the student or teacher to rate himself. The first step in self-improvement is to be made critical of the extent to which one exhibits certain traits. Furthermore, clear recognition of one's deficiencies can and does lead to definite self-improvement. Form A, therefore, is of primary importance in improving the student, or the teacher in service. To bring about self-improvement, therefore, both student and teacher should rate themselves, at least once each year, each question on the form being answered.

**Second—The Rating Scale.** A method of giving a person a *numerical rating* (116, or 132, or 74, etc.) of which the reliability is definitely known, and with which others' ratings can be directly compared; furthermore, a rating which cannot be confused with the commonly used "percent" marking system of the public schools. This scheme provides a method of direct comparison by which a teacher (or student) is rated on five different groups of qualities, by being compared directly with five others, whose names have been assigned definite positions on the scale. These five persons are selected so as to represent respectively (1) the best teacher (or student) the rater has ever known; (2) the poorest; (3) the representative "average" teacher (or student); (4) the person midway between the best and the average; (5) the one midway between average and the poorest. A definite number of points is assigned to each of these five positions on the scale; for example, 38, 30, 22, 14, 6, respectively. Thus a person is given a single numerical rating by totalling the points he is given on each of the five groups of qualities. In the case of teachers, this is of especial importance in rating for promotion.

The scale is so constructed that a teacher who represents "average" in each will receive a score of 110; a teacher who represents "best" in each will receive a score of 190; and the one who represents "poorest" will receive a score of 30.

## II. HOW TO CONSTRUCT A RATING SCALE. (Form B.)

### A. Two important facts:

1. It is very difficult to make a rating scale properly. A scale cannot be constructed in less than two or three hours.
2. Once made, the scale needs but little modification from year to year.

### B. Necessary steps in the construction of a scale.

There are three major steps in constructing a rating scale.

**First step:** Write down a list of 25-30 teachers (or students) ranging from the very best to the very poorest in your acquaintance, for each of whom you can answer the questions of Form A of the Rating Card.

**Important:** (1) The list must *not* contain less than 25 names. It must contain some *very* poor teachers, some *very* good teachers, and a considerable number of "average" teachers.

**Second step:** Arrange this list in rank order of merit from the "best" to the "poorest," *separately for each of the five groups of qualities.*

**Important:** In ranking persons for one group of qualities (say "skill in teaching"), the other groups of qualities must be absolutely ignored. The arrangement of the list in rank order is *the most difficult and important single step in the construction of a rating scale.* Experimentation has shown that to do it successfully, the most effective method is as follows:

(1) Locate each person in the list in one of three groups for each question in each group of qualities on Form A. A study of this checking should enable you to rearrange the teachers, or students, on your original list in from three to five groups.

(2) Next, therefore, group the teachers on the original list in at least three and, if possible, five groups—say put in one group the few who are markedly "best"; in another the few who are clearly "poorest," and the remainder in a third group who exhibit various degrees of "mediocrity." If the large mediocre group can next be separated into two or three groups, it will facilitate the next step, viz.:

(3) Rearrange the persons in each group so that they stand in exact rank order. This will be most difficult to do in connection with the "average" groups.

(4) Complete the final "rank order" arrangement of the entire list by comparing the teachers near the limits of the adjacent groups, *e. g.*, further direct man-to-man comparison may result in interchanging individuals from, say, a "better than average" to an "average" group.

When the original list is finally arranged in the rank order, you are ready for the

Third and last step in the construction of a rating scale: Select five persons to occupy the five positions on the scale in each group of qualities. Do this as follows: (1) make a final decision as to which of the two or three persons in the "rank order" list is really the "best" one you ever knew and *can now use* for purposes of scale-comparison; (2) Select in same way the "poorest" for the scale. (3) From the two or three who stand nearest

the middle of the list, decide upon the best one to represent the "average" position on the scale; (4 and 5) similarly with the ones to occupy the position half way between the average and best, and half way between average and poorest. These are called respectively "better than average" and "poorer than average."

**Important:** Experimentation and experience in the army has shown that the scale can be made properly only by carrying through these major steps *separately for each group of qualities on the scale.*

## III. HOW TO RATE TEACHERS ON THE SCALE.

1. The rating is to be made for one group of qualities at a time, giving each person a stated number of points for that quality. It is done by comparing the person's qualities directly with those of the others whose names appear on the scale. Visualize each one as vividly as possible, thus locating a person at a particular point on the scale. Be sure to give him the exact number of points that you think represents his position on the scale. The numerical values, 38, 30, 22, 14 and 6 have been selected to give you considerable opportunity to assign values *between* these set points: For example, in the long run nearly as many should receive 23, or 21 as 22, which is the "average" point of the scale.

**Important:** In case you are unable to decide clearly between the person you are rating and those whose names are on the scale, examine the results of checking the definitional questions in that group of qualities in Form A. This will enable you to compare them more concretely.

2. The *total rating* of a person is obtained by adding the number of points given him on each of the five groups of qualities, writing this in the compartment of the card, left for the total rating at the lower right hand corner.

**Important:** Scales for the rating of students should be made in group conference. All teachers who know the same set of students should come together and construct scales which will contain relatively the same names. *It is fundamentally important* that names assigned to particular scale-positions ("best," "average," "poorest," etc.) be the same on the scales of different teachers. Otherwise the numerical ratings made against these scale-positions by various teachers may not closely agree. If teachers, in conference, can agree on the names of students to go on the scales, numerical ratings made against these will have very great reliability.

For information concerning the construction and use of other Self-Improvement Rating Forms, write Harold Rugg, The Lincoln School, 425 West 123rd Street, New York City.

ADEQUACY, VARIETY, EXTENT, and SELECTION of DATA.

The selection of the cities represented in this study was limited to those which were invited and which were willing to cooperate in this study. The ratings were limited to the regular full time teachers in the system and special teachers, such as, music supervisors and directors of physical education. It was intended that the rating of each teacher in each of the eight city school systems participating in this study, should be secured by each of the three methods of rating teachers. The material was supplied to the school systems so as to be available for use at the resumption of school sessions after the Christmas holidays January 1925. No time limit was set for the return of the completed ratings but a prompt return was requested in order to facilitate the completion of the study.

There is no evidence in the completed ratings that they were not made according to the directions (see letter on page 8). In one school system the elementary teachers were rated by the supervisor instead of the building principal, using the principal's rating sheet, but no tendency distinct from the others was evident in these ratings.

The number of teachers included in this study is as follows: Senior high school teachers- 136 with the exception of the data concerning the Rugg Self-rating scales in which but 131 teachers cooperated, and the composite judgment rating in which but 113 ratings of teachers were supplied; Junior high school teachers- 97 with the exception of the data concerning the Rugg Self-rating scales in which but 93 teachers cooperated, and the composite judgment rating in which but 86 ratings of teachers were supplied; Elementary teachers- 207 with the exception of the data concerning the Rugg Self-rating scales in which but one teacher failed to participate, and the

composite judgment ratings in which but 176 ratings were supplied. One school system which had promised to cooperate in the study, through some late misunderstanding, did not furnish the composite judgment ratings of any of the teachers of its staff, which accounts for the fewer cases in the composite judgment ratings.

Factors which may have entered into this study but which were not accounted for in the development of the study are: subjective nature of each of the methods of rating teachers, used in this study; personal acquaintance of the superintendent, principal, and supervisors with the teacher; period of tenure in the present position of the superintendent, principal, and supervisor; professional equipment of superintendent, principal, and supervisor, and their ability to rate teachers; acquaintance of any person participating in this study with any of the methods of rating teachers; attitude or mind set of individual participating toward teacher rating; and the extent to which the methods of rating teachers were completed uniformly in each of the school systems participating in the study. Had the above information been available, the results of this study might have been modified.

### SCORING of DATA

The principal's rating sheet ( see page 9 ) used in this study has six general headings: 1- Personality, 2- Professional Equipment, 3- Teaching Ability, 4- Health, 5- Housekeeping, 6- Interest in Community Life. The first four of these general headings are subdivided into a total of twenty eight lesser divisions which with the remaining two general headings make a total number of qualities to be rated, thirty. The last two general headings are not subdivided as are the first four general headings. Eleven degrees of merit may be recorded by the principal. The person making the rating, checks that degree of merit for each of the thirty qualities to be rated, which in his judgment best expresses the degree of merit possessed by that teacher in that quality being rated.

Weighted values were assigned to each degree of merit. In doing this, the degree of merit indicated by -P was given the arbitrary value of "zero". To the left of this "zero" value, the negative values of -1 and -2 corresponding to the degrees of merit -P and F, respectively were assigned. To the right of the "zero" value, the values 1, 2, 3, 4, 5, 6, 7, and 9 were assigned to the corresponding degrees of merit. The break in the sequence in the last interval was made because there seems to be a greater difference between an excellent teacher and a teacher who is rated as G plus than between the other degrees of merit. Therefore the numerical value assigned to these degrees of merit, beginning with the F degree of merit was: -2, +1, 0, 1, 2, 3, 4, 5, 6, 7, 9.

Using the weighted values, the rating of the teachers on each item was translated into its numerical equivalent and totaled for each of the six main divisions indicated on the rating sheet. Finally the total of these numerical scores of the teacher was found and this total score became a numerical value of the teachers efficiency as measured by the principal. The extreme range of score possible was from -60 to plus 270. The lowest score however, was plus 23 and the highest score made was plus 270.

The Rugg Self-rating score card ( see page 10 ) has a total of twenty six items to be rated under the division " Skill in Teaching". In order to make this more nearly similar in number of subdivisions to " Teaching Ability " division of the principal's analyzed rating sheet, the twenty six items were grouped into twelve items (see page 10 ). With this regrouping of items, there is a total of forty four items to be rated by the teacher in her judgment of her own efficiency. The ratings for each item on this card may be " high ", " low ", or " average ". A numerical value of six was arbitrarily assigned to a rating of " high " on any item, the values of four and two being assigned to the " average " and " low " ratings respectively. These numerical values permit a range of 176 in the score.

ANALYSIS AND INTERPRETATION OF DATA

( Principal's Rating )

In order to ascertain the general tendency in the principal's rating of the teachers in each of the three groups; senior high school, junior high school, and elementary teachers, distributions were made of the frequency of occurrence of each degree of merit as recorded in the returned rating sheets as checked by the building principal. The number of omissions of any indicated degree of merit of any quality was also recorded. The total of the frequency of each degree of merit was found for each of the general divisions; Personality, Professional Equipment, and Teaching Ability. From this total frequency of occurrence of each degree of merit, the percentage of this total to the entire frequency was computed and tabulated on pages 16 and 19.

TABLE 1 (a) (b) (c)

Showing percentage distribution of ratings as made by the building principal of the senior high school, junior high school, and elementary teachers; on the main divisions of the principal's rating sheet, i. e., Personality, Professional Equipment, and Teaching Ability.

(a) Senior High School (136)

Degree of Merit	-M	M	M+	-G	G	G+	E
Personality	3.9	11.6	4.8	6.6	26.8	22.4	23.9
Professional Equipment	4.3	8.9	3.1	6.2	25.1	21.0	31.4
Teaching Ability	13.2	12.9	6.1	9.5	25.3	16.8	16.2

Medians: Personality = G<sup>+</sup> 7.86, Professional Equipment = G 7.11, Teaching Ability = G 7.33

(b) Junior High School (97)

Degree of Merit	-M	M	M+	-G	G	G+	E
Personality	2.5	15.8	5.7	10.5	39.2	11.4	14.9
Professional Equipment	5.0	12.8	4.6	7.5	42.4	10.1	17.6
Teaching Ability	12.9	19.3	4.9	13.8	32.8	7.6	8.7

Medians: Personality = G 7.38, Professional Equipment = G 7.49, Teaching Ability = -G 7.92

(c) Elementary (207)

Degree of Merit	-M	M	M+	-G	G	G+	E
Personality	3.7	7.4	3.7	5.8	25.6	16.5	37.3
Professional Equipment	6.1	6.9	2.8	5.4	22.9	17.8	38.1
Teaching Ability	19.4	8.0	4.5	8.7	25.2	18.1	14.1

Medians: Personality = G 7.23, Professional Equipment = G 7.33, Teaching Ability = G 7.37

These tables should be read that of the 136 senior high school teachers

23.9 percent were rated E in personality by the principal, 22.4 percent were rated G plus in personality, 31.4 percent were rated E in Professional Equipment, 21 percent were rated as G plus in Professional Equipment; and of the 97 junior high school teachers, 14.9 percent were rated E by the principal, in Personality and 11.4 percent were rated as G plus in Personality; etc.

These tables show a tendency for the higher percentages to occur in the columns E, G, and M. The principal tends to rate the teachers uniformly high as is shown by the skewness of the distributions toward the higher degrees of merit. Teachers are rated lower in "Teaching Ability" than in either of the other two general divisions, Personality and Professional Equipment. The highest percentages of the junior high school group occur in the G column while the highest percentages of the senior high school and elementary groups tend to occur in the E column.

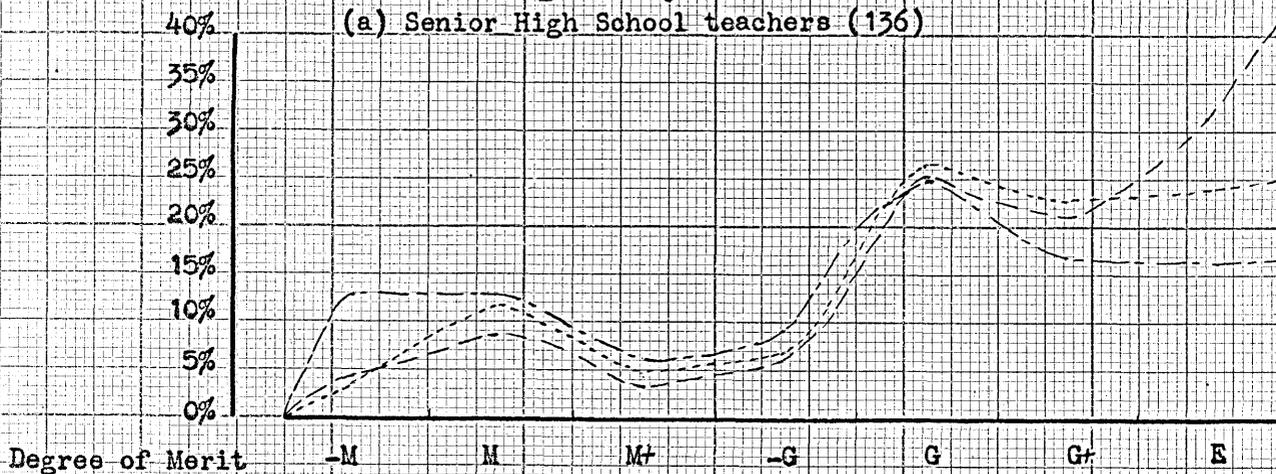
Note: The high percentage in the (-M and less) column of table 1 (a) (b) (c) on page 16 is due to the failure of some of the principal's ratings to be complete. Particularly the last five of the subdivisions under the main division "Teaching Ability" were omitted in the rating of the teachers. The percentages due to omission of ratings were: senior high school group, 7.4 percent; junior high school 1.2 percent; and elementary, 15 percent.

Figures 1 (a) (b) (c) show graphically the distribution of percentages of degree of merit in each of the senior high school, junior high school, and elementary groups of teachers according to Personality, Professional Equipment, and Teaching Ability, as presented in Table 1 (a) (b) (c)

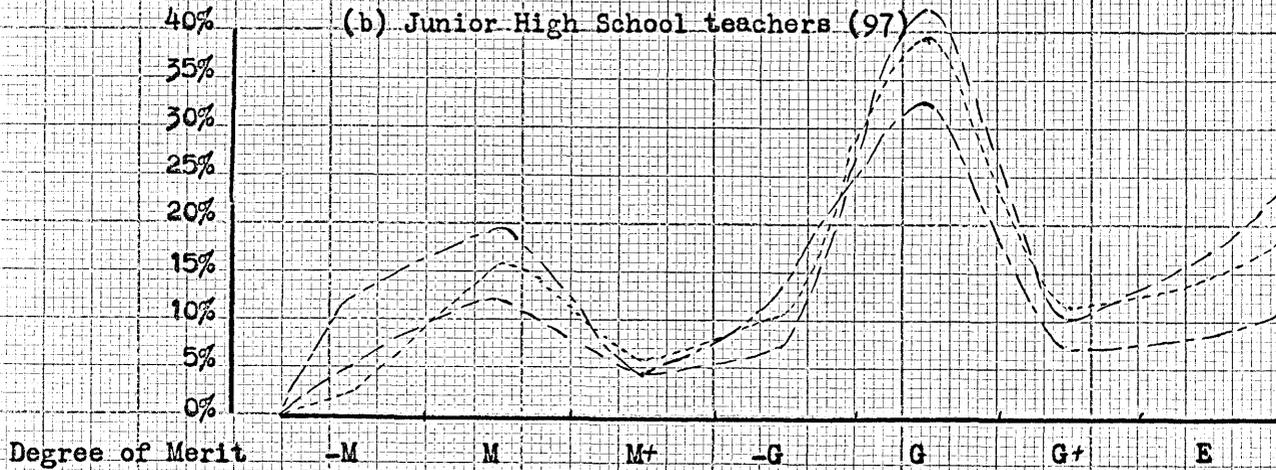
FIGURE 1 (a) (b) (c)

Showing percentage distribution of ratings of Senior High School, Junior High School, and Elementary teachers, as made by the principal on Personality, Professional Equipment, and Teaching Ability.

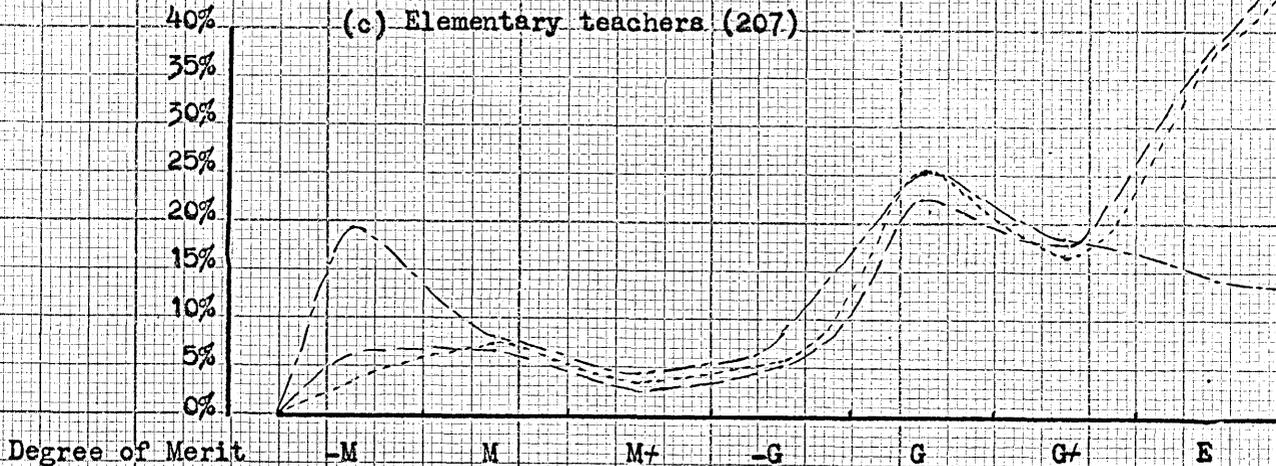
(a) Senior High School teachers (136)



(b) Junior High School teachers (97)



(c) Elementary teachers (207)



..... Personality  
 - - - - Professional Equipment  
 - · - · Teaching Ability

TABLE 2 (a) (b) (c)

Showing percentage distribution of ratings as made by the principal, of Personality, Professional Equipment, and Teaching Ability; according to the senior high school, junior high school, and elementary groups of teachers.

(a) Personality

Degree of Merit	-M and less	M	M+	-G	G	G+	E
Senior H. S. (136)	3.9	11.6	4.8	6.6	26.8	22.4	23.9
Junior H. S. (97)	2.5	15.8	5.7	10.5	39.2	11.4	14.9
Elementary (207)	3.7	7.4	3.7	5.8	25.6	16.5	37.3

(b) Professional Equipment

Degree of Merit	-M	M	M+	-G	G	G+	E
Senior H. S. (136)	4.3	8.9	3.1	6.2	25.1	21.0	31.4
Junior H. S. (97)	5.0	12.8	4.6	7.5	42.4	10.1	17.6
Elementary (207)	6.1	6.9	2.8	5.4	22.9	17.8	38.1

(c) Teaching Ability

Degree of Merit	-M	M	M+	-G	G	G+	E
Senior H. S. (136)	13.2	12.9	6.1	9.5	25.3	16.8	16.2
Junior H. S. (97)	12.9	19.3	44.9	13.8	32.8	7.6	8.7
Elementary (207)	19.4	8.0	2.8	5.4	22.9	18.1	14.1

The high percentage in the first interval of table 1 (c) is due partly to the fact that 7.4 percent of the ratings were omitted by the principal in checking the ratings of the senior high school teachers, and 15 percent of the ratings of the elementary teachers were omitted by the principal.

This table should be read: of the 136 senior high school teachers, 3

23.9 percent were rated as E in Personality by the principal, 14.9 percent of the junior high school teachers were rated as E in Personality by the principal, etc. Of the senior high school teachers, 31.4 percent were rated as E in Professional Equipment, and 38.1 percent of the elementary teachers were rated as E in Professional Equipment by the building principal, etc.

This table shows a tendency for the junior high school group to be rated much lower in all three main divisions than the other two groups, with a total of but 26.3 , 27.7 , and 16.3 percent of the teachers rated as G plus and E in the three main divisions, respectively; while in the other two groups, the least percentage included in any one main division in the combined G plus and E columns is 33 percent, which is the percentage of senior high school teachers rated as G plus and E in Teaching Ability. The larger percentage of junior high school teachers is rated as G. The teachers in each group are rated lower in Teaching Ability than in either Personality or Professional Equipment, as is shown by the average percentage of all the teachers in the G, G plus, and E columns. The average percentage of Personality is 36.3, of Professional Equipment is 37.7, and of Teaching Ability is 29.1; the difference being 7 percent or more.

Figure 2 (a) (b) (c) show graphically the percentage distribution of ratings as made by the principal, of Personality, Professional Equipment, and Teaching Ability; according to the senior high school, junior high school, and elementary groups of teachers; as presented in table 2 (a) (b) (c).

FIGURE 2 (a) (b) (c)

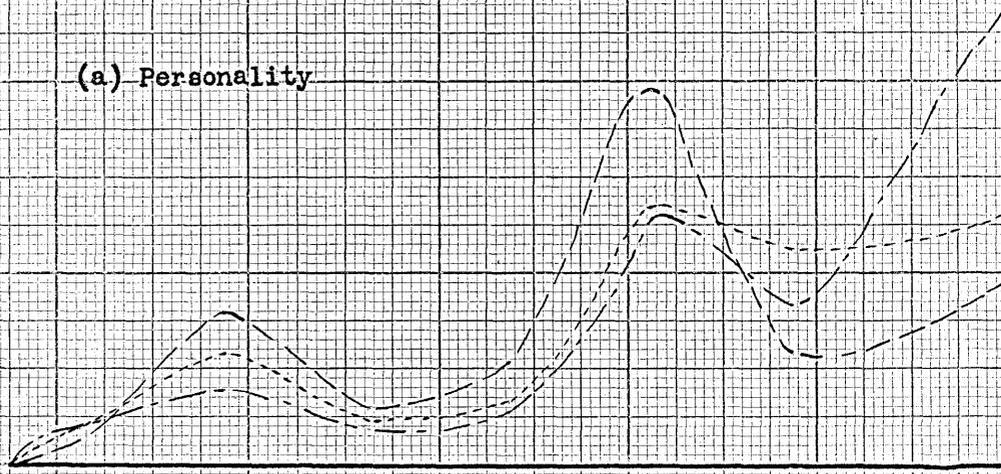
Showing percentage distribution of ratings as made by the principal, of Personality, Professional Equipment, and Teaching Ability; according to the Senior High School, Junior High School, and Elementary groups of teachers.

(a) Personality

40%  
35%  
30%  
25%  
20%  
15%  
10%  
5%  
0%

Degree of Merit

-M M M+ -G G G+ E

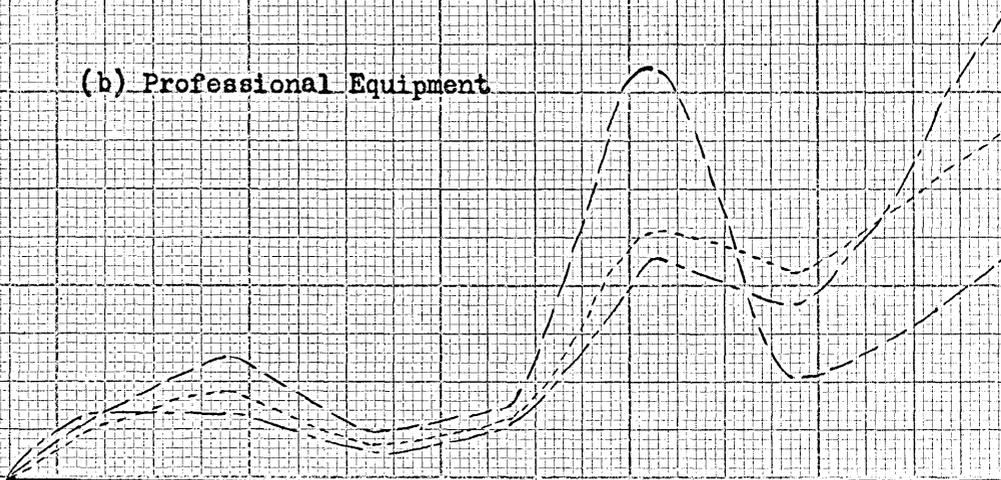


(b) Professional Equipment

40%  
35%  
30%  
25%  
20%  
15%  
10%  
5%  
0%

Degree of Merit

-M M M+ -G G G+ E

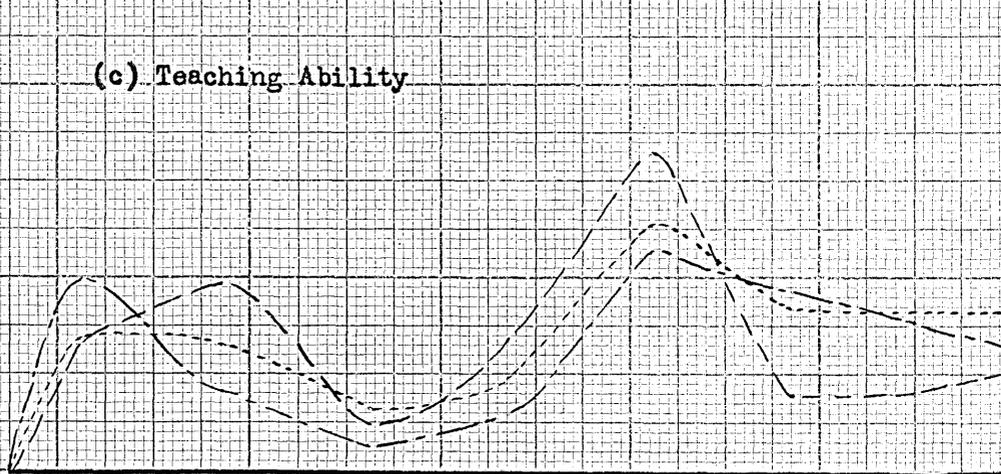


(c) Teaching Ability

40%  
35%  
30%  
25%  
20%  
15%  
10%  
5%  
0%

Degree of Merit

-M M M+ -G G G+ E



----- Senior High School  
----- Junior High School  
----- Elementary

ANALYSIS AND INTERPRETATION OF DATA

(Rugg Self-rating )

The Rugg Self-rating score card has five general headings; Skill in Teaching, Skill in Mechanics of Managing a Class, Team Work Qualities, Qualities of Growth and Keeping Up-to-date, and Personal and Social Qualities. The first two general divisions, Skill in Teaching and Skill in Mechanics of Managing a Class, correspond in the main to the general division of Teaching Ability in the principal's rating sheet. The numerical sum of the score of each teacher of each group, in the two general divisions was considered the teacher's estimate of her own Teaching Ability. The third and fourth general divisions of the Rugg Self-rating scale were considered as the teachers' estimate of her own Professional Equipment. The fifth general division of the Rugg Self-rating scale was considered as the Teacher's estimate of her own Personality.

Frequency distributions were formed of the numerical scores of the three main divisions of the Rugg scale ( as indicated above ). The frequency distributions were transformed into percentage distributions and the results tabulated on page 22.

TABLE 3 (a) (b) (c)

Showing percentage distribution of each group according to score made on the Rugg Self-rating scale in (a) Personal and Social Qualities, (b) Team Work Qualities and Qualities of Growth and Keeping Up-to-date, (c) Skill in Teaching and Skill in Mechanics of Managing a Class.

(a) Personal and Social Qualities

Score	19 and less	20 23	24 27	28 31	32 35	36 39	40 43	44 48
Senior H. S.	1.5	2.3	6.8	14.4	32.0	16.0	12.9	13.7
Junior H. S.		1.0	8.7	17.3	24.2	30.1	12.7	5.5
Elementary	1.0	1.5	3.4	14.1	34.5	18.4	19.3	7.8

Medians: Senior H. S.= 35.1, Junior H. S.= 35.7, Elementary= 35.5.

(b) Team Work Qualities and Qualities of Growth and Keeping Up-to-date.

Score	53 and less	54 59	60 65	66 71	72 77	78 83	84 89	90 95	96 101	102 108
Senior H. S.	3.1	3.7	11.4	14.4	19.7	15.2	12.9	8.4	6.8	3.7
Junior H. S.	2.2	4.4	5.5	15.1	23.2	23.2	12.9	7.5	3.2	2.2
Elementary	.5	1	7.3	12.2	18.0	23.4	13.7	12.7	8.3	2.4

Medians: Senior H. S.= 77.2, Junior H. S.= 77.9, Elementary= 80.9

(c) Skill in Teaching and Mechanics of Managing a Class

Score	53 and less	54 59	60 65	66 71	72 77	78 83	84 89	90 95	96 101	102 108
Senior H. S.	4.5	3.1	6.8	10.7	16.7	16.0	12.9	7.6	10.7	10.7
Junior H. S.		1.0	3.2	11.7	19.4	16.3	16.3	20.5	7.6	4.4
Elementary	4.4	2.9	2.9	10.8	23.9	16.2	14.7	12.2	5.4	6.4

Medians: Senior H. S.= 74.9, Junior H. S.= 83.4, Elementary= 80.0

This table should be read that of the senior high school teachers,

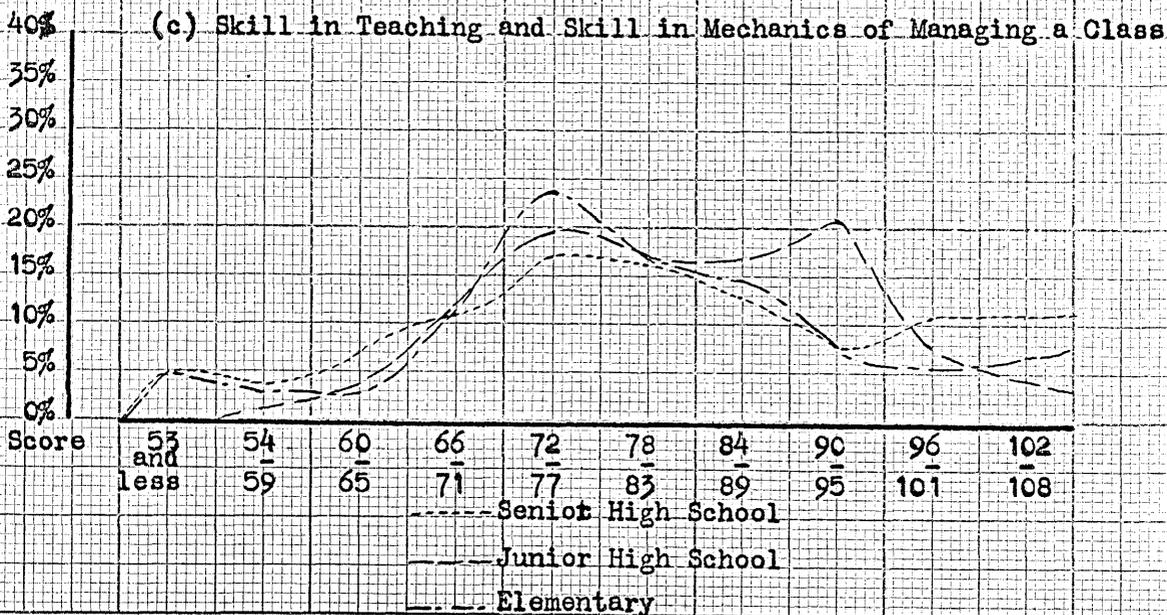
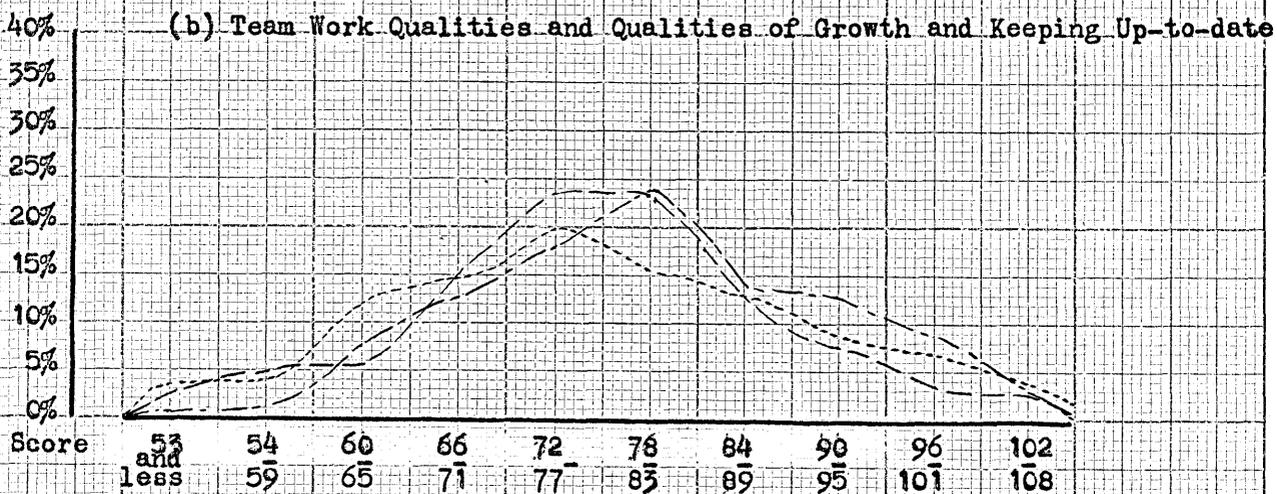
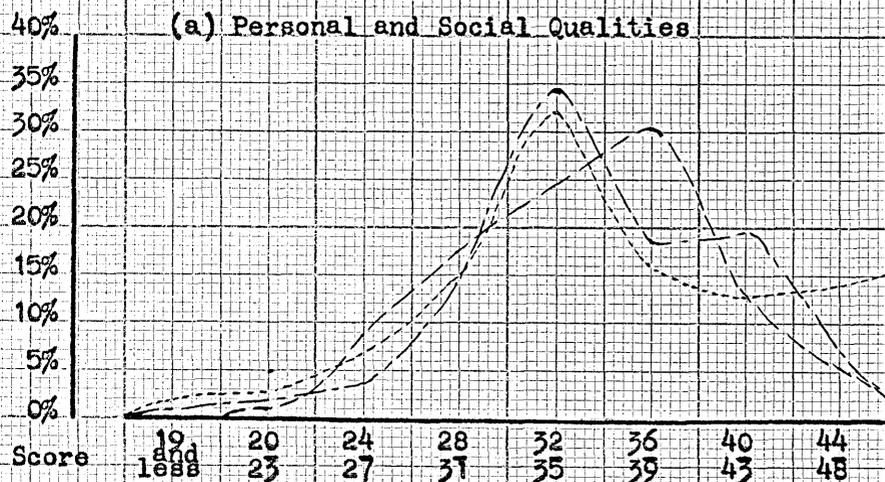
13.7 percent rated themselves corresponding to a numerical score from 44 to 48 inclusive, in Personal and Social Qualities, 12.9 percent rated themselves between 40 and 43 inclusive, etc. Of the junior high school teachers, 5.5 percent rated themselves corresponding to a numerical score from 44 to 48 inclusive, on Personal and Social Qualities, 12.7 percent rated themselves between 40 and 43 inclusive.

This table shows that the teacher tends to rate herself as average. The distributions are uniformly quite similar to a normal distribution curve, with no extreme skewness. The teachers tend to rate themselves similarly in each of the three main divisions as grouped in this table. The senior high school teachers rate themselves lower than either the junior high school teachers or the elementary teachers in each main division as shown by the medians of the distributions. In Social and Personal Qualities, the medians being almost coincident indicate a uniform opinion among the teachers in their estimate of their own personal quality. The widest divergence of the distributions occurs in the teachers' estimation of their Skill in Teaching and Skill in Mechanics of Managing a Class, which indicates a lack of adequate standards or the use of standards which may be employed in measuring the class progress.

Figure 3 (a) (b) (c) shows graphically the distribution of percentages of the senior high school, junior high school, and elementary groups of teachers according to Personal and Social Qualities, Team Work Qualities and Qualities of Growth and Keeping Up-to-date, and Skill in Teaching and Skill in Mechanics of Managing a Class; as measured by the teacher herself using the Rugg Self-rating score card, as presented in table 3 (a) (b) (c).

FIGURE 3 (a) (b) (c)

Showing percentage distribution of each group according to score made on the Rugg Self-rating scale in (a) Personal and Social Qualities, (b) Team Work Qualities and Qualities of Growth and Keeping Up-to-date, (c) Skill in Teaching and Mechanics of Managing a Class.



## ANALYSIS AND INTERPRETATION OF DATA

(Yearly salary, Education, Tenure, Principal's Rating, Rugg Self-rating)

In addition to the rating of each teacher by each of the three methods of rating teachers, the information regarding the present yearly salary, the number of hours credit in educational subjects ( professional training), and the number of months tenure in the present position, of each teacher was obtained.

Frequency distributions were made according to the senior high school, junior high schools, and elementary groups of teachers; based upon the yearly salary, number of hours credit in Education, and months tenure in the present position. From these frequency distributions, percentage distributions were computed and the results tabulated on pages 26, 29, and 32.

TABLE 4

Showing distribution of percentages of teachers in the senior high school, junior high school, and elementary groups according to the number of months tenure in the present position.

Months Tenure	0	2	18	27	36	45	54	63	72	81	90 and more
	8	17	26	35	44	53	62	71	80	89	
Senior H. S. (136)	31.6	20.6	14.7	11.8	7.3	1.5		2.2	.7	1.5	8.1
Junior H. S. (97)	43.3	17.5	12.4	10.3	7.2	2.1	1	1	1	1	3.1
Elementary (207)	18.8	15.9	13.5	14	10.6	2.9	1.4	1.4	.5	2.4	17.4

Medians: Senior H. S.= 21.5, Junior H. S.= 12.8, Elementary= 28.2

This table should be read that of the 136 senior high school teachers 31.6 percent have been employed in their present position less than nine months, 20.6 percent of the senior high school teachers have been employed in their present position from nine to eighteen months, etc. Of the 97 junior high school teachers, 43.3 percent have been employed less than nine months in their present position, 17 percent have been employed in their present position from nine to eighteen months, etc.

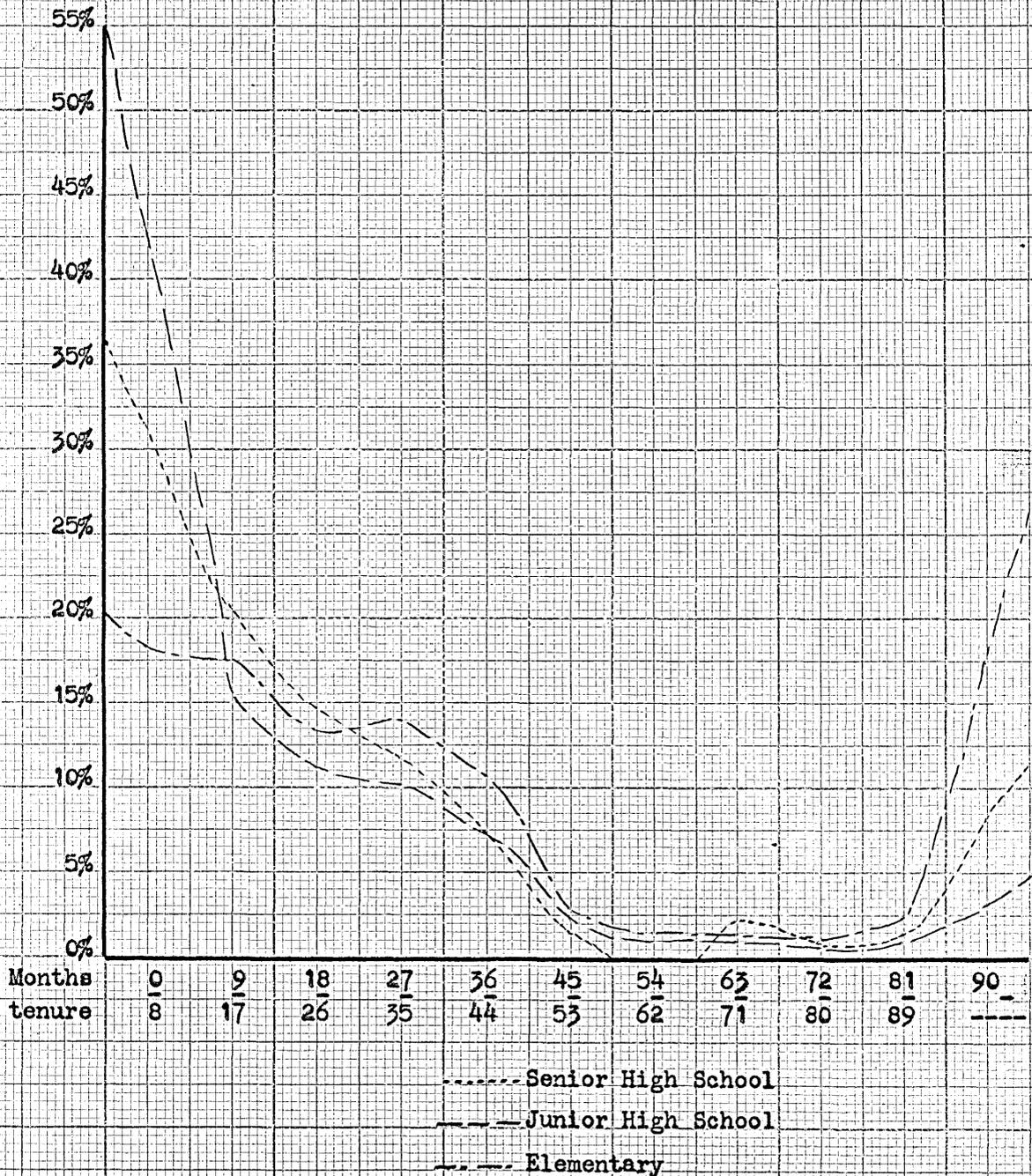
This table shows, first, that the skewness of the distributions are toward the lower part of the scale. This skewness is most pronounced in the junior high school group, which may partly be accounted for by the recent establishment of junior high schools in some of the school systems participating in the study. Secondly, over 50 percent of the senior high school and junior high school teachers are serving either their first or second year in the school system. Thirdly, the elementary teachers tend to remain in one system the longest period, 17.4 percent having served in the same system

for more than ninety months.

Figure 4 shows graphically the distribution of percentages of teachers in each of the senior high school, junior high school, and elementary groups of teachers according to the number of months tenure in the present position, as presented in table 4.

FIGURE A

Showing graphically the distribution of percentages in each of the senior high school, junior high school, and elementary groups of teachers according to the number of months tenure in the present position.



----- Senior High School  
 ----- Junior High School  
 ----- Elementary

TABLE 5

Showing the distribution of percentages of teachers in the senior high school, junior high school, and elementary groups of teachers, according to the number of hours credit in educational subjects.

Hours	5 and less	6 7	12 17	18 23	24 29	30 35	36 41	42 47	48 53	54 and more
Senior H.S. (136)	2.9	2.3	16.3	37.5	19.1	11	6.3	2.1	1.4	.7
Junior H.S. (97)	7.2	12.4	17.5	29.9	12.4	13.4	2.1	2.1	1	2.1
Elementary (207)	7.3	22.9	16.9	17.0	12.1	8.7	4.9	.5	1.5	8.3

Medians: Senior H.S. = 22.6, Junior H.S. = 20.6, Elementary = 19.0

This table should be read that of the 136 senior high school teachers 2.9 percent had five hours and less credit in educational subjects ( Professional Training ), 2.4 percent had from six to eleven hours inclusive. Of the 97 junior high school teachers, 7.2 percent had five hours and less credit in education, 12.4 percent had from six to eleven hours educational credit, etc.

This table shows; first, a tendency for the highest percentages to occur in each group in the interval 18 to 23 inclusive, which may be attributed to the state requirement for certification; secondly, the senior high school teachers are better equipped professionally than the other two groups, only 21.4 percent having seventeen or less hours credit in education; thirdly, the high percentage (22.6) of elementary teachers having from six to eleven hours credit in education may be partly due to the "Summer Term" attendance for professional study, which generally amounts to from six to eleven hours; fourthly, the rise again of the elementary group at

the eighteen hour interval indicates the entrance of college trained teachers into the elementary school field; fifthly, the percentages in the higher intervals are due to either the vocational teachers in the junior and senior high schools or to the Normal School graduate now teaching in the elementary schools; sixthly, the medians of the distributions indicate an approximate equivalent amount of professional training in each of the groups.

From table 5, we find that there is little difference in the professional training of teachers in senior high school, junior high school, and elementary schools; but from table 6, we find that the median salary of the junior high school group is below the lower quartile division of the senior high school group; and the median salary of the elementary group is likewise below the lower quartile division of the junior high school group. Fifty seven percent of the senior high school teachers receive more salary than ninety eight percent of the elementary teachers and seventy nine percent of the junior high school teachers; fifty four percent of the elementary teachers receive less salary than ninety eight percent of the senior high school teachers and eighty eight percent of the junior high school teachers. Comparing the preceding facts with those of table 5 shows that professional training has little if any influence in salary determination.

Figure 5 shows graphically the distribution of percentages in the senior high school, junior high school, and elementary groups of teachers according to the number of hours credit in educational subjects, as presented in table 5.

FIGURE 5

Showing graphically the distribution of percentages in each of the senior high school, junior high school, and elementary groups of teachers according to the number of hours college credit in Education.

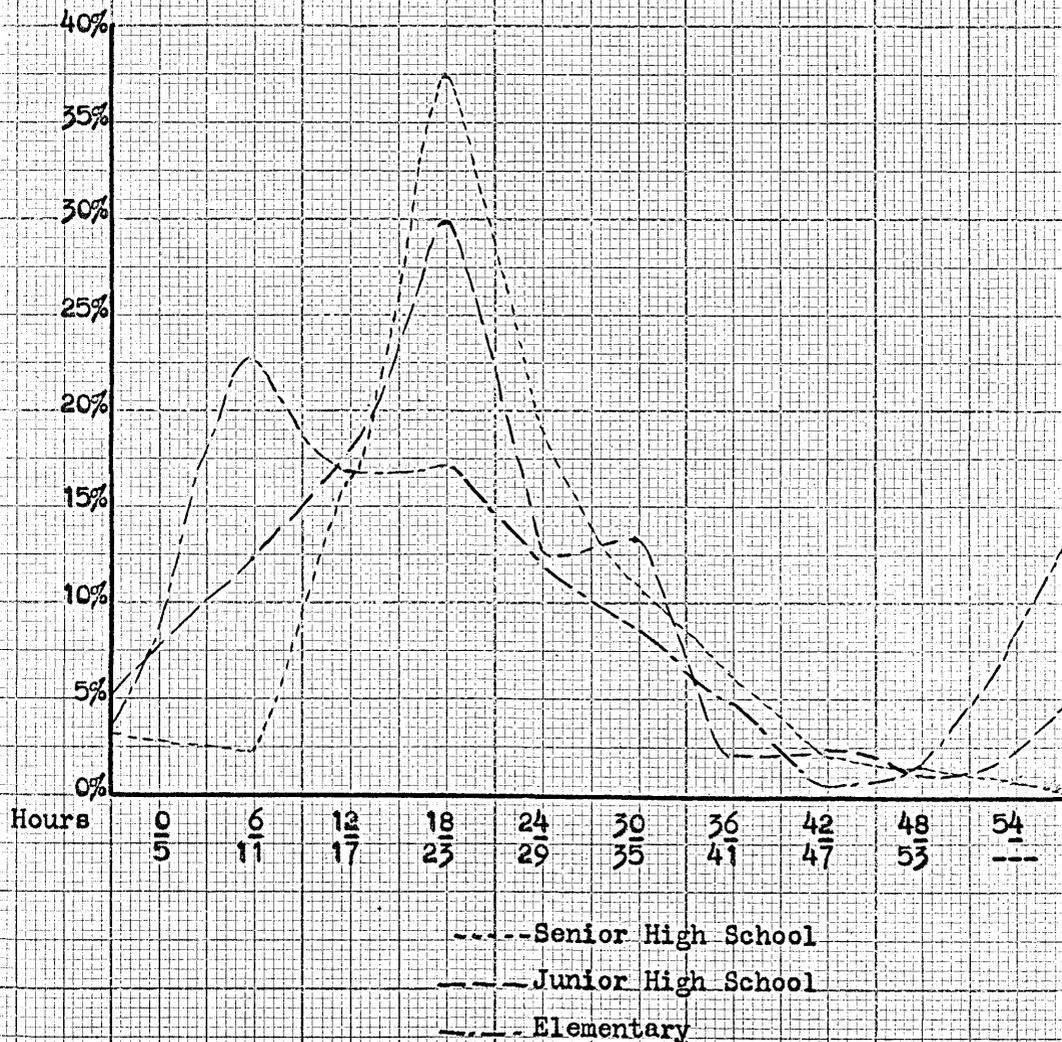


TABLE 6

Showing the distribution of percentages of senior high school, junior high school, and elementary teachers; according to yearly salary.

Salary	899 1898	900 999	1000 1099	1100 1199	1200 1299	1300 1399	1400 1499	1500 1599	1600 1699	1700 1799	1800 1899	1900 and more
Senior H.S. (136)		.7		.7	2.2	13.9	15.4	10.3	18.4	2.9	14.0	21.7
Junior H.S. (97)			1.0	10.3	19.6	22.7	19.6	6.2	4.1	2.1	5.2	9.3
Elementary (207)	2.9	6.8	17.9	27.1	23.2	12.1	5.8	2.4	1.4			.5

Medians: Senior H.S.=\$1636.00, Junior H.S.=\$1434.20, Elementary=\$1200.10

This table should be read that of the 136 senior high school teachers 21.7 percent received more than \$1900.00 for their yearly salary, 14 percent received from \$1800.00 to \$1899 inclusive; of the 97 junior high school teachers 9.3 percent received more than \$1900.00 for yearly salary, 5.8 percent received from \$1800.00 to \$1899.00 inclusive, etc.

This table indicates the marked difference in salary between the senior high school group and the junior high school group; also a similar difference in salary between the junior high school group and the elementary group. Such a condition gives little evidence of the use of the "Single Salary Schedule" in the eight city school systems included in this study.

The percentage of junior high school teachers receiving more than \$1900.00 yearly salary is largely due to vocational teachers of Agriculture, Manual Training, Home Economics, etc., and Music supervisors and Physical Education directors.

Figure 6 shows graphically the distribution of percentages in the senior high school, junior high school, and elementary groups of teachers; according to the yearly salary, as presented in table 6.

FIGURE 6

Showing graphically the distribution of percentages in each of the senior high school, junior high school, and elementary groups of teachers according to the yearly salary received.

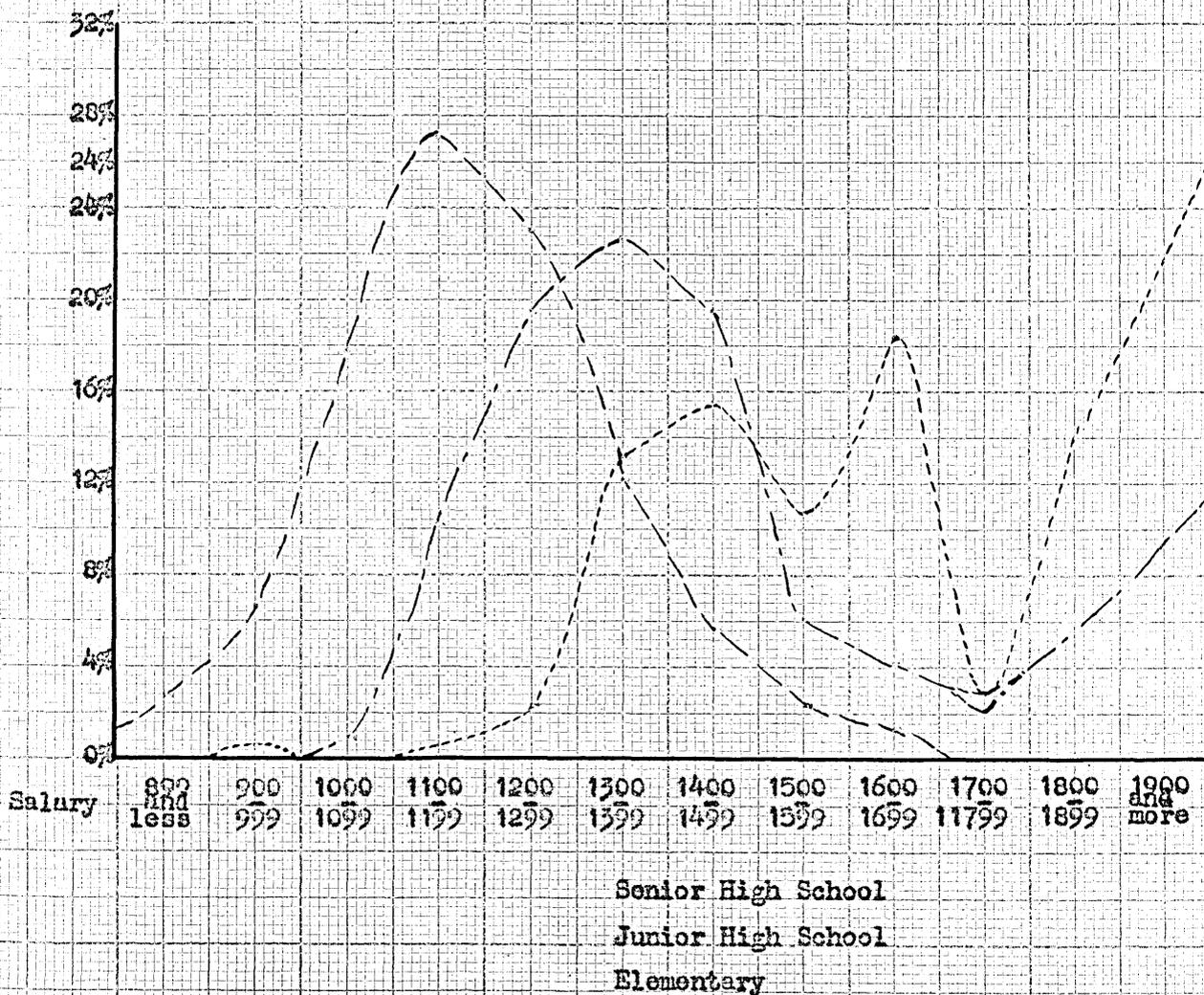


TABLE 7

Showing the distribution of percentages of senior high school, junior high school, and elementary teachers, according to the total score on the principal's rating sheet.

Score	94 and less	95 109	110 124	125 139	140 154	155 169	170 184	185 199	200 214	215 229	230 and more
Senior H.S. (136)	3.6	1.5	5.9	4.4	9.6	19.6	11.3	16.2	16.9	11.8	8.8
Junior H.S. (97)	8.2	3.1	4.1	9.3	10.4	19.6	11.3	9.3	11.3	11.3	2.1
Elementary (207)	2.4	2.9	7.2	5.3	11.1	10.6	14.0	7.2	9.2	13	16.4

Medians: Senior H.S.=188.4, Junior H.S.=166.6, Elementary=181.6

This table should be read that of the 136 senior high school teachers, 8.8 percent received a numerical score of 230 and more according to the judgment of the principal in his use of the rating sheet, 11.8 percent were rated corresponding to a total numerical score of between 215 and 229 inclusive; Of the 97 junior high school teachers, 2.1 percent received a numerical score of 230 and more as rated by the principal, 11.3 percent received between 215 and 229 inclusive, etc.

This table shows; first, that sixty five percent of the junior high school teachers are rated below the median of the senior high school teachers; secondly, sixty six percent of the senior high school teachers are rated above the median of the junior high school teachers; thirdly, sixty percent of the elementary teachers were rated higher than the median of the junior high school teachers. The junior high school teachers were rated lower than either of the other two groups, the percentage difference being ten percent or more.

Figure 7 shows graphically the distribution of percentages of senior

high school, junior high school, and elementary teachers according to the numerical (total) score on the rating as made by the building principal using the analyzed rating sheet, as presented in table 7.

FIGURE 7

Showing graphically the distribution of percentages of senior high school, junior high school, and elementary teachers; according to the total numerical score made on the principal's rating sheet.

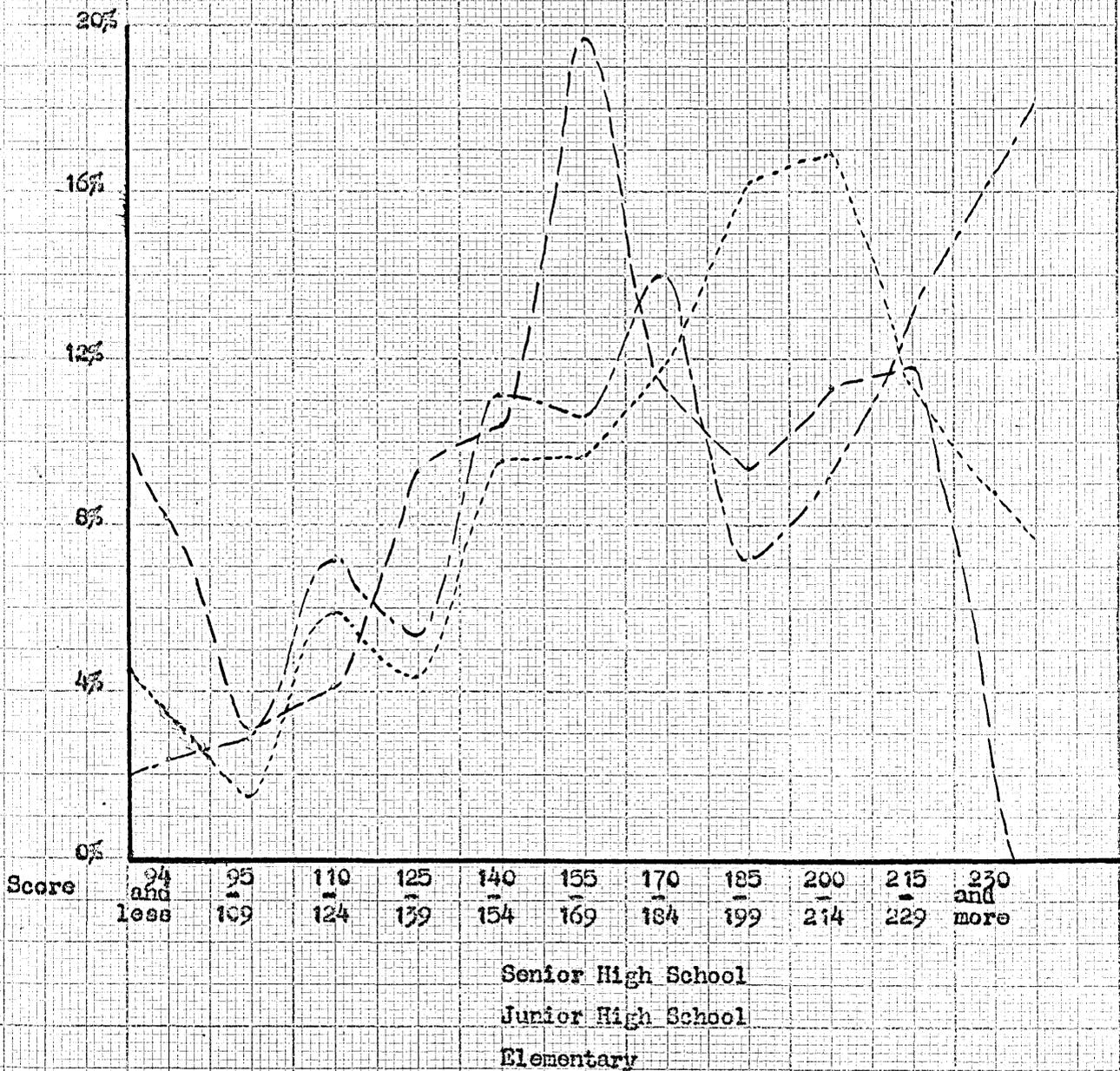


TABLE 8

Showing the distribution of percentages of senior high school, junior high school, and elementary teachers according to the total numerical score on the Rugg Self-rating scale.

Score	153 and less	154 163	154 173	174 183	184 193	194 203	204 213	214 223	224 233	234 243	244 and more
Senior H.S. (131)	8.4	9.2	10.7	15.2	12.9	10.7	6.4	8.4	9.2	5.3	4.6
Junior H.S. (93)	3.2	4.3	14.3	15.1	23.7	16.2	12.9	10.7	5.4	2.1	2.1
Elementary (206)	2.9	5.3	8.7	14.6	16.9	12.6	14.1	10.6	5.3	6.4	1.9

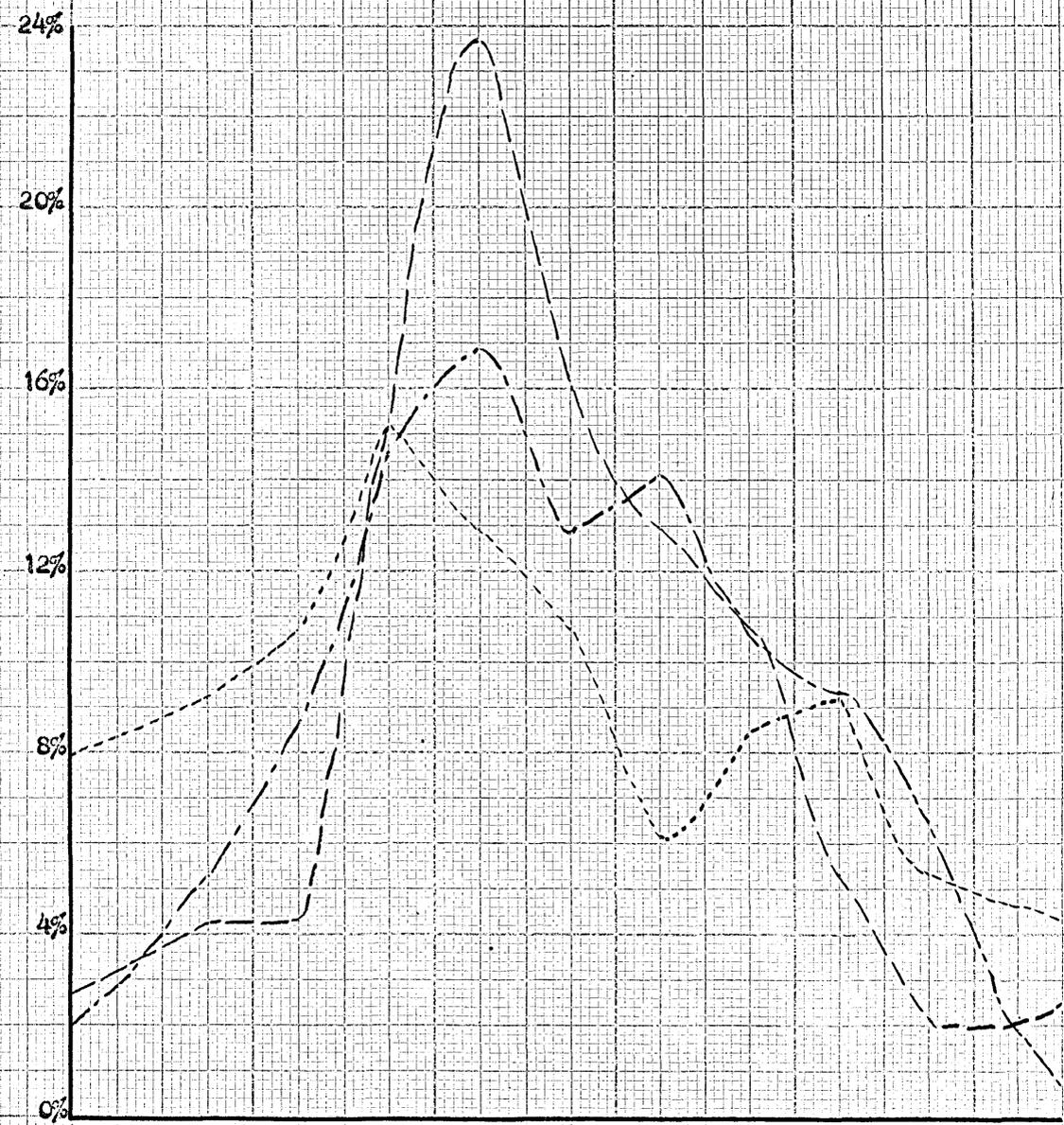
Medians: Senior H.S.=189.3, Junior H.S.=193.8, Elementary=195.2

This table should be read that 8.4 percent of the senior high school teachers rated themselves less than a numerical score of 153, 9.2 percent rated themselves between 154 and 163 inclusive, 3.2 percent of the junior high school teachers rated themselves less than a numerical score of 154 and 4.3 percent between 154 and 163 inclusive, etc.

This table shows; first, the relative equality of the medians, which indicates a tendency of the teachers to rate themselves similarly; secondly, sixty one percent of the junior high school teachers rate themselves higher than the median of the senior high school teachers; thirdly, sixty four percent of the senior high school teachers rate themselves lower than the median of the junior high school teachers; fourthly, sixty percent of the elementary teachers rate themselves lower than the median of the junior high school teachers.

Figure 8 shows graphically the distribution of percentages of senior high school, junior high school, and elementary teachers according to the total numerical score on the Rugg Self-rating scale, as presented in table 8.

Showing the distribution of percentages of senior high school, junior high school, and elementary teachers according to the total score made on the Rugg self-rating scales card



Score	1153 and less	1154-1163	1164-1173	1174-1183	1184-1193	1194-2203	2204-2213	2214-2223	2224-2233	2234-2243	244 and more
-------	---------------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	--------------

Senior High School  
 Junior High School  
 Elementary

## CORRELATION

In the December 1924 number of the "Teachers' College Record", J. F. Hasic, in his article "The Single Salary Schedule in Practice" states that teachers salaries are based upon the four items: experience, professional equipment, degree of merit, and sex; although the sex factor was fast being eliminated. Since the function of the rating of a teacher is to determine the efficiency or merit of the teacher's work, it would seem that that method of measuring the efficiency of teachers, which combined with professional equipment, and experience would show the highest correlation to the salary received by the teacher, would be considered the one measuring most accurately the efficiency of the teacher.

A random sampling of approximately 50 cases from each group, senior high school, junior high school and elementary, was taken for the purpose of computing this correlation. In order to reduce the score of each teacher of each group to comparable units, the formula for the index of variability was employed.  $(\frac{S - M}{\sigma})$ . S indicates the score of a given teacher in a given distribution, M indicates the mean of the distribution, and sigma the standard deviation of the distribution. By the use of this formula, the deviation of each teacher's score from the mean of the distribution of the entire group is obtained in terms of the standard deviation of the distribution. Thus the score of one teacher in one item, such as, hours credit in education is directly comparable to the score made by the same teacher in months experience in the present position.

For the purposes of this study, the number of hours credit in educational

subjects was taken as the professional equipment of the teacher, experience in the present position was considered more commensurate with salary than total experience, the numerical scores on the principal's ratings and Rugg Self-rating scales were taken as the rating by the principal and self-rating respectively, the composite judgment ratings were used as originally made for the study.

The index of variability of each of the cases selected from the groups was found for tenure in the present position, hours credit in Education, salary and score in each of the three methods of rating teachers concerned in this study. The coefficient of correlation was computed by the use of Pearson's formula  $r = \frac{\sum \frac{x' y'}{n} - c_x c_y}{\sigma_x \sigma_y}$  and the results tabulated as found in table 9.

TABLE 9

Showing the r P.E. of (a) salary and the composite of tenure, education, and rating by the principal; (b) salary and the composite of tenure, education, and self-rating, (c) salary and the composite of tenure, education, and composite judgment rating; according to senior high school, junior high school, and elementary teachers.

S	(a) Salary with Tenure, Education, and Principal's rating		(b) Salary with Tenure, Education, and Self-rating		(c) Salary with Tenure, Education, and Composite Judgment rating	
	r	P.E.	R	P.E.	r	P.E.
Senior H.S.	.35 ±	.06	.16 ±	.09	.33 ±	.09
Junior H.S.	.27 ±	.07	.28 ±	.09	.34 ±	.08
Elementary	.14 ±	.08	.44 ±	.08	.27 ±	.09

This table should be read that the coefficient of correlation of salary

and the composite of tenure, education, and principal's rating of the senior high school teachers is  $.35 \pm .08$ ; of salary and the composite of tenure, education, and self-rating of the junior high school teachers is  $.28 \pm .09$ ; of salary and the composite of tenure, education, and composite judgment rating of the elementary teachers is  $.27 \pm .09$ ; etc.

This table shows; first, the combination using the principal's rating has two coefficients too low to be significant due to the probable error being large, the senior high school group has a coefficient slightly higher than four times the probable error; secondly, the self-rating combination shows a similar condition but in a reverse order. The elementary group, instead of the lowest coefficient, has the highest; while the senior high school group has the lowest. The coefficient of  $.44$  of the elementary group indicated a disturbing factor not eliminated or accounted for in the data. Thirdly, the composite judgment combination shows the greatest uniformity in all of the groups although the coefficients are not sufficiently large to be markedly significant due to the probable error of each. Fourthly, the lack of agreement of the methods is shown by the variance of the coefficients within the group. The senior high school group has a coefficient of correlation of  $.55$  with the principal's rating, the highest of the three groups; while with the self-rating, it has a coefficient of correlation of  $.16$  the lowest of the three groups; and  $.33$  with the composite judgment ratings, the middle of the three groups. The elementary teachers have the lowest coefficient obtained ( $.14$ ) with the principal's rating; and also the highest coefficient obtained ( $.44$ ) with the self-rating.

In order to ascertain any relation existing between any of the methods of rating teachers and salary, education, and tenure in the present position, scatter diagrams were made of each of the teacher groups, senior high school, junior high school, and elementary teachers, showing relation between salary, education, and months tenure in the present position ; and each of the methods of rating teachers. Thus scatter diagrams were made of the principal's rating with salary, tenure, and education of the senior high school, junior high school, and elementary teachers. The same was done with the self-rating scores and the composite judgment ratings.

The scatter diagrams of the senior high school group are found on page 43, of the junior high school group on page 45, of the elementary group on page 47.

TABLE 10

Scattered diagrams showing relation between (a) yearly salary and score on principal's rating sheet, (b) yearly salary and score on Rugg Self-rating scale, (c) yearly salary and composite judgment rating; of the Senior High School teachers.

Score (\$)	(a) (Salary and Principal's rating)											(b) (Salary and Rugg Self-rating)											(c) (Salary and Composite judgment rating)				
	94 LESS	95 124	110 124	125 139	140 154	155 169	170 184	185 199	200 214	215 229	230 ---	159 LESS	160 169	170 179	180 189	190 199	200 209	210 219	220 229	230 239	240 ---	Score RATING	P	F	G	E	
1199 & less			1				1								1						1	950 & -				1	
1200-1299					1	1	1			1				1	1					2		951-1300				4	
1300-1399	2	1	1	2	3		5	2			3	1	4	3	2	1	1	1			1301-1650	2	8	37	9		
1400-1499	2		2	3	4	1	5	2	2		6	3	2	1	2	2	2	2		1	1651-----		5	22	27		
1500-1599	1	1		4	1	4	1	2			2	2	4	1	2	1	1	1									
1600-1699		1	1		2	3	3	7	6	2	2		1	6	4	2	4	5		1							
1700-1799					1	1				2					1	1	1			1							
1800-1899		2		1		2	2	3	3	6	3	3	1	1	2	2	2	2	2	1							
1900-1999								3					1	2													
2000-2099		1		1		1	1	2	3	1	1	1	1	1	2		1	1	2								
2100-2199			1					1					1							1							
2200-----					1	1	2	3	1	1	1	1	3		1	1		1	2	1							

TABLE 11

Scattered diagrams showing relation between (a) hours credit in Education and score on principal's rating sheet, (b) hours credit in Education and score on Rugg Self-rating scale, (c) hours credit in Education and composite judgment rating; of Senior High School teachers.

Score	(a) (Education and principal's rating)											(b) (Education and Rugg Self-rating)											(c) (Education and Composite judgment rating)				
	94 LESS	95 109	110 124	125 139	140 154	155 169	170 184	185 199	200 214	215 229	230 ---	159 LESS	160 169	170 179	180 189	190 199	200 209	210 219	220 229	230 239	240 ---	RATING	P	F	G	E	
9-3							1								1						0-5			1	1		
4-7										1					1						6-20			9	3	1	
8-11									1	1					1					1	21-35	1	22	34	77		
12-15			2	1	2	2		2	3	4	2			2	2	2	3	4	1	1	1	36----	1	16	15	4	
16-19	3	1	1	1	5	4	6	4	3	4			2	1	10	3	4		6	3	1	1					
20-23	1	1	2	2	1	1	2	7	1	1	2			2	3	2	2	2	3	3	3						
24-27	1		2		2		2	4	5	1	3			3	5	3	1	4	2		1	1					
28-31						2	2	2	4	3	1			2		2	1	2	2	1	3	1					
32-35						2	1	1		1	2			2	1					1	3						
36-39						2				1							1	1	1								
40----				1	2		1	2	4		1			1	1		1	2	2	1	1	2					

TABLE 12

Scattered diagrams showing relation between (a) months tenure in the present position and score on principal's rating sheet, (b) months tenure in the present position and score on Rugg Self-rating scale, (c) months tenure in the present position and composite judgment rating; of the Senior High School teachers.

Score	(a) (Tenure and principal's rating)											(b) (Tenure and Rugg Self-rating)											(c) (Tenure and composite judgment rating)					
	94 LESS	95 109	110 124	125 139	140 154	155 169	170 184	185 199	200 214	215 229	230 ---	159 LESS	160 169	170 179	180 189	190 199	200 209	210 219	220 229	230 239	240 ---	RATING	P	F	G	E		
0-8										1												0-17	1	7	30	19		
9-17	3	3	2	4	5	5	7	7	3	1				4	4	6	5	8	3	7	1	1	1	18-44	1	5	26	8
18-26		2	3		5	1	7	5	2	2	1			7	1	6	1	1	3	2	3	4	45-71				3	
27-35			2	2	2	2	5	3	1	2				4	2	3	2	2	1	1	2	2	72----				8	6
36-44	1		1		1	1	4	5		1				1	1	2	3	1			2	3	1					
45-53			1		3					3	3			1	2	1			1	2	2		1					
54-62				1						1												2						
63-71																												
72-80								1	1	1					1			2										
81-89					1											1												
90----					1		1	3	5	3				1	2			5	1		1	1	2					

Tables 10, 11, and 12 should be read that 2 senior high school teachers, who received a yearly salary of \$1300 to \$1399 inclusive, were rated by the principal corresponding to a score of 94 and less; 3 senior high school teachers, who received a yearly salary of \$1300 to \$1399 rated themselves (Rugg Self-rating) corresponding to a score of 164 and less. Four senior high school teachers were judged G, who received a yearly salary of \$951 to \$1350, by the composite judgment method. Three senior high school teachers having from 16 to 19 hours of credit in Education were rated by the principal corresponding to a score of 94 and less, two senior high school teachers rated themselves (Rugg Self-rating) corresponding to a score of 159 and less, who had from 16 to 19 hours credit in Education. One teacher received a composite judgment rating of F, who had 5 and less hours credit in Education, etc.

These tables show that there is little relation between education and tenure, and between any one of the methods of rating teachers. Salary and the principal's rating shows a slight relation which is also evident between salary and the composite judgment rating. The cases in the Rugg Self-rating score and salary scattered diagram show little or no relation.

TABLE 13

Scattered diagrams showing relation between (a) yearly salary and score on principal's rating sheet, (b) yearly salary and score on Rugg Self-rating scale, (c) yearly salary and composite judgment rating; of the Junior High School teachers.

Score	(salary and principal's rating) (a)										(salary and Rugg Self-rating) (b)										(salary and composite judgment rating) (c)					
	94	95	110	125	140	155	170	185	200	215	230	159	160	170	180	190	200	210	220	230	240	Score	P	F	G	E
	LESS	109	124	139	154	169	184	199	214	229	LESS	169	179	189	199	209	219	229	239	---						
899 & less																										
900-999																										
1000-1099									1	1						1										
1100-1199		1	2	2		2		1	2	1	2		1	1	2	3			2							
1200-1299	2			1	3	2	2	1		5	1	1		4	5	2	1	1	2			950 & less	4	12	0	
1300-1399	3			1	1	7	4	1	3				2	3	2	6	3	1	1	2		951-1300		4	19	8
1400-1499	1	2		4	4	2	2	1		1	1		2	4	2	5	2	1			1301-1650	1	3	18	8	
1500-1599	1			1		2		2					2		3			1	1		1651 & more			8	5	
1600-1699			1					1	1	2			1		2			1								
1700-1799					1			1					1		1											
1800-1899						1		1	1	2							3	1		1						
1900 & more				1	3	1	1	2			1	1		1	1		4	1								

TABLE 14

Scattered diagrams showing relation between (a) hours credit in Education and score on principal's rating sheet, (b) hours credit in Education and score on Rugg Self-rating scale, (c) hours credit in Education and composite judgment rating; of the Junior High School teachers.

Score	(Education and Principal's rating) (a)										(Education and Rugg Self-rating) (b)										(Education and composite judgment rating) (c)					
	94	95	110	125	140	155	170	185	200	215	230	159	160	170	180	190	200	210	220	230	240	Score	P	F	G	E
	LESS	109	124	139	154	169	184	199	214	229	LESS	169	179	189	199	209	219	229	239	---						
0-3	1		1	1		1									2			2								
4-7				1	1	2			1	1				1		1	2		2			6-20		3	24	13
8-11				1		1	3	1	1	1		1	1	1	1	2			1	1		21-35		2	15	5
12-15	1	1	1		1	2	1		2	2		2	1	1	1	2	1	1	1	1		36---	1	1	4	
16-19		1		2	2	4		3	3	3	1	1	3	5	4	2	2		2							
20-23		1			3	3	2	2		2					1	5	2	3		1	1					
24-27	2			1	2	2	1	1	1					1	3	3		3								
28-31	3				1	2	1	1	1			1				2	3	3								
32-35	1			1		2	1	1								3	1	1	1							
36-39																										
40---			1	2	1	1		1	1					2	1	3					1					

TABLE 15

Scattered diagrams showing relation between (a) months tenure in present position and score on principal's rating sheet, (b) months tenure in present position and score on Rugg Self-rating scale, (c) months tenure in present position and composite judgment rating; of Junior High School teachers.

Score	(Tenure and principal's rating) (a)										(Tenure and Rugg Self-rating) (b)										(Tenure and composite judgment rating) (c)					
	94	95	110	125	140	155	170	185	200	215	230	159	160	170	180	190	200	210	220	230	240	Score	P	F	G	E
	LESS	109	124	139	154	169	184	199	214	229	LESS	169	179	189	199	209	219	229	239	---						
0-8																										
9-17	6	1	1	8	3	6	5	5	3	3		4	2	8	6	7	3	4	4	1	2	18-44		2	12	7
18-26	1	1	1		3	5	1		2	2			2	1	7	2	3		1			45-71				2
27-35					2	4	2	1	1				1	1		4	1	2	1			72---			1	1
36-44	1	1		1	1	2	1	1	1	1		1		1	1	2	3	1		1						
45-53						1	1	2	1	2						1	1	3	1	1						
54-62					1					1				1		1										
63-71										1									1							
72-80										1						1										
81-89								1										1								
90---			1			1			1	1					1				2	1						

Tables 13, 14, and 15 should be read that two junior high school teachers, who received a yearly salary between \$1200 and \$1299, were rated by the principal corresponding to a numerical score of 94 and less; one junior high school teacher, who was receiving between \$1200 and \$1299 yearly salary, rated herself corresponding to a numerical score of 159 and less; four junior high school teachers, who were receiving between \$951 and \$1300 yearly salary, received a composite judgment rating of F. Two junior high school teachers, who had between 24 and 27 hours credit in Education, were rated by a score of 94 and less by the principal; and one junior high school teacher, who had between 28 and 31 hours credit in Education, rated herself by a score of 159 and less; one junior high school teacher having more than 36 hours credit in Education was given a composite judgment rating of F, etc.

These tables show that there is no significant relation between any of the three methods of rating teachers and salary, education, or tenure in the present position. The cases are widely scattered over the diagram which would indicate no marked tendency toward a relationship.

TABLE 16

Scattered diagrams showing relation between (a) yearly salary and score on principal's rating sheet, (b) yearly salary and score on Rugg Self-rating scale, (c) yearly salary and composite judgment rating; of elementary teachers.

(salary and principal's rating) (salary and Rugg Self-rating) (salary and composite judgment rating)

Score	(a)													(b)													(c)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	94	95	110	125	140	155	170	185	200	215	230	245	260	275	290	305	320	335	350	365	380	395	410	425	440	455	470	485	500	515	530	545	560	575	590	605	620	635	650	665	680	695	710	725	740	755	770	785	800	815	830	845	860	875	890	905	920	935	950	965	980	995	1010	1025	1040	1055	1070	1085	1100	1115	1130	1145	1160	1175	1190	1205	1220	1235	1250	1265	1280	1295	1310	1325	1340	1355	1370	1385	1400	1415	1430	1445	1460	1475	1490	1505	1520	1535	1550	1565	1580	1595	1610	1625	1640	1655	1670	1685	1700	1715	1730	1745	1760	1775	1790	1805	1820	1835	1850	1865	1880	1895	1910	1925	1940	1955	1970	1985	2000	2015	2030	2045	2060	2075	2090	2105	2120	2135	2150	2165	2180	2195	2210	2225	2240	2255	2270	2285	2300	2315	2330	2345	2360	2375	2390	2405	2420	2435	2450	2465	2480	2495	2510	2525	2540	2555	2570	2585	2600	2615	2630	2645	2660	2675	2690	2705	2720	2735	2750	2765	2780	2795	2810	2825	2840	2855	2870	2885	2900	2915	2930	2945	2960	2975	2990	3005	3020	3035	3050	3065	3080	3095	3110	3125	3140	3155	3170	3185	3200	3215	3230	3245	3260	3275	3290	3305	3320	3335	3350	3365	3380	3395	3410	3425	3440	3455	3470	3485	3500	3515	3530	3545	3560	3575	3590	3605	3620	3635	3650	3665	3680	3695	3710	3725	3740	3755	3770	3785	3800	3815	3830	3845	3860	3875	3890	3905	3920	3935	3950	3965	3980	3995	4010	4025	4040	4055	4070	4085	4100	4115	4130	4145	4160	4175	4190	4205	4220	4235	4250	4265	4280	4295	4310	4325	4340	4355	4370	4385	4400	4415	4430	4445	4460	4475	4490	4505	4520	4535	4550	4565	4580	4595	4610	4625	4640	4655	4670	4685	4700	4715	4730	4745	4760	4775	4790	4805	4820	4835	4850	4865	4880	4895	4910	4925	4940	4955	4970	4985	5000	5015	5030	5045	5060	5075	5090	5105	5120	5135	5150	5165	5180	5195	5210	5225	5240	5255	5270	5285	5300	5315	5330	5345	5360	5375	5390	5405	5420	5435	5450	5465	5480	5495	5510	5525	5540	5555	5570	5585	5600	5615	5630	5645	5660	5675	5690	5705	5720	5735	5750	5765	5780	5795	5810	5825	5840	5855	5870	5885	5900	5915	5930	5945	5960	5975	5990	6005	6020	6035	6050	6065	6080	6095	6110	6125	6140	6155	6170	6185	6200	6215	6230	6245	6260	6275	6290	6305	6320	6335	6350	6365	6380	6395	6410	6425	6440	6455	6470	6485	6500	6515	6530	6545	6560	6575	6590	6605	6620	6635	6650	6665	6680	6695	6710	6725	6740	6755	6770	6785	6800	6815	6830	6845	6860	6875	6890	6905	6920	6935	6950	6965	6980	6995	7010	7025	7040	7055	7070	7085	7100	7115	7130	7145	7160	7175	7190	7205	7220	7235	7250	7265	7280	7295	7310	7325	7340	7355	7370	7385	7400	7415	7430	7445	7460	7475	7490	7505	7520	7535	7550	7565	7580	7595	7610	7625	7640	7655	7670	7685	7700	7715	7730	7745	7760	7775	7790	7805	7820	7835	7850	7865	7880	7895	7910	7925	7940	7955	7970	7985	8000	8015	8030	8045	8060	8075	8090	8105	8120	8135	8150	8165	8180	8195	8210	8225	8240	8255	8270	8285	8300	8315	8330	8345	8360	8375	8390	8405	8420	8435	8450	8465	8480	8495	8510	8525	8540	8555	8570	8585	8600	8615	8630	8645	8660	8675	8690	8705	8720	8735	8750	8765	8780	8795	8810	8825	8840	8855	8870	8885	8900	8915	8930	8945	8960	8975	8990	9005	9020	9035	9050	9065	9080	9095	9110	9125	9140	9155	9170	9185	9200	9215	9230	9245	9260	9275	9290	9305	9320	9335	9350	9365	9380	9395	9410	9425	9440	9455	9470	9485	9500	9515	9530	9545	9560	9575	9590	9605	9620	9635	9650	9665	9680	9695	9710	9725	9740	9755	9770	9785	9800	9815	9830	9845	9860	9875	9890	9905	9920	9935	9950	9965	9980	9995	10010	10025	10040	10055	10070	10085	10100	10115	10130	10145	10160	10175	10190	10205	10220	10235	10250	10265	10280	10295	10310	10325	10340	10355	10370	10385	10400	10415	10430	10445	10460	10475	10490	10505	10520	10535	10550	10565	10580	10595	10610	10625	10640	10655	10670	10685	10700	10715	10730	10745	10760	10775	10790	10805	10820	10835	10850	10865	10880	10895	10910	10925	10940	10955	10970	10985	11000	11015	11030	11045	11060	11075	11090	11105	11120	11135	11150	11165	11180	11195	11210	11225	11240	11255	11270	11285	11300	11315	11330	11345	11360	11375	11390	11405	11420	11435	11450	11465	11480	11495	11510	11525	11540	11555	11570	11585	11600	11615	11630	11645	11660	11675	11690	11705	11720	11735	11750	11765	11780	11795	11810	11825	11840	11855	11870	11885	11900	11915	11930	11945	11960	11975	11990	12005	12020	12035	12050	12065	12080	12095	12110	12125	12140	12155	12170	12185	12200	12215	12230	12245	12260	12275	12290	12305	12320	12335	12350	12365	12380	12395	12410	12425	12440	12455	12470	12485	12500	12515	12530	12545	12560	12575	12590	12605	12620	12635	12650	12665	12680	12695	12710	12725	12740	12755	12770	12785	12800	12815	12830	12845	12860	12875	12890	12905	12920	12935	12950	12965	12980	12995	13010	13025	13040	13055	13070	13085	13100	13115	13130	13145	13160	13175	13190	13205	13220	13235	13250	13265	13280	13295	13310	13325	13340	13355	13370	13385	13400	13415	13430	13445	13460	13475	13490	13505	13520	13535	13550	13565	13580	13595	13610	13625	13640	13655	13670	13685	13700	13715	13730	13745	13760	13775	13790	13805	13820	13835	13850	13865	13880	13895	13910	13925	13940	13955	13970	13985	14000	14015	14030	14045	14060	14075	14090	14105	14120	14135	14150	14165	14180	14195	14210	14225	14240	14255	14270	14285	14300	14315	14330	14345	14360	14375	14390	14405	14420	14435	14450	14465	14480	14495	14510	14525	14540	14555	14570	14585	14600	14615	14630	14645	14660	14675	14690	14705	14720	14735	14750	14765	14780	14795	14810	14825	14840	14855	14870	14885	14900	14915	14930	14945	14960	14975	14990	15005	15020	15035	15050	15065	15080	15095	15110	15125	15140	15155	15170	15185	15200	15215	15230	15245	15260	15275	15290	15305	15320	15335	15350	15365	15380	15395	15410	15425	15440	15455	15470	15485	15500	15515	15530	15545	15560	15575	15590	15605	15620	15635	15650	15665	15680	15695	15710	15725	15740	15755	15770	15785	15800	15815	15830	15845	15860	15875	15890	15905	15920	15935	15950	15965	15980	15995	16010	16025	16040	16055	16070	16085	16100	16115	16130	16145	16160	16175	16190	16205	16220	16235	16250	16265	16280	16295	16310	16325	16340	16355	16370	16385	16400	16415	16430	16445	16460	16475	16490	16505	16520	16535	16550	16565	16580	16595	16610	16625	16640	16655	16670	16685	16700	16715	16730	16745	16760	16775	16790	16805	16820	16835	16850	16865	16880	16895	16910	16925	16940	16955	16970	16985	17000	17015	17030	17045	17060	17075	17090	17105	17120	17135	17150	17165	17180	17195	17210	17225	17240	17255	17270	17285	17300	17315	17330	17345	17360	17375	17390	17405	17420	17435	17450	17465	17480	17495	17510	17525	17540	17555	17570	17585	17600	17615	17630	17645	17660	17675	17690	17705	17720	17735	17750	17765	17780	17795	17810	17825	17840	17855	17870	17885	17900	17915	17930	17945	17960	17975	17990	18005	18020	18035	18050	18065	18080	18095	18110	18125	18140	18155	18170	18185	18200	18215	18230	18245	18260	18275	18290	18305	18320	18335	18350	18365	18380	18395	18410	18425	18440	18455	18470	18485	18500	18515	18530	18545	18560	18575	18590	18605	18620	18635	18650	18665	18680	18695	18710	18725	18740	18755	18770	18785	18800	18815	18830	18845	18860	18875	18890	18905	18920	18935	18950	18965	18980	18995	19010	19025	19040	19055	19070	19085	19100	19115	19130	19145	19160	19175	19190	19205	19220	19235	19250	19265

Tables 16, 17, and 18 should be read that two elementary teachers , who receive from \$1200 to \$1299 inclusive yearly salary, were rated by the principal by a score of 94 and less; six elementary teachers, who receive from \$1200 to \$1299 inclusive, yearly salary, rated themselves by a score of 159 and less; thirty four elementary teachers, who receive from \$951 to \$1300 yearly salary, received a rating of F by the composite judgment method. Three elementary teachers whose period of tenure in the present position is between 36 and 44 months were rated by a score of 94 and less by the principal; two elementary teachers whose period of tenure is between 36 and 44 months rated themselves by a score of 159 and less; nineteen elementary teachers whose period of tenure is less than 18 months received a rating of F by the composite judgment method, etc,

These tables show that there is no significant relation between any one of the three methods of rating teachers and salary, education, or tenure in the present position. The cases are widely scattered over the diagram indicating no marked relationship.

In order to find whether or not a tendency toward a relationship between any one of the methods of rating teachers and salary, education, and tenure in the present position, exists; the entire number of teachers was taken as one group. The tables were combined for the senior high school, junior high school, and elementary teachers, forming a composite scatter diagram of each method of rating teachers and salary, education, and tenure. Table 19 is the composite of tables 10, 13, and 16. Table 20 is a composite of tables 11, 14, and 17. Table 21 is a composite of tables 12, 15, and 18. The composite tables are found on pages 50, 52, and 54.

TABLE 19

Scatter diagram of the total score on principal's rating and (yearly ) salary.

Score													
Salary													
\$899 and less					1	1		3	1				
900- 999	1		3		2	3			1	3	2		
1000-1099		1	2	2	5	5	7	3	5	3	1	4	
1100-1199		1	7	5	6	8	12	4	11	7	4	1	
1200-1299	4	4	3	4	8	5	7	5	4	9	5	11	
1300-1399	6	2	1	4	5	12	10	7	6	3	3	2	
1400-1499	1	4	2	7	10	6	5	7	2	4		1	
1500-1599	2		2	1	5	4	4	4	3	1	1	1	
1600-1699			2	1		3	4	5	8	7	2		
1700-1799					1	1	1	1			2		
1800-1899			2		1	1	2	3	4	5	6		
1900 and more	3		1	1	2	4	3	7	8	4	3		

Scatter diagram of total score on Rugg Self-rating scale and (yearly) salary.

Score													
Salary													
\$899 and less					1		2	2	1				
900- 999					5		2	4		2		2	
1000-1099	1	2	7	8	8	5	6		1				
1100-1199	5	6	7	10	9	13	4	8	3	1			
1200-1299	7	3	10	15	4	7	6	11	3	2	1		
1300-1399	3	5	11	5	13	9	4	4	5	2			
1400-1499	8	4	5	6	5	8	5	4	2	2			
1500-1599	3	3	6	1	5	2	2	2	2	1		1	
1600-1699	2	1	1	9	4	2	6	5		1	1		
1700-1799		1			2		1	1			1		
1800-1899	3	3	1	1	2	5	3	2	2		2		
1900 and more	3	5	6	2	4	1	5	3	4	1	2		

Scatter diagram of composite judgment rating and (yearly) salary.

Salary	Rating	P	F	G	E
\$950 and less			2	13	2
951-1500	1	38	90	39	
1301-1650	3	20	64	28	
1651 and more		5	33	35	

This table should be read that six teachers receiving a yearly salary of \$1300 to \$1399 inclusive, were rated as 94 and less by the principal; two teachers receiving a like salary were rated between 95 and 109 by the principal; With the Rugg Self-Rating scale, three teachers receiving a salary (yearly) of \$1300 to \$1399, rated themselves 159 and less, five teachers receiving a similar salary, rated themselves from 160 to 169. With the composite judgment rating, three teachers receiving from \$1301 to \$1650 yearly salary were rated F; twenty teachers receiving a similar salary were rated F, etc.

The widely scattered nature of the diagram indicates little relation between salary and either of the three methods of rating teachers. Forty cases were in the upper quartile of one distribution and in the lower quartile of the other distribution in the the scatter diagram of salary and principal's rating, while but thirty eight cases were in the lower quartile of both distributions and twenty nine cases in the upper quartile of both distributions. With the Rugg Self-rating scores and salary, fifty two cases were in the upper quartile of one distribution and in the lower quartile of the other distribution while thirty four cases were in the lower quartile of both distributions and thirty nine cases in the upper quartile of both distributions. With the composite judgment ratings and salary, fifteen cases were judged good or superior which were receiving \$950 and less yearly salary and five cases were judged fair which were receiving \$1651 and more yearly salary; there were no cases judged poor which were receiving \$950 and less yearly salary and thirty five cases were judged superior which were receiving \$1651 and more yearly salary.

Scatter diagram of hours credit in Education and principal's rating.

Score

Education

0-3	1	1	2	3	3	2	3	1			1	
4-7				1	1	4	3	1	4	1	4	2
8-11	1	1	1	1	3	3	6	3	10	9	3	4
12-15	1	1	6	2	6	5	2	4	8	10	3	3
16-19	4	3	3	4	9	10	11	11	7	12	3	2
20-23	1	3	5	3	7	7	7	10	2	6	2	2
24-27	3	2	3	3	7	5	5	5	9	2	5	2
28-31	3		1	1	3	6	4	4	6	6	3	
32-35	1			1	1	5	4	3		3	3	
36-39		1		2		2		1	1			
40 and more	2		4	4	5	4	10	3	5	1	4	4

Scatter diagram of hours credit in Education and Rugg Self-rating.

Score

Education

0-3	4		4	6	1	3	3	2				
4-7	1		3	4	3	4	2	2	1		1	
8-11	5	4	7	6	8	2	1	7	2	1	1	1
12-15	5	3	7	7	8	8	6	3	3	1		
16-19	2	7	14	15	9	4	8	6	3	1		
20-23	2	7	4	8	6	9	8	4	3	1	1	
24-27	6	7	4	7	11	6	6	1	1	1	1	
28-31	4		5	3	5	7	6	4	1	2		
32-35	3	1	1	1	4	3	2	3		2	1	
36-39		2				1	1	3				
40 and more	1	2	9	5	3	10	2	2	6	3	1	

Scatter diagram of composite judgment rating and hours credit in Education.

Rating

Education

	B	F	G	E
0-5		5	7	6
6-20	1	29	95	53
21-35	1	16	71	34
36 and more	2	9	25	10

This table should be read that four teachers having from 16 to 19 hours credit in Education, were rated 94 and less by the principal, three having the same number of hours credit in Education were rated from 95 to 109 by the principal; with the Rugg Self-rating scale, seven teachers having from 16 to 19 hours credit in Education rated themselves 159 and less and eight teachers having the same number of hours credit in Education rated themselves from 160 to 169; with the composite judgment rating, one teacher having from 6 to 26 hours credit in Education was rated F and twenty nine were rated as F.

This table shows that there is little relation existing between hours credit in education (professional equipment) and any of the three methods of rating teachers. The quartile divisions of the distributions show that; with the principal's rating and credit in education, fifty three teachers were in the upper quartile division in one distribution and in the lower quartile division in the other distribution while but forty four teachers were either in both the lower quartile divisions or the upper quartile divisions of the distributions; with the Rugg Self-rating scores and hours credit in education, fifty five teachers were in the upper quartile division of one distribution and the lower quartile division of the other distribution; with the composite judgment rating and the hours credit in education, there were two teachers, who had 36 and more hours credit in education, rated F while only two teachers were rated F who had less than 36 hours credit in education. There were more superior teachers having less than 20 hours credit in education than teachers having more than 20 hours credit in education.

TABLE 20

Scatter diagram of months tenure in present position and principal's rating.

Score												
Tenure												
0-8												1
9-17	10	4	2	12	12	19	15	14	12	11	5	2
18-26	1	5	6	1	13	9	12	8	6	8	7	
27-35		2	2	4	8	8	8	8	9	2	3	2
36-44	5	1	1	3	4	4	7	7	8	2	6	4
45-53	1		1	1	1	5	5	3	4	10	4	4
54-62			1		2	1	1		2	2	1	
63-71									2			1
72-80						1			1	2	3	
81-89						1	1	1				
90 and more			5	4	5	5	6	5	9	11	3	7

Scatter diagram of months tenure in present position and Rugg Self-rating.

Score												
Tenure												
0-8												1
9-17	11	7	21	22	22	14	13	7	3	2	1	
18-26	9	10	13	13	5	10	3	7	5	1		
27-35	7	7	7	6	9	3	7	6		2	2	
36-44	4	1	6	10	9	9	3	2	6	2		
45-53	2	4	6	1	4	6	7	3	3	2		
54-62			1	1	1	2	1	3				1
53-71		1				1	1					
71-80		1		1		3		1		1		
81-89					1	1		1				
90 and more	2	3	4	9	9	5	9	9	5	3	2	

Scatter diagram of composite judgment rating and months tenure in present position.

Rating	P	F	G	E
Tenure				
0-17	2	31	94	42
18-44	2	30	70	33
45-71		2	6	7
72 and more		6	28	22

This table should be read that ten teachers having from 9 to 17 months tenure in the present position were given a rating of 94 and less by the principal, four teachers having the same months tenure in the present position were given a rating of 95 to 109 by the principal; with the Rugg Self-rating scores, eleven teachers having from 9 to 17 months tenure rated themselves 159 and less, seven rated themselves from 160 to 169; with the composite judgment rating, two teachers having 17 and less months tenure in the present position were given a rating of P and thirty one were given a rating of F, etc.

From this table it is evident that months tenure in the present position gives little indication of the teacher's efficiency as measured by each of the methods of rating teachers. By finding the quartile divisions of the distributions we observe that in the principal's rating, thirty seven teachers were in the upper quartile division of one distribution and in the lower quartile division of the other distribution; in the Rugg Self-rating scores fifty teachers were in the upper quartile division of the one distribution and in the lower quartile division of the other distribution; with the composite judgment ratings, there were more teachers considered G and S who had less than 17 months tenure in the present position than those those having from 18 to 40 months experience in the present position.

In order to determine the relation of one method of rating teachers with each of the other two methods, scatter diagrams were made and the coefficient of correlation was computed.

In this tabulation, all of the teachers who were rated by each of the three methods of rating teachers were taken as one group. The computation of the composite judgment ratings, since there were only four intervals, would consequently be more unreliable than had there been a greater number of intervals. Scatter diagrams of each method of rating teachers with each of the other two methods are on pages 58, 59, and 60.

TABLE 22

Showing scatter diagram of the total scores on the principal's rating sheet and total scores on the Rugg Self-rating scale.

Rugg Scores	159 and less	160	170	180	190	200	210	220	230	240 and more
Prin. Scores		169	179	189	199	209	219	229	239	
94 and less	3	2	2	1	3	1	3		1	
95-109		3	1	1		1		2	1	
110-124	1	2	1	4	3	2			3	1
125-139	3	3	3	3	1		4	3	2	1
140-154	4	1	8	7	7		2	1	1	1
155-169	3	1	5	8	5	9	8	4	1	2
170-184	1	5	6	4	4	7	5	5	2	2
185-199	3	5	8	4	3	2	4	7	2	1
200-214	7	1	6	10	7	7	4	3	1	1
215-229	1	3	6	5	9	4	7	5	2	4
230-244	3	2	3	5	4	4	2	2	2	4
245 and more	2	1		2	3	5		2	1	3

The coefficient of correlation of the above data was computed using Pearson's formula  $r = \frac{\sum x'y' - c_x c_y}{\sigma_x \sigma_y}$ , and found to be,  $r = .14 \pm .058$

Table 22 should be read that 2 teachers were rated by the principal with a numerical score of 245 or more and rated themselves corresponding to a numerical score of 159 and less; 1 teacher was rated by the principal with a numerical score of 245 or more and rated herself corresponding to a numerical score of between 160 and 169 inclusive, etc.

The scatter diagram and the coefficient of correlation of table show that the two methods of rating teachers, rating by the building principal and the self-rating by the teacher, do not measure the efficiency of the teacher by the same standards. There is no significant relation between the two methods of rating teachers.

TABLE 23

Showing scatter diagram of the total scores on the Rugg Self-rating scales and the composite judgment rating.

Rugg Scores	159 and less	160-169	170-179	180-189	190-199	200-209	210-219	220-229	230-239	240 and more
Comp. Judg't.										
P			2	1					1	
F	3	5	8	15	6	6	7	8	2	
G	20	19	28	30	28	19	22	16	8	5
E	8	5	11	8	15	16	10	10	8	14

The coefficient of correlation of the above data was computed using Pearson's formula  $r = \frac{\sum x' y' - c_x c_y}{\sigma_x \sigma_y}$ , and found to be  $r = .16 \pm .038$

Table 23 should be read that 20 teachers were rated G by the composite judgment method, who had rated themselves corresponding to a numerical score of 159 and less; 19 teachers were rated G by the composite judgment method, who had rated themselves corresponding to a numerical score of between 160 and 169 inclusive; etc.

The scatterdiagram and coefficient of correlation of table show that there is no significant relation between the composite judgment method of rating teachers and the self-rating method of rating teachers.

TABLE 24

Showing scatter diagram of the total score on the principal's rating sheet and the rating by the composite judgment method.

Prin. Score. <sup>94</sup> and less	95	110	125	140	155	170	185	200	215	230	245 and more	
	109	224	139	154	169	184	199	214	229	244		
Comp. Judg't												
P	2					1			1			
F	10	4	12	6	7	4	5	3	4	2	2	1
G	3	3	4	15	18	30	26	21	23	26	7	9
E	1	2	1	1	7	11	11	15	19	18	12	9

The coefficient of correlation of the above data was computed using Pearson's formula  $r = \frac{\sum \frac{x' y'}{n} - c_x c_y}{\sigma_x \sigma_y}$ , and found to be,  $r = .27 \pm .035$

Table should be read that 10 teachers were rated F by the composite judgment method, who were rated by the principal corresponding to a numerical score of 94 and less; 3 teachers were rated G by the composite judgment method, who were rated corresponding to a numerical score of between 95 and 109 inclusive.

The above scatter diagram and the coefficient of correlation show that there is no significant relation between the composite judgment rating and the rating by the principal using the analyzed rating sheet.

SUMMARY

1- The purpose of this study is to compare the three methods of rating teachers, i.e., rating by the building principal, self-rating by the teacher, and composite judgment rating; and the relation between each method and yearly salary, hours credit in Education, and months tenure in the present position.

2- This study is based upon the ratings of 440 teachers regularly employed in the school systems of the eight cities of Kansas, by each of the three methods of rating teachers and the additional information regarding the yearly salary, hours credit in Education, and months tenure in the present position of each teacher participating.

3- The information and ratings were obtained from the school systems during the period between January 1, 1925 and May 1, 1925.

4- For the purposes of this study, the teachers were divided into three groups: Senior High School, Junior High School, and Elementary groups.

5- There is no significant relation between any of the three methods of rating teachers with either salary, education, or tenure in the present position.

6- There is no significant correlation between salary and any of the methods of rating teachers, combined with education and tenure.

7- The difference of salaries paid to the teachers of the different groups indicated little use of the "Single Salary Schedule".

8- The average period of tenure in the present position is less than twenty months.

9 There is no significant difference in the hours credit in education

( professional equipment) between the groups.

10- There is no significant relation between any two of the methods of rating teachers.

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