

A STUDY OF THE COMPARATIVE COSTS OF SECOND-
ARY EDUCATION IN CHAUTAUQUA COUNTY, KANSAS

by

Seth J. Owens

A. B. University of Kansas

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Approved by:

S. J. Owens
Instructor in Charge

Raymond H. Schwesler
Head of the Department

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CHAPTER I

THE PROBLEM STATED

The purpose of this study is to make an analysis of the financial aspects of secondary education in Chautauqua County, Kansas.. Those considered are:

1. The ability of each community to support a four-year high school.
2. The annual amount per pupil each school spends for teaching and for all other current operating costs.
3. The ratio between the amount per pupil each school spends for teaching and for all other current operating costs.
4. The comparative costs in the respective departments of the five four-year high schools on a per pupil clock-hour basis.

IMPORTANCE OF THE PROBLEM

In any large business organization the manager is concerned with unit costs, and realizes their importance to the success of his business. Often school administrators only deal in total costs, though there is no doubt that unit analyses of costs are as important to the successful administration of a school system as to a business organization. It is important that those in charge of

the schools in Chautauqua County make careful study of unit costs, for there is a growing demand by property owners that taxes be reduced. For a school administrator intelligently to defend his expenditures, he must have complete knowledge of unit costs in his own and other schools. In his study on budgetary procedure Twente states: "Unit costs which enable the superintendent of schools to present convincingly to his board of education the advisability of adding certain activities or changing policies are most desirable."¹

For purposes of comparison many superintendents do make studies of their costs, and of the costs of other schools. Some of these are available for study by others. In the following chapter several studies are reviewed with a brief summary of their findings.

1. Twente, John W. "Budgetary Procedure for a Local School System". Capital City Press. Montpelier, Vt. p. 68.

CHAPTER II

RELATED LITERATURE

As stated in the preceding chapter, other studies have been made to determine unit costs in education. Poole made such a study of five four-year high schools in Pawnee County, Kansas. His study included Larned, Garfield, Rozel, Rook, and Burdett High Schools over a period covering the three school years of 1922-23, 1923-24, and 1924-25.

The first phase of his study dealt with the ability of the communities to support their high schools. He concluded:

1. "There is some difference in these communities to support their high schools but these differences are not extremely marked.
2. "There is, of course, some difference in tax levies. . . However, it does not seem that any community is severely taxed to support its schools."

The second phase of his study dealt with the ratios between the cost of teaching and other current costs. He concluded:

1. "A correlation of the ratios and the enrollment of the schools gives $-.40 \pm .014$, which would indicate that the tendency for one to increase as the other decreases is not very great.
2. "There is some variation in the ratios of the different schools. They run practically the same all three years. Larned has the lowest ratio all three years; Burdett ranks second; Zook ranks third for two years and fourth

one year; Rozel ranks fifth with the highest ratio all three years."

The third phase of his study dealt with the subject costs per student on a clock-hour basis.

1. He showed by tables the number of subjects in each school which reached the maximum or fell to a minimum per pupil cost per clock-hour in each of the three years covered by his study.
2. "The variation of the same subject in the same school over the three-year period was in some cases practically negligible while in other cases variation was very pronounced.
3. "The difference in the cost of the same subject during the same year in different schools were in some cases very small and in other cases rather large."

The fourth phase of his study dealt with "cost per unit of credit and per unit per hour". He concluded: "It is evident that the largest school can teach the same subject at a lower cost per unit than can the smaller schools."²

2. Poole, Robert H. "A Study of the Costs of Secondary Education in Pawnee County, Kansas". A Master's Thesis. University of Kansas, 1926. Unpublished manuscript. University of Kansas Library.

Wedel made a study of the costs of public secondary education in Harvey County, Kansas. His study includes Walton, Sedgwich, Newton, Halstead, and Burton High Schools. He drew the following conclusions:

- A. Considerable difference was evident in the ability of the city school districts of Harvey County to support a high school. Walton District, which is a consolidated district, and which supports the smallest school in the county, is the most able to support a school.
- B. Considerable difference was evident in the effort that these city school districts put forth in maintaining a high school. There was no positive correlation between the ability of the city school districts and the effort they put forth in maintaining their high school.
- C. He found the following facts relative to the annual per pupil costs.
 1. They varied roughly inversely as the size of the school.
 2. Newton, the largest school, had a fairly constant annual teaching cost per pupil throughout the three-year period covered by the study. For the smaller schools there was more variation in the cost.
 3. No relation seemed to exist between the size of the school and the magnitude of the annual per pupil costs.
 4. Exclusive of per pupil annual teaching costs during the three-year period, Newton had a fairly constant per pupil

annual operating cost.

5. The ratio between per pupil annual teaching costs and other per pupil annual operating costs was highest in the smaller schools.
 6. The per cent of the total expenditures spent for teaching was smallest in the larger schools and largest in the smaller schools.
 7. The mean per cent of the total operating costs exclusive of teaching was 22.5.
- D. He made the following conclusions relative to cost factors:
1. Considerable variation was evident from year to year in such cost factors as administration, supervision, teaching, and other current expenses. The largest variation was in the last factor named.
 2. Supervised study in connection with the recitation period was somewhat more expensive than the study-hall plan.
 3. All per pupil costs except operating costs exclusive of teaching, rapidly decreased as the size of the school increased.
 4. There was considerable range in the maximum and minimum subject costs per student-hour for each school.
 5. The variation in the student-hour costs of the same subject in the same school from year to year over the three-year period was in a few cases negligible, whereas, in other subjects the variation was quite pronounced.

6. There was much variation in the average subject costs per student-hour in three schools and some in the other two schools.
7. The difference in the student-hour cost of the same subject in the same year in different schools was in some cases small and in other cases large.
8. The subject costs per student-hour, generally speaking decreased as the size of the school increased.³

Wheat made a study of subject costs in a number of high schools in West Virginia. His conclusions were:

1. "The length of the recitation period is a negligible factor in determining the cost of instruction.
2. "The actual salary paid to teachers is no reliable index of the price which a community is paying for instruction.
3. "The cost per class is a more reliable index of the cost of instruction than is the salary of teachers, although a low cost per class does not necessarily mean that a community is getting instruction at a low rate, and a high cost per class does not necessarily mean that a community is paying a high price for instruction.

3. Wedel, Edward B. "A Study of the Costs of Public Secondary Education in Harvey County, Kansas." A Master's Thesis. University of Kansas.

4. "Of the factors which we have considered, the average size of classes is the most important factor which enters into a determination of the cost of instruction.
5. "The total enrollment of the high school, when it is less than 90 to 100 is an important factor in determining the average size of classes and the cost of instruction; when the enrollment exceeds 90 - 100 it becomes a relatively unimportant factor.
6. "The standard cost of 1,000 student-hours of instruction* set up with the double purpose in view of improving the internal organization and raising the salaries of teachers in the first-class high schools of West Virginia, falls somewhere between \$60 and \$70."⁴

Loomis made a study of the financial aspects of school administration in small and medium sized high schools in Kansas. His study included a large per cent of the high schools in these classes. He found:

1. In many of the small and medium sized high schools the cost per pupil was too high.
2. The mill levy for high school purposes was extremely burdensome in many communities.

*1,000 student hours was considered equivalent to one student attending classes equivalent to 1,000 hours.

4. Wheat, H.G. "Cost of Instruction in High Schools of West Virginia." School Review. Vol. 26, pp. 438-50.

3. The tax burden for support of high schools was distributed very unequally. In this connection, he says: "The attempt to attain a high accredited standing has led many of the smaller schools to make extravagant expenditures."⁵

Henry made a statistical comparison of the student-hour costs of instruction in twenty-two Chicago high schools. He found that the range in 1914-15 in student-hour costs per subject was from 4.02 cents for Music to 56 cents for Greek, or ignoring the latter subject as an extreme, to 16.987 cents for Astronomy. He also found that the class size and teaching load have most to do with the cost of instruction on a clock-hour basis.⁶

It is the purpose of the writer to make a study of unit costs of secondary education in Chautauqua County.

Some of the same factors that have been considered in the foregoing studies will be considered in the present study of unit costs of secondary education in Chautauqua County.

5. Loomis, A.K. "A Study of the Financial Aspects of School Administration in Small and Medium Sized High Schools in Kansas."

6. Ashbaugh, E.J. "High School in Every District Means Too Many Small Schools." *School Life*, Vol. 14, pp. 133-5. March, 1929.

CHAPTER III
DEFINITION OF THE PROBLEM

As a basis from which to proceed with this study the following questions are formulated.

- A. What financial ability does each community have to support its high school?
 1. Is there any great difference in the ability of the communities studied to support a high school?
 2. Does one community tax itself extremely high as compared to other communities which offer much the same type of work?
 3. Does one community furnish a more costly curriculum than do other communities?
- B. What is the annual per pupil teaching cost and the annual per pupil operating cost exclusive of teaching?
 1. For each dollar spent for teaching done in each school, how much is spent for other current expenses?
 2. Is there within each school for the three year period a great variation in the ratio between annual per pupil teaching costs and other annual per pupil operating costs?
 3. Is there great variation in this ratio among the schools during the period of study?
- C. What are department costs on a pupil clock-hour basis?

1. What is the cost in each department per pupil clock-hour for supervision and administration, for teaching and for other operating costs?
2. What department costs most and what one costs least per pupil clock-hour in each school?
3. What is the difference in the per pupil clock-hour cost in given departments in different schools?
4. (a) What are the minimum and the maximum per pupil clock-hour costs for each department?
(b) How does the cost per pupil clock-hour in each department of each school compare with the same cost in the other schools?
5. Is there any connection between size of school and cost per pupil per clock hour?
6. What measures might be suggested for reducing the cost of secondary education in Chautauqua County if such is found to be excessive?

CHAPTER IV
METHOD OF PROCEDURE

As stated in the preceding chapter, certain questions are set up as a basis upon which to make this study. These questions are:

1. What financial ability does each community have to support its school?
2. What is the annual per pupil teaching cost and the annual per pupil operating cost exclusive of teaching?
3. What is the ratio between the annual per pupil teaching cost and the annual per pupil operating cost exclusive of teaching?
4. What are department costs on a pupil clock-hour basis?

Chapter V takes up the first question formulated: "What financial ability does each community have to support its high school?" In answering this question, seven financial factors are considered. These factors are listed at the beginning of the succeeding chapter.

CHAPTER V

THE ABILITY OF EACH COMMUNITY TO SUPPORT A FOUR-YEAR HIGH
SCHOOL

In this chapter a summary is made of the important financial factors which indicate the ability of each community to support its high school. These factors are:

1. Annual assessed valuation of district per pupil in average daily attendance.
2. Annual cost of operation per pupil in average daily attendance.
3. Outstanding warrants per pupil in average daily attendance.
4. Annual appraised value of school buildings and grounds per pupil in average daily attendance.
5. Annual appraised capital outlay per pupil in average daily attendance.
6. Annual transportation costs per pupil in average daily attendance.
7. Annual tax levy.

To show the method used in computing the above factors the computations for Sedan in the school year of 1927-28 are given.

During this year the assessed valuation of Sedan District was \$2,084,006.00 and the average daily attendance was 150.

$\frac{\$2,084,006.00}{150} = \$13,960.04$, the assessed valuation of district per pupil in average daily attendance.

In 1927-28 it cost \$28,000.00 to operate Sedan High School.

Dividing this amount by the number of pupils in attendance we have:

$\frac{\$28,000.00}{150} = \186.66 , which is the total annual cost of operating the school per pupil in average daily attendance.

Sedan had no outstanding warrants at the close of this year.

The value of school property used for high school purposes in Sedan

district during this year was \$60,000.00. $\frac{\$60,000.00}{150 \text{ (No. in attendance)}} =$
 \$400.00, value of school buildings and grounds per pupil in average

daily attendance. The capital outlay for Sedan, used for high school purposes, was \$70,000.00.

$\frac{\$70,000.00}{150 \text{ (No. in attendance)}} = \466.66 , capital outlay per pupil in average daily attendance.

During this school year it cost Sedan a total of \$105.00 to transport high school students to and from school.

$\frac{\$105.00}{150 \text{ (No. in attendance)}} = \0.70 , transportation cost per pupil in average daily attendance.

The tax levy is simply recorded as listed in the reports from which the data are taken. For this year it was 19 mills for Sedan Schools, including both grades and high school.

TABLE I

Summary of the Important Financial Factors for Sedan High School
per Pupil in Average Daily Attendance

<u>Factors</u>	<u>1927-28</u>	<u>1928-29</u>	<u>1929-30</u>
Assessed Valuation of District per Pupil in A. D. A.	\$13960.04	\$14631.45	\$14130.45
Cost of Operation per Pupil in A. D. A.	186.66	176.05	154.77
Outstanding Warrants per Pupil in A. D. A.	0.00	0.00	0.00
Value of School Buildings and Grounds per Pupil in A. D. A.	400.00	422.53	413.79
Capital Outlay per Pupil in A. D. A.	466.66	492.95	433.45
Transportation Costs per Pupil in A. D. A.	.70	.64	.35
Tax Levy ¹	19 mills	17.9 mills	17.1 mills

1. Tax levy is total school levy for grades and high school.

TABLE II

Summary of the Important Financial Factors for Cedar Vale High
School per Pupil in Average Daily Attendance

<u>Factors</u>	<u>1927-28</u>	<u>1928-29</u>	<u>1929-30</u>
Assessed Valuation of District per Pupil in A. D. A.	8185.51	\$8110.73	\$8775.59
Cost of Operation per Pupil in A. D. A.	129.50	142.34	144.00
Outstanding Warrants per Pupil in A. D. A.	0.00	0.00	0.00
Value of School Build- ings and Grounds per Pupil in A. D. A.	467.62	462.41	467.62
Capital Outlay per Pupil in A. D. A.	503.59	496.52	503.59
Transportation Costs per Pupil in A. D. A.	0.00	0.00	0.00
Tax Levy ¹	26 mills	24.4 mills	24.2 mills

1. Tax levy is total school levy for grades and high school.

TABLE III

Summary of the Important Financial Factors for Peru High School
per Pupil in Average Daily Attendance

<u>Factors</u>	<u>1927-28</u>	<u>1928-29</u>	<u>1929-30</u>
Assessed Valuation of District per Pupil in A. D. A.	\$15289.01	\$14413.12	\$9650.06
Cost of Operation per Pupil in A. D. A.	163.93	152.38	137.44
Outstanding Warrants per Pupil in A. D. A.	0.00	0.00	0.00
Value of School Build- ings and Grounds per Pupil in A. D. A.	590.15	571.41	394.80
Capital Outlay per Pupil in A. D. A.	672.11	650.80	420.80
Transportation Costs per Pupil in A. D. A.	.73	.65	.23
Tax Levy ¹	25 mills	25 mills	25.9 mills

1. Tax levy is total school levy for grades and high school.

TABLE IV

Summary of the Important Financial Factors for Chautauqua Rural

High School per pupil in Average Daily Attendance

<u>Factors</u>	<u>1927-28</u>	<u>1928-29</u>	<u>1929-30</u>
Assessed Valuation of District per Pupil in A. D. A.	\$21063.30	\$17233.00	\$18493.00
Cost of Operation per Pupil in A. D. A.	210.46	178.10	206.95
Outstanding Warrants per Pupil in A. D. A.	0.00	0.00	15.32
Value of School Build- ings and Grounds per Pupil in A. D. A.	1101.70	928.57	1065.57
Capital Outlay per Pupil in A. D. A.	1354.23	1142.57	1311.47
Transportation Costs per Pupil in A. D. A.	0.00	0.00	0.00
Tax Levy ¹	13.5 mills (12 mills)	14.4 mills (12.2 mills)	10 mills (16.4 mills)

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1. Chautauqua Rural High School District has a double tax for school purposes. The district schools are maintained separately from the High School. Below the Rural High School levy is given the levy for the grade schools in the City of Chautauqua. Each rural grade district within the rural high school district makes a levy for its school.

TABLE V

Summary of the important Financial Factors for Elgin High School
per Pupil in Average Daily Attendance

<u>Factors</u>	<u>1927-28</u>	<u>1928-29</u>	<u>1929-30</u>
Assessed Valuation of District per Pupil in A. D. A.	\$21369.84	\$14545.04	\$9605.37
Cost of Operation per Pupil in A. D. A.	307.69	256.81	156.30
Outstanding Warrants per Pupil in A. D. A.	0.00	0.00	0.00
Value of School Buildings and Grounds per Pupil in A. D. A.	1174.35	777.77	656.25
Capital Outlay per Pupil in A. D. A.	1559.36	1111.11	937.50
Transportation Costs per Pupil in A. D. A.	32.00	26.17	12.18
Tax Levy ¹	32.8 mills	34.2 mills	43.2 mills

1. Tax levy is total school levy for grades and high school.

TABLE VI

This table shows the comparative assessed valuations of districts per pupil in average daily attendance, over the period of three years covered by the study.

<u>High School</u>	<u>1927-28</u>	<u>1928-29</u>	<u>1929-30</u>
Sedan	\$13960.04	\$14631.45	\$14130.45
Cedar Vale	8185.51	8110.73	8775.59
Peru	15289.01	14413.12	9650.06
Chautauqua	21063.30	17233.00	18493.00
Elgin	21369.84	14545.04	9605.37

In 1927-28 Elgin has the highest assessed valuation per pupil in average daily attendance, Chautauqua ranks second, Peru third, Sedan fourth, and Cedar Vale fifth.

In 1928-29 Chautauqua ranks first, Sedan second, Elgin third, Peru fourth, and Cedar Vale fifth.

In 1929-30 Chautauqua ranks first, Sedan second, Peru third, Elgin fourth, and Cedar Vale fifth.

TABLE VII

This table shows the comparative annual costs of operation per pupil in average daily attendance, over the period of three years covered by the study.

<u>High School</u>	<u>1927-28</u>	<u>1928-29</u>	<u>1929-30</u>
Sedan	\$186.66	\$176.05	\$154.77
Cedar Vale	129.50	142.34	144.00
Peru	163.93	152.38	137.44
Chautauqua	210.46	178.10	206.95
Elgin	307.69	256.81	156.30

In 1927-28 Elgin spends most for operating her high school per pupil in average daily attendance, Chautauqua, Sedan, Peru, and Cedar Vale spending diminishing amounts per pupil in the order named.

In 1928-29 the order is: Elgin, Chautauqua, Sedan, Peru, Cedar Vale; beginning with the school spending the greatest amount.

In 1929-30 Chautauqua spends most followed in order of the amounts spent by Elgin, Sedan, Cedar Vale, and Peru.

TABLE VIII

This table shows a comparison of the amounts of outstanding warrants per pupil in average daily attendance, over the period of three years covered by the study.

<u>High School</u>	<u>1927-28</u>	<u>1928-29</u>	<u>1929-30</u>
Sedan	\$0.00	\$0.00	\$0.00
Cedar Vale	0.00	0.00	0.00
Peru	0.00	0.00	0.00
Chautauqua	0.00	0.00	15.32
Elgin	0.00	0.00	0.00

The only outstanding warrants are those of Chautauqua issued in 1929-30.

TABLE IX

This table shows a comparison of the values of school properties per pupil in average daily attendance, over the three years covered by the study.

<u>High School</u>	<u>1927-28</u>	<u>1928-29</u>	<u>1929-30</u>
Sedan	\$400.00	\$422.53	\$413.79
Cedar Vale	467.62	462.41	467.62
Peru	590.15	571.41	394.80
Chautauqua	1101.70	928.57	1065.57
Elgin	1174.35	777.77	656.25

Elgin in 1927-28 has the most school property per pupil in average daily attendance, followed by Chautauqua, Peru, Cedar Vale, and Sedan with diminishing amounts in the order named.

In 1928-29 the order is Chautauqua, Elgin, Peru, Cedar Vale, and Sedan.

In 1929-30 the order is Chautauqua, Elgin, Cedar Vale, Sedan, and Peru.

TABLE X

This table shows a comparison of the capital outlays per pupil in average daily attendance, over the three-year period covered by the study.

<u>High School</u>	<u>1927-28</u>	<u>1928-29</u>	<u>1929-30</u>
Sedan	\$466.66	\$492.95	\$433.45
Cedar Vale	503.59	496.52	503.59
Peru	672.11	650.80	420.80
Chautauqua	1354.23	1142.57	1311.47
Elgin	1559.35	1111.11	937.50

In 1927-28 Elgin has the most Capital outlay per pupil in average daily attendance followed by Chautauqua, Peru, Cedar Vale, and Sedan with diminishing amounts in the order named.

In 1928-29 the order is Chautauqua, Elgin, Peru, Cedar Vale and Sedan.

In 1929-30 the order is Chautauqua, Elgin, Cedar Vale, Sedan, and Peru.

TABLE XI

This table shows a comparison of the annual transportation costs per pupil in average daily attendance, over the three year period of the study.

<u>High School</u>	<u>1927-28</u>	<u>1928-29</u>	<u>1929-30</u>
Sedan	\$0.70	\$0.64	\$0.35
Cedar Vale	0.00	0.00	0.00
Peru	0.73	0.65	0.23
Chautauqua	0.00	0.00	0.00
Elgin	32.00	26.17	12.18

Sedan and Peru each pay a few pupils to transport themselves. This is in accordance with an agreement made when a rural district was disbanded and added to the city district in each case. Elgin transports pupils by means of a school bus.

TABLE XII

This table shows a comparison of the tax levies over the three year period of the study.

<u>High School</u>	<u>1927-28</u>	<u>1928-29</u>	<u>1929-30</u>
	Mills	Mills	Mills
Sedan	19.0	17.9	17.1
Cedar Vale	26.0	24.4	24.9
Peru	25.0	25.0	25.9
Chautauqua	13.5 (12)	14.4 (14.2)	10.0 (16.4)
Elgin	32.8	34.2	43.2

The tax levy for school purposes is highest for Elgin during all three years of the study. There is also an increase of over 10% in Elgin's levy during the three years covered by the study. The other levies remain fairly constant growing slightly less for the other schools during the three years covered, with the exception of Peru's which increased .9 of a mill the last year of the study.

A more thorough summary and analysis of the ability of each community to support its school is made in the final chapter of this study. The following chapter takes up for study and consideration, the ratio between the cost of instruction and other operating costs in each of the five high schools for each of the three years studied.

CHAPTER VI

THE RATIO OF ALL OTHER OPERATING COSTS TO THE COST OF
INSTRUCTION

As mentioned in Chapter IV, the second question considered in this study is: What is the annual per pupil teaching cost and the annual per pupil operating cost exclusive of teaching for each school?

The third question considered is: What is the ratio of all other annual costs per pupil in average daily attendance to the cost of teaching per pupil in average daily attendance?

The method used to study the items listed above is outlined below. One concrete example taken from the data of the study is also computed in order to make the steps of the method more clear.

The aggregate amount paid each year for teachers' salaries* in the high school is divided by the number of pupils in average daily attendance. This gives the annual cost of teaching per pupil. The aggregate amount of other operating cost exclusive of teaching is likewise divided by the number of pupils in average daily attendance. This gives the annual operating cost exclusive of teaching per pupil. To arrive at the ratio between these two sums, the annual teaching cost per pupil is divided into the annual operating cost per pupil exclusive of teaching. This ratio may be interpreted as the amount spent for other operating cost for each dollar spent for teaching.

*Principal's and superintendent's teaching time is computed at the rate of the highest paid classroom teacher in the school.

As a concrete example, Sedan during the school year of 1927-28 spent \$15,500 for teaching. There were 150 pupils in average daily attendance. Dividing \$15,500 by 150 gives \$103.33 which is the annual cost of teaching per pupil. During the same year Sedan spent \$12,500 for operating costs other than teaching. Dividing \$12,500 by 150 gives \$83.33 which is the annual operating cost exclusive of teaching per pupil. Dividing 83.33 by 103.33 gives .8064 which is the ratio between the teaching costs and other operating costs.

TABLE XIII

Annual cost of Teaching per Pupil and Other Annual Costs per Pupil in Average Daily Attendance, with Their Ratios,
Sedan High School

<u>Year</u>	<u>Annual cost of Teaching per Pupil in A.D.A.</u>	<u>Other Annual Costs per Pupil in A.D.A.</u>	<u>Ratio</u>
1927-28	\$103.33	\$83.33	.8064
1928-29	93.24	82.81	.8882
1929-30	100.55	54.22	.5392

The ratio of all other costs per pupil in average daily attendance to annual cost of teaching per pupil in average daily attendance. This large ratio is explained in part by the fact that rather extensive repairs were made at the Sedan High School during the first two years of this study. The annual teaching cost per pupil is fairly constant over the period of the study.

TABLE XIV

Annual Cost of Teaching per Pupil and Other Annual Costs per Pupil
in Average Daily Attendance, with Their Ratios

Cedar Vale High School

<u>Year</u>	<u>Annual Cost of Teaching per Pupil in A.D.A.</u>	<u>Other Annual Costs per Pupil in A.D.A.</u>	<u>Ratio</u>
1927-28	\$95.70	\$33.80	.3532
1928-29	87.23	55.11	.6318
1929-30	105.31	38.69	.3674

The ratio between the annual cost of teaching per pupil in average daily attendance and other annual costs per pupil in average daily attendance is not as large for Cedar Vale High School as it is for Sedan High School. There is some variation in the annual teaching cost per pupil and in the other costs per pupil. During the second year of the study the annual teaching cost per pupil decreased while the other annual costs per pupil increased. There was an increase in average daily attendance in this year of only two over the previous year. This indicates that the variation in these items is due to a decrease in the amount spent for teachers' salaries and an increase in the amount spent for other items of operation.

TABLE XV

Annual Cost of Teaching per Pupil and Other Annual Costs per Pupil attendance, with their Ratios.

Peru High School

<u>Year</u>	<u>Annual Cost of Teaching per Pupil in A.D.A.</u>	<u>Other Annual Costs per Pupil in A.D.A.</u>	<u>Ratio</u>
1927-28	\$113.77	\$50.16	.4409
1928-29	117.54	34.84	.2113
1929-30	104.81	32.63	.3113

The ratio between the annual cost of teaching per pupil in average daily attendance and other annual costs per pupil in average daily attendance is smaller, as a whole for Peru High School than it is for either Sedan or Cedar Vale High School. Peru's annual teaching cost per pupil is some higher than Sedan's or Cedar Vale's, but her other annual costs per pupil are lower than Sedan's and about the same as Cedar Vale's.

TABLE XVI

Annual Cost of Teaching per Pupil and Other Annual Costs per Pupil in Average Daily Attendance, with Their Ratios.

Chautauqua High School

<u>Year</u>	<u>Annual Cost of Teaching per Pupil in A.D.A.</u>	<u>Other Annual Costs per Pupil in A.D.A.</u>	<u>Ratio</u>
1927-28	\$119.79	\$90.67	.7569
1928-29	106.99	71.11	.6646
1929-30	133.08	73.87	.5558

The ratio between the annual cost of teaching per pupil in average daily attendance and other annual costs per pupil in average daily attendance is slightly smaller for Chautauqua High School than for Sedan High School, but is greater than the same ratio for Cedar Vale or Peru High School. The annual teaching cost per pupil in average daily attendance is about the same for Chautauqua as it is for Peru, while other annual costs per pupil are considerably larger than either Cedar Vale's or Peru's.

TABLE XVII

Annual Cost of Teaching per Pupil and Other Annual Costs per Pupil in Average Daily Attendance, with Their Ratios.

Elgin High School

<u>Year</u>	<u>Annual Cost of Teaching per Pupil in A.D.A.</u>	<u>Other Annual Costs per Pupil in A.D.A.</u>	<u>Ratio</u>
1927-28	\$197.82	\$109.87	.5605
1928-29	143.66	113.15	.7905
1929-30	117.05	39.25	.3353

The ratio between the annual cost of teaching per pupil in average daily attendance and other annual costs per pupil in average daily attendance for Elgin High School is about the same as that for Chautauqua High School with the exception of the last study year. A drop in the ratio here is explained by the fact that many bills were left unpaid at the close of the school year of 1929-30 with no records of their amounts. The small amount of money paid for operating costs

exclusive of teaching does not then represent a saving to Elgin since many bills incurred during this year will yet have to be paid. The annual teaching cost per pupil in average daily attendance is higher for Elgin in every case for each year of the study save 1929-30 when Chautauqua's is greater.

TABLE XVIII

Summary of the Ratios of all Other Annual Operating Costs per Pupil to the Annual Cost of Teaching per Pupil with Their Averages.

<u>Year</u>	<u>Sedan</u>	<u>Cedar Vale</u>	<u>Peru</u>	<u>Elgin</u>	<u>Chautauqua</u>
1927-28	.8064	.3532	.4409	.5605	.7569
1928-29	.8882	.6318	.2113	.7905	.6646
1929-30	.5392	.3674	.3113	.3353	.5558
Average	.7669	.4508	.3212	.5621	.6591

It may be seen that the school averages of the ratio between annual cost of teaching per pupil in average daily attendance and other annual operating costs per pupil in average daily attendance for the period covered by the study rank in the following order beginning with the smallest ratio: 1. Peru 2. Cedar Vale 3. Elgin 4. Chautauqua and 5. Sedan. On an average taken over the period covered by the study Peru spent 32.12 cents for operating costs exclusive of teaching to each dollar spent for teaching while Cedar Vale spent 45.08 cents, Elgin 56.21 cents, Chautauqua 65.91 cents, and Sedan 76.69 cents.

TABLE XIX

Summary of the Annual Costs of Teaching per Pupil in Average Daily Attendance, with Their Averages

<u>Year</u>	<u>Sedan</u>	<u>Cedar Vale</u>	<u>Peru</u>	<u>Elgin</u>	<u>Chautauqua</u>
1927-28	\$103.33	\$95.70	\$113.77	\$197.82	\$119.79
1928-29	93.24	87.23	117.54	143.66	106.99
1929-30	100.55	105.31	104.81	117.05	133.08
Average	99.04	96.08	112.04	152.84	119.95

It may be seen that the school averages of the costs of teaching per pupil in average daily attendance for the period of the study; rank in the following order, beginning with the smallest:

1. Cedar Vale, 2. Sedan, 3. Peru, 4. Chautauqua, and 5. Elgin.

TABLE XX

Summary of the Annual Operating Costs Exclusive of Teaching Per Pupil, With Their Averages.

<u>Year</u>	<u>Sedan</u>	<u>Cedar Vale</u>	<u>Peru</u>	<u>Elgin</u>	<u>Chautauqua</u>
1927-28	\$83.33	\$33.80	\$50.16	\$109.87	\$90.67
1928-29	82.81	55.11	34.84	113.15	71.11
1929-30	54.22	38.69	32.63	39.25	73.87
Averages	73.45	42.53	39.36	87.42	78.55

Table XXI shows the school averages of the annual operating costs exclusive of teaching per pupil in average daily attendance for the three year period of the study. The schools rank as follows, beginning with the school with the smallest average: 1. Peru, 2. Cedar Vale, 3. Sedan, 4. Chautauqua, and 5. Elgin.

A more thorough summary and analysis of these ratios between teaching costs and other operating costs is made in the final chapter of this study. The following chapter takes up for study and consideration, the cost in each department per pupil per clock hour. This cost is considered for ten departments in each high school for each year covered by the study. Ten departments were considered because they were all included in each of the high schools' curriculums studied for at least part of the period covered by the study.

CHAPTER VII

DEPARTMENT COSTS PER PUPIL PER CLOCK-HOUR

In considering the cost per pupil per clock-hour of the several departments, the following important factors were taken into consideration:

1. The time the superintendent or the high school principal devotes to the administration and supervision of the high school.
2. The salaries the high school principal and superintendent receive.
3. The salary paid each teacher and the number of high school classes he teaches.
4. The current expenses of the school, excluding salaries paid to teachers and supervisors. This includes amounts paid for fuel, janitor service and supplies, repairs, and all other incidental expenditures.

To explain how the amounts of each factor were determined, the procedure used is briefly outlined.

The first factor is the cost of administration and supervision. The only supervisors employed in any of the high schools of Chautauqua County are the superintendent of schools and the high school principal. In all cases in the county both do some classroom teaching. It is necessary to arrive at a method to determine how much of the salaries of these school administrators shall be charged

to high school supervision and how much to teaching. Each superintendent or principal teaches some classes, and his pay as a teacher must be deducted from his salary as an administrator and supervisor. This teaching time is not based upon his salary but upon the salary of the highest paid teacher in the high school.

The superintendents of the small schools in Chautauqua County teach practically full time, and it is therefore necessary for them to do much of the work of the administration of their schools outside of school hours. The writer feels justified, for this reason, in charging for their teaching service at the rate of the highest paid teacher, in order that there be a part of their salary left to charge to this administration that is done outside of the regular school day. The cost of his teaching time is thus computed and deducted from his annual salary. The remainder of his salary is divided between the cost of administration and supervision in the elementary school and in the high school. This division of administration and supervision costs is made upon the basis of each superintendent's statement as to the portion of his time devoted to the administration and supervision in the elementary school and in the high school. This division of administration and supervision costs is made upon the basis of each superintendent's statement as to the portion of his time devoted to the administration and supervision of each school in his system. After the value of his time devoted to high school administration and supervision is determined, this is divided by one hundred-eighty to get the cost of administration and supervision per day; and this in turn is divided by the number of classes taught per day to get the cost of administration and supervision

per class hour. In some of the schools in Chautauqua County, the length of class period is forty minutes, while in others it is a full hour. If the length of period is forty minutes, to get the cost of a clock hour basis, it is necessary to multiply by the fraction three over two. The cost per clock-hour is then divided by the number of pupils in each class to get the cost per pupil per clock-hour.

To make the procedure more clear, the following example is given. For the school year of 1927-28 the salary of the superintendent of the Cedar Vale schools was \$2,150.00. He taught three one-hour classes. There were six one-hour classes during the school day. This would mean that he devoted one-half of his time to teaching and one half to administration and supervision. His teaching time cost is computed on the basis of the salary of the highest paid classroom teacher in the school. The highest paid teacher received \$185.00 per school month. One half of this amount is \$92.50, which is the salary per school month the superintendent is paid for teaching. This is multiplied by nine, giving \$832.50 which is subtracted from his annual salary of \$2150.00. This leaves a remainder to be charged to administration and supervision of \$1317.50. Since this superintendent reports that his administration and supervision time was divided about equally between grade school and high school, we divide this amount by two which gives us \$658.75 as the cost to the high school of Cedar Vale for the superintendent's time as administrator and supervisor for the school year of 1927-28.

After the value of the teaching time of the high school principal is computed in the same manner, and this amount is subtracted from his annual salary, we find that we must charge \$688.40 of his salary to

administration and supervision. Adding the cost for the year of these two (\$658.75 for the superintendent and \$688.40 for the principal) we have \$1347.15 for the total cost of administration and supervision of the Cedar Vale High School for the school year of 1927-28. Dividing this amount by 180 gives \$7.48 per day as the cost of administration and supervision. There were forty classes taught in the Cedar Vale High School during this school year, so we divide \$7.48 by 40 which gives us \$0.187 per class as the cost of supervision and administration.

To get the cost per pupil per clock-hour for each department the following procedure is used. During this particular year the manual training department with a total enrollment of forty students offered work in four classes. These classes were one hour in length. We multiply \$0.187 by 4 which gives us \$.748 and dividing this by forty gives us \$.0187 as the final cost per clock hour per pupil for supervision and administration in the manual training department.

The cost of teaching per pupil per clock-hour is found as follows: Divide the monthly salary of the teacher teaching a subject by 20 the number of days in a school month, to get the daily cost of his teaching. This is divided by the number of classes he teaches daily to get the cost per class. This is multiplied by 60 over the length of the class periods in minutes to get the cost of teaching per clock-hour.

If two or more teachers are found in a department, the clock-hour cost of the time of each is multiplied by the number of classes each teaches in the department and the sum taken. This is then divided by the number of pupils in the department to get the cost to

a department clock-hour basis per pupil. The method is demonstrated by using for a concrete example the Home Economics Department of Sedan High School for the year 1928-29. There is one teacher teaching four one hour periods in the Home Economics Department during this year in the Sedan High School. She also teaches one class in English and one class in the junior high, making six one-hour classes her daily teaching load. This teacher receives \$160.00 per month, which when divided by 20, gives \$8.00 per day, which is turn divided by 6 gives \$1.3333 per clock-hour. $\frac{\$1.3333 \times 4 \text{ (number of classes per day)}}{51}$ gives \$0.1044 the cost of teaching in the Home Economics Department per clock-hour per pupil in average daily attendance.

All other operating costs per pupil per clock hour is found by taking the total amount as given in the Superintendent's Annual Report, expended for the operating of his high school. From this amount is subtracted the aggregate of the teachers' salaries for the school year plus the amount previously determined for administration and supervision by the superintendent and the high school principal. This amount is divided by 180 to give the amount of current expense per day, and this in turn is divided by the number of classes meeting each day in the particular school being studied. If the class periods are forty minutes in length, the final result is multiplied by three over two to get the cost on a clock-hour basis.

To make the procedure clear, we will use for an example, the case of Sedan High School for the school year of 1928-29.

The cost of supervision (computed by the method previously outlined) was found to be \$1120.00 for the superintendent and \$1170.00

for the high school principal. The sum of these two amounts gives as the total cost of supervision for the year being considered \$2290.00. The superintendent's annual report gives the total cost of operation of the school for the year as \$25,000.00. The cost of teaching is found to be \$13,340.00. \$25,000.00 minus (\$13,340.00 for teaching, plus \$2290.00 for supervision) leaves an expenditure of \$9,370.00 for current expense. There were forty-five classes taught each day in Sedan High School during this year.

$$\frac{\$9,370 \text{ (total current expense excluding teaching)}}{180 \text{ (number of days in school year)} \times 45 \text{ (number of classes)}}$$

equals \$1.0457, cost of other operating costs per class hour, which in this case is also the clock-hour cost.

To find the cost per department per pupil per clock-hour, the following procedure is used. \$1.0457 is multiplied by the number of classes or sections in the department and which meet each day. If a class meets other than five days a week, we multiply the above result by the number of times it does meet each week over five. We then divide by the total number of pupils in the department to arrive at the final cost per pupil per clock hour per department.

This method is demonstrated by again using the Home Economics Department of the Sedan High School. During the school year in question (1928-29) there were four Home Economics classes meeting one hour each day five days a week. The cost of other operating expenses (exclusive of administration, supervision, and teaching) is \$1.0457 per clock-hour as previously shown. Multiplying \$1.0457 by 4 (the number of hours Home Economics classes meet) gives \$4.1828. Dividing this by 51,

which is the number enrolled in this department during this year, gives \$0.0820 as the cost of operating (exclusive of administration, supervision, and teaching) per pupil, in the Home Economics Department of Sedan High School for the school year of 1928-29.

TABLE XXI

Cost per Department per Pupil Clock Hour. Sedan High School.
for the School Year of 1927-28.

<u>Department</u>	<u>Administration and Supervision Costs</u>	<u>Teaching Cost</u>	<u>All Other Operating Costs</u>	<u>Total</u>
Manual Arts	\$0.0310	\$0.1805	\$0.0434	\$0.2549
Home Econ.	0.0230	0.1143	0.1050	.2423
Science	0.0146	0.0766	0.0668	.1580
History	0.0131	0.0654	0.0596	.1381
Social Sci.	0.0160	0.0764	0.0723	.1647
Mathematics	0.0154	0.0766	0.0824	.1744
English	0.0120	0.0582	0.0534	.1236
Languages	0.0160	0.0775	0.0735	.1670
Commercial	0.0183	0.0912	0.1037	.2137
Music	0.0106	0.0666	0.0490	.1262

TABLE XXII

Cost per Department per Pupil Clock-Hour. Sedan High School
for the School Year of 1928-29.

<u>Department</u>	<u>Administration and Supervision Costs</u>	<u>Teaching Cost</u>	<u>All Other Operating Costs</u>	<u>Total</u>
Manual Arts	\$.0305	\$.1810	\$.1130	\$.3245
Home Economics	.0222	.1044	.0820	.1086
Science	.0130	.0898	.0484	.1508
History	.0157	.0890	.0581	.1628
Social Sc.	.0122	.0825	.0451	.1398
Mathematics	.0163	.0673	.0603	.1439
English	.0144	.0701	.0534	.1379
Languages	.0471	.2500	.1743	.4714
Commercial	.0193	.1178	.0716	.2087
Music	.0116	.0855	.0443	.1414

TABLE XXIII

Cost per Department per Pupil Clock-Hour. Sedan High School
for the School Year of 1929-30

<u>Department</u>	<u>Administration and Supervision Costs</u>	<u>Teaching Cost</u>	<u>All Other Operating Costs</u>	<u>Total</u>
Manual Arts	\$.0301	\$.1217	\$.0971	\$.2489
Home Econ.	.0226	.1200	.0728	.2154
Science	.0138	.0883	.0444	.1465
History	.0161	.0713	.0520	.1394
Social Sci.	.0121	.0640	.0391	.1152
Mathematics	.0287	.1492	.0924	.2703
English	.0155	.0706	.0499	.1360
Languages	.0188	.0938	.0607	.1733
Commercial	.0182	.0904	.0585	.1671
Music	.0100	.0667	.0303	.1070

TABLE XXIV

Cost per Department per Pupil Clock-Hour. Cedar Vale High
School for the School Year of 1927-28

<u>Department</u>	<u>Administration and Supervision Costs</u>	<u>Teaching Cost</u>	<u>All Other Operating Costs</u>	<u>Total</u>
Manual Arts	\$.0187	\$.1586	\$.0833	\$.2606
Home Ec.	.0153	.1085	.0680	.1918
Science	.0085	.0844	.0379	.1308
History	.0094	.0664	.0417	.1175
Social Sci.	.0099	.0762	.0443	.1304
Mathematics	.0085	.0841	.0379	.1305
English	.0105	.0869	.0467	.1441
Languages	.0234	.1661	.1042	.2937
Commercial	.0086	.0685	.0429	.1200
Music	.0170	.1455	.0758	.2383

TABLE XXV

Cost per Department per Pupil Clock-Hour. Cedar Vale High
School for the School Year 1928-29.

<u>Department</u>	<u>Administration and Supervision Costs</u>	<u>Teaching Cost</u>	<u>All Other Operating Costs</u>	<u>Total</u>
Manual Arts	\$.0278	\$.1960	\$.0984	\$.3222
Home Ec.	.0174	.0935	.0615	.1724
Science	.0133	.0781	.0472	.1386
History	.0119	.0670	.0420	.1209
Social Sci.	.0129	.0818	.0458	.1405
Mathematics	.0103	.0763	.0365	.1231
English	.0123	.0600	.0437	.1160
Languages	.0232	.2286	.0820	.3338
Commercial	.0121	.0693	.0430	.1244
Music	.0203	.1090	.0718	.2011

TABLE XXVI

Cost per Department per Pupil Clock-Hour. Cedar-Vale High
School for the School Year of 1929-30.

<u>Department</u>	<u>Administration and Supervision Costs</u>	<u>Teaching Cost</u>	<u>All Other Operating Costs</u>	<u>Total</u>
Mamial Arts	\$.0215	\$.1720	\$.0532	\$.2467
Home Ec.	.0219	.1349	.0543	.2111
Science	.0145	.1071	.0359	.1575
History	.0127	.0865	.0313	.1305
Social Sci.	.0134	.0938	.0322	.1394
Mathematics	.0094	.0689	.0231	.1014
English	.0118	.0746	.0301	.1165
Languages	.0172	.1029	.0426	.1627
Commercial	.0099	.0655	.0245	.1000
Music	.0107	.0643	.0266	.1016

TABLE XXVII

Cost per Department per Pupil Clock-Hour. Peru High School
for the School Year of 1927-28.

<u>Department</u>	<u>Administration and Supervision Costs</u>	<u>Teaching Cost</u>	<u>All Other Operating Costs</u>	<u>Total</u>
Manual Arts*				
Home Economics	\$.0278	\$.2125	\$.0696	\$.5099
Science	.0145	.1545	.0563	.2053
History $\frac{1}{2}$.0200	.2125	.0500	.2825
Social Sci.	.0114	.1062	.0286	.1462
Mathematics	.0112	.0791	.0280	.1183
English	.0110	.1172	.0276	.1558
Languages	.0200	.2125	.0500	.2825
Commercial	.0228	.2143	.0571	.2942
Music*				

*Manual Arts and Music were not offered in Peru High School in the school year of 1927-28.

TABLE XXVIII

Cost per Department per Pupil Clock-Hour. Peru High School
for the School Year of 1928-29.

<u>Department</u>	<u>Administration and Supervision Costs</u>	<u>Teaching Cost</u>	<u>All Other Operating Costs</u>	<u>Total</u>
Manual Arts	\$.0238	\$.2209	\$.0763	\$.3210
Home Ec.	.0184	.2273	.0550	.3007
Science	.0088	.1087	.0282	.1457
History	.0041	.0510	.0133	.0684
Social Sci.	.0088	.0962	.0280	.1330
Mathematics	.0192	.0962	.0309	.1463
English	.0092	.0945	.0299	.1336
Languages	.0112	.1378	.0361	.1851
Commercial	.0112	.1389	.0361	.1851
Music	.0146	.1832	.0468	.2446

TABLE XXIX

Cost per Department per Pupil Clock-Hour. Peru High School
for the School Year of 1929-30.

<u>Department</u>	<u>Administration and Supervision Costs</u>	<u>Teaching Cost</u>	<u>All Other Operating Costs</u>	<u>Total</u>
Manual Arts	\$.0123	\$.1528	\$.0264	\$.1915
Home Ec.	.0163	.1786	.0337	.2286
Science	.0046	.0561	.0093	.0700
History	.0059	.0660	.0124	.0843
Social Sci.	.0043	.0700	.0098	.0841
Mathematics	.0059	.0789	.0125	.0973
English	\$.0053	.0641	.0121	.0820
Languages*				
Commercial	.0110	.1210	.0229	.1549
Music	.0076	.1000	.0157	.1233

*No language was offered in Peru High School in the school year of 1929-30.

TABLE XXX

Cost per Department per Pupil Clock-Hour. Elgin High School
for the School Year of 1927-28.

<u>Department</u>	<u>Administration and Supervision Costs</u>	<u>Teaching Cost</u>	<u>All Other Operating Costs</u>	<u>Total</u>
Manual Arts	\$.0491	\$.5159	\$.1675	\$.7325
Home Ec.	.0456	.3600	.1554	.5610
Science	.0278	.1516	.0940	.2734
History	.0174	.0917	.0596	.1687
Social Sci.	.0202	.1270	.0687	.2159
Mathematics	.0328	.2062	.1117	.3507
English	.0148	.2063	.0506	.2717
Languages	.0655	.4125	.2244	.7024
Commercial	.0363	.2125	.1339	.3827
Music	.0524	.2700	.1757	.4981

TABLE XXXI

Cost per Department per Pupil Clock-Hour. Elgin High School
for the School Year of 1928-29.

<u>Department</u>	<u>Administration and Supervision Costs</u>	<u>Teaching Cost</u>	<u>All Other Operating Costs</u>	<u>Total</u>
Manual Arts	\$.0214	\$.5000	\$.2923	\$.8137
Home Ec.	.0163	.2963	.2227	.5353
Science	.0044	.1282	.0584	.1910
History	.0088	.1867	.1169	.3124
Social Sci.	.0053	.0855	.0719	.1627
Mathematics	.0088	.1667	.1169	.2924
English	.0069	.1452	.0913	.2414
Languages	.0088	.1833	.1169	.3090
Commercial	.0143	.2200	.1895	.4239
Music	.0118	.2221	.1560	.3899

TABLE XXXII

Cost per Department per Pupil Clock-Hour. Elgin High
School for the School Year of 1929-30

<u>Department</u>	<u>Administration and Supervision Costs</u>	<u>Teaching Costs</u>	<u>All Other Operating Costs</u>	<u>Total</u>
Mamial Arts	\$.0148	\$.2897	\$.0884	\$.3929
Home Ec.	.0122	.2961	.0726	.3809
Science	.0046	.1190	.0272	.1508
History	.0083	.1667	.0508	.2261
Social Sci.	.0038	.0724	.0221	.0983
Mathematics	.0132	.1281	.0782	.2195
English	.0064	.0994	.0380	.1438
Languages	.0107	.1582	.0635	.2304
Commercial	.0103	.1833	.0611	.2547
Music	.0134	.2400	.0794	.3328

TABLE XXXIII

Cost per Department per Pupil Clock-Hour. Chautauqua Rural
High School for the School Year of 1927-28

<u>Department</u>	<u>Administration and Supervision Costs</u>	<u>Teaching Cost</u>	<u>All Other Operating Costs</u>	<u>Total</u>
Manual Arts	\$.0290	\$.4348	\$.1092	\$.5730
Home Ec.	.0404	.3030	.1520	.4954
Science	.0160	.1429	.0598	.2187
History	.0194	.0735	.0364	.1293
Social Sci.	.0118	.0734	.0440	.1292
Mathematics	.0296	.2666	.1118	.4080
English	.0166	.1250	.0622	.2038
Languages*				
Commercial	.0218	.1960	.0814	.2992
Music	.0296	.2221	.1120	.3637

*No language was offered in Chautauqua Rural High School in the school year of 1927-28.

TABLE XXXIV

Cost per Department per Pupil Clock-Hour. Chautauqua Rural
High School for the School Year of 1928-29.

<u>Department</u>	<u>Administration and Supervision Costs</u>	<u>Teaching Cost</u>	<u>All Other Operating Costs</u>	<u>Total</u>
Manual Arts	\$.0263	\$.2834	\$.1477	\$.4574
Home Ec.	.0366	.3744	.2055	.6165
Science	.0124	.0812	.0622	.1558
History	.0157	.0956	.0788	.1901
Social Sci.	.0131	.1147	.0657	.1935
Mathematics	.0194	.1713	.0985	.2892
English	.0163	.1201	.0825	.2189
Languages*				
Commercial	.0471	.3375	.2364	.6210
Music	.0230	.1886	.1130	.3246

*No language was offered in Chautauqua Rural High School in the school year of 1928-29.

TABLE XXXV

Cost per Department per Pupil Clock-Hour. Chautauqua Rural
High School for the School Year of 1929-30.

<u>Department</u>	<u>Administration and Supervision Cost</u>	<u>Teaching Cost</u>	<u>All Other Operating Costs</u>	<u>Total</u>
Mammal Arts	\$.1000	\$.7777	\$.4184	\$1.2961
Home Ec.	.1250	.8333	.5230	1.4813
Science	.0125	.1048	.0523	.1696
History	.0139	.1081	.0581	.1801
Social Sci.	.0358	.2772	.1490	.4620
Mathematics	.0217	.1686	.0910	.2813
English	.0179	.1339	.0747	.2315
Languages				
Commercial	.0250	.1733	.1046	.3029
Music	.0280	.2152	.1160	.3592

*No language was offered in Chautauqua Rural High School during the school year of 1929-30.

Tables XXI to XXXV on the preceding pages show the cost of each department in each high school for each of the three years included in the study. In all the schools, with, in a few cases, the exception of languages, vocational departments are the most expensive on a per pupil clock-hour basis. This high cost is due to the small enrollment and expensive materials used in these departments. Considerable fluctuation exists in per pupil clock-hour costs within the same department in the same school from year to year. This fluctuation exists in all the schools. As an example, the cost of languages increased from 16.7 cents per pupil per clock-hour in Sedan High School in 1927-28 to 47.14 cents in 1928-29. The cost for the same department in Cedar Vale High School dropped from 33.38 cents in 1928-29 to 16.27 cents in 1929-30. These fluctuations are due to the rather great variation in class enrollment in this department from year to year. It may be noted from the tables that such fluctuations do not exist in departments whose courses are required, and that they are much greater in the smaller schools than in the larger schools. The per pupil load varies more from year to year in the small schools than in the larger schools. This explains why there is so much variation in the cost of a department from one year to the next on a per pupil clock-hour basis. "Of the factors which determine the cost of instruction the pupil-hour load of a teacher is the most important one," says an editorial in the School Review for January, 1925.

We have thus far made a study of the cost per department per pupil clock-hour. We shall next make a comparison of department

costs per pupil per clock-hour in each of the five high schools for each year. These comparisons are shown in tables XXXVI, XXXVII, and XXXVIII on the following pages.

TABLE CXXVI

Comparison of Department Costs per Pupil per Clock-hour in the
Five High Schools - 1927-28.

<u>Department</u>	<u>Sedan</u>	<u>Cedar Vale</u>	<u>Peru</u>	<u>Elgin</u>	<u>Chautauqua</u>	<u>Average</u>
Manual Arts	\$.2549	\$.2606		\$.7325	\$.5730	\$.4553
Home Ec.	.2423	.1918	.3099	.5610	.4954	.3601
Science	.1580	.1308	.2053	.2734	.2187	.1972
History	.1381	.1175	.2825	.1687	.1293	.1672
Social Sci.	.1647	.1304	.1462	.2159	.1292	.1573
Mathematics	.1744	.1305	.1183	.3507	.4080	.2904
English	.1236	.1441	.1558	.2717	.2038	.1798
Languages	.1670	.2937	.2825	.7024		.3614
Commercial	.2137	.1200	.2942	.3827	.2992	.2620
Music	.1262	.2383		.4981	.3637	.3066
Average	.1763	.1753	.2243	.4157	.3133	

TABLE XXVII

Comparison of Department Costs per Pupil per Clock-hour in the Five
High Schools 1928-29.

<u>Department</u>	<u>Sedan</u>	<u>Cedar Vale</u>	<u>Peru</u>	<u>Elgin</u>	<u>Chautauqua</u>	<u>Average</u>
Manual Arts	\$.3245	\$.3222	\$.3210	\$.8137	\$.4574	\$.4478
Home Ec.	.2086	.1724	.3007	.5353	.6165	.3485
Science	.1508	.1386	.1451	.1910	.1558	.1564
History	.1628	.1209	.0684	.3124	.1901	.1709
Social Sci.	.1398	.1405	.1330	.1627	.1935	.1359
Mathematics	.1439	.1231	.1463	.2924	.2892	.1990
English	.1379	.1160	.1336	.2414	.2189	.1696
Languages	.4714	.3338	.1851	.3090		.3297
Commercial	.2087	.1244	.1851	.4238	.6710	.3226
Music	.1414	.2011	.2446	.3999	.3246	.2603
Average	.2090	.1793	.1864	.3672	.3463	

TABLE XXXVIII

Comparison of Department Costs per Pupil per Clock-hour in the
Five High Schools. 1929-30.

<u>Department</u>	<u>Sedan</u>	<u>Cedar Vale</u>	<u>Peru</u>	<u>Elgin</u>	<u>Chautauqua</u>	<u>Average</u>
Manual Arts	\$.2489	\$.2467	\$.1915	\$.3929	\$1.2961	\$.4752
Home Ec.	.2154	.2111	.2286	.3809	1.4813	.5034
Science	.1465	.1575	.0700	.1508	.1696	.1389
History	.1394	.1305	.0843	.2261	.1801	.1521
Social Science	.1152	.1394	.0841	.0983	.4620	.1789
Mathematics	.2703	.1014	.0973	.2195	.2813	.1739
English	.1360	.1165	.0820	.1438	.2315	.1420
Languages	.1733	.1627		.2304		.1888
Commercial	.1671	.1000	.1549	.2547	.3029	.1959
Music	.1070	.1016	.1233	.3328	.3592	.2048
Average	.1719	.1467	.1240	.2430	.5282	

Summary of Facts in Table XXXVI

A study of table XXXVI, found on page 62 shows some very interesting facts. In each high school for the year 1927-28 the Social Science Department has the lowest cost per pupil per clock-hour, followed by History, English, Science, Commercial, Mathematics, Home Economics, Language and Manual Training which have increasing costs in the order named. For this same year Cedar Vale's average department cost per pupil per clock-hour is the lowest. Sedan, Peru, Chautauqua, and Elgin follow with costs increasing in the order named. It seems that during this year there is some relation between the size of the school and its cost per department on a pupil clock-hour basis. The smaller schools have the higher costs. The most striking difference in these average costs is between Cedar Vale, whose cost is least, and Elgin, whose cost is greatest. Elgin's cost per department per pupil per clock-hour is 2.36 times as great as Cedar Vale's. Tables XXXVII and XXXVIII pages 61 and 62, show this same material for all the schools and for all departments for the years of 1928-29 and 1929-30 respectively.

The operating costs per pupil per clock-hour of each department of each high school is ranked with the same departments of the other high schools for each year in Tables XXXIX, XL, and XLI on pages 65, 66, and 67 respectively. To illustrate the method used, the Manual Training is taken as an example. By referring to Table XXXVI, page 60, it is seen that the cost of operating this department is lowest for Sedan in 1927-28, followed in order of increasing costs,

by Cedar Vale, Chautauqua, and Elgin with Peru offering no work in the department. Sedan is therefore ranked 1, Cedar Vale 2, Chautauqua 3, and Elgin 4. All departments are ranked in the same manner and the totals of their rankings are shown at the bottom of each table. A comparison of these totals gives to some extent at least a measure of each school's standing with the other schools in its ability to operate its departments most economically per pupil per clock-hour. The smallest total of the rankings means the greatest number of departments ranking low in these costs in comparison with the other schools.

TABLE XXXIX

The rank of operating costs per pupil per clock-hour of each high school for the year 1927-28. The school with the smallest cost is ranked 1, etc., to 5 for the school with the largest cost.

Departments.	Rank of Operating Costs per Pupil per Clock-hour of each High School				
	Sedan	Cedar Vale	Peru	Elgin	Chautauqua
Manual Arts	1	2		4	3
Home Economics	2	1	3	5	4
Science	2	1	3	5	4
History	2	1	5	4	3
Social Science	3	2	4	5	1
Mathematics	3	2	1	4	5
English	1	2	3	5	4
Languages	1	3	2	4	
Commercial	2	1	3	5	4
Music	1	2		4	3
Totals	18	17	24	45	31

TABLE XL

The rank of operating costs per pupil per clock-hour of each high school for the year 1928-29. The school with the smallest cost is ranked 1, etc., to 5 for the school with the largest cost.

Departments	Rank of Operating Costs per Pupil per Clock-hour of Each High School				
	Sedan	Cedar Vale	Peru	Elgin	Chautauqua
Manual Arts	3	2	1	5	4
Home Economics	2	1	3	4	5
Science	3	1	2	5	4
History	3	2	1	5	4
Social Science	2	3	1	5	5
Mathematics	2	1	3	5	4
English	3	1	2	5	4
Languages	4	3	1	4	
Commercial	3	1	2	4	5
Music	1	2	3	5	4
Totals	26	17	19	47	39

TABLE XLI

The rank of the operating costs per pupil per clock-hour of each high school for the year 1929-30. The school with the smallest cost is ranked 1 etc., to 5 for the school with the largest cost.

Departments	Rank of Operating Costs per Pupil per Clock-hour of Each High School				
	Sedan	Cedar Vale	Peru	Elgin	Chautauqua
Manual Arts	3	2	1	4	5
Home Economics	2	1	3	4	5
Science	2	4	1	3	5
History	3	2	1	5	4
Social Science	3	4	1	2	5
Mathematics	3	2	1	4	5
English	3	2	1	4	5
Languages	2	1		3	
Commercial	3	1	2	4	5
Music	2	1	3	4	5
Totals	26	20	14	37	44

In this and the preceding chapters a study has been made of the costs of operating the high schools of Chautauqua County. Many analyses and comparisons have been made of the conditions found to exist. In the following and concluding chapter an attempt is made to evaluate and summarize the findings to determine what remedies might be successfully applied.

CHAPTER VIII

SUMMARY AND CONCLUSIONS

At the beginning of this study certain questions were formulated as a basis from which to proceed with the problem. It is the object of this chapter to answer these questions and to draw such other conclusions from the study as the facts found warrant.

The first question to be considered is: What financial ability does each community have to support its high school? Seven factors are considered in answering this question.

Table VI page²⁰ shows comparisons of the assessed valuations per pupil of the districts studied. Chautauqua has the highest average assessed valuation per pupil for the full three year period of the study, followed by Elgin, Sedan, Peru, and Cedar Vale with valuations diminishing in the order named. Chautauqua is a rural high school district, Elgin is a consolidated district, and Sedan, Peru, and Cedar Vale are city school districts. Each of the city school districts has a larger per cent of its students attending from outside the geographical boundary of the district than do either Chautauqua or Elgin. Since tuition is collected from the county at large for these students, the city schools have this income to aid them which the other schools do not have, save to a very small extent.

Table VII page²¹ shows comparisons of the annual costs of operation per pupil in average daily attendance. The average of this cost for each community for the full three year period is shown below.

Cedar Vale	Peru	Sedan	Chautauqua	Elgin
\$138.61	\$151.25	\$172.26	\$198.50	\$240.27

All of the average costs shown above are high. The county allows \$108.00 a year per pupil from the county fund to high schools, for educating pupils who live outside the high school district. This amount is set by the state and is supposed to be a reasonable sum. It may be noted that not one of the districts included in this study operated at so low an annual per pupil cost as the sum set by state law as reasonable.

Table VIII page 22 shows a comparison of the amounts of outstanding warrants per pupil in average daily attendance. Chautauqua had \$15.32 of warrants outstanding in 1929-30 for each pupil in average daily attendance. No other school had issued any warrants so no comparisons can be made.

Table IX page 23 shows a comparison of the values of school properties per pupil in average daily attendance. Sedan had the smallest amount invested in school property per pupil. Cedar Vale and Peru each have a slightly greater amount invested in school property than Sedan, while Chautauqua's and Elgin's investments are much greater.

Table X page 24 shows a comparison of the amounts of capital outlays per pupil in average daily attendance. These amounts vary in the same way as do property values summarized in the preceding paragraph.

Table XI page 25 shows a comparison of transportation costs per pupil. These costs are very light, save in the case of Elgin who transports many of her pupils and thus incurs considerable expense.

Table XII page 26 compares the tax levies of the several communities for school purposes. Sedan reduced her levy for schools from 19 mills to 17.1 mills during the period of the study, while Cedar Vale reduced hers from 26 mills in 1927-28 to 24.9 in 1929-30. Peru during the time covered by the study increased her school levy from 25 mills to 25.9 mills. Chautauqua reduced her levy 3.5 mills the last year of the study but had to issue warrants to complete the work of the year. Elgin has the highest school levy of all, and it shows a great increase during the time of the study. It was 32.8 mills the first year and increased to 43.2 mills the last year of the study.

There is a great difference in the abilities of these communities to support their schools. Sedan, Cedar Vale, and Peru are supporting their schools with less burden to their people than are Chautauqua or Elgin. Elgin it seems from the data gathered is rather severely taxed to support her present school system.

Assessed values of property in Elgin have become less during the period of this study. The tax burden has not increased as much, perhaps, as the evidence seems to indicate. Many people have not paid their taxes in Elgin and this has called for higher assessments to make up for this loss and to get enough money to continue to operate their schools.

There is some indication that Elgin has lost some of her enthusiasm for her schools and for their continued progress. While there may have been too much money spent and too many debts incurred, the people must not cease to make an honest effort to maintain their schools during the time when taxes are hard to collect and assessments must be high.

The second question to be considered is : What is the annual per pupil teaching cost and the annual per pupil operating cost exclusive of teaching?

The annual per pupil teaching cost of each school remains nearly the same throughout the period of the study. Some schools pay much more per pupil for teaching than do others. Considerable variation is shown within the same school of other annual operating costs per pupil exclusive of teaching. The writer found that it is common practice to charge repairs made as operating cost for a single year in these schools. This causes this item to be unusually large for years when extensive repairs are made.

Tables XIII to XVII inclusive pages²⁹ to ³² show the ratio between the annual costs of teaching per pupil and other operating costs per pupil for each year and for each school. Considerable variation is shown in these ratios within the same school from year to year. The ratios in all the schools are as a rule large, showing that in some cases almost as much is spent for other operating costs per pupil as for teaching costs. A better idea may be had of these ratios by referring to table XVIII on page 33. No relation seems to exist between size of schools and size of this ratio during the time considered in this study in the schools considered.

The third question considered is : What are department costs on a pupil clock-hour basis? Tables XXI to XXV, inclusive, pages 43 to 57 , give the cost in each department per pupil clock-hour on the basis of administration and supervision costs, teaching costs, and other

operating costs. A great variation exists in the cost of different departments in the same school. In many cases there is also great variation in the cost of the same department in different schools. Table XXXVI on page 60 and tables XXXVII and XXXVIII on pages 61 and 62 respectively show the comparison of department costs per pupil per clock-hour between the five high schools included in the study.

In 1927-28 English cost least in Sedan High School, History in Cedar Vale High School, Mathematics in Peru High School, History in Elgin High School, and History and Social Science in Chautauqua High School.

In 1928-29 English cost least in Sedan High School, English in Cedar Vale High School, History in Peru High School, Social Science in Elgin High School, and Science in Chautauqua High School.

In 1929-30 Social Science cost least in Sedan High School, Commercial in Cedar Vale High School, Science in Peru High School, Social Science in the Elgin High School, and Science in the Chautauqua High School.

A study of the above list of departments, costing least in the several schools each year, shows that with the exception of the Commercial Department costing least in Cedar Vale in 1929-30, all departments having the minimum cost in each school each year were academic subjects which are more largely required than other subjects.

A great difference exists in the per pupil clock-hour costs in different departments in different schools. Tables XXVI, XXVII and XXVIII on pages 48, 49, and 50 show the average cost per department per pupil clock-hour for each school for each year. To show the great differences that exist, consider the year 1927-28, table XXXVI, page 60

During this year Cedar Vale's average cost per pupil clock-hour is 17.63 cents while Elgin's is 31.33 cents, or approximately twice as great as Cedar Vale's. In 1928-29 Cedar Vale has the smallest average cost of all schools per department per pupil clock-hour of 17.93 cents while Elgin has the largest average cost of 34.63 cents. In 1929-30 Peru has the smallest average cost of all the schools per department per pupil clock-hour of 12.40 cents while Elgin has the largest average cost of 52.82 cents.

The department costing the maximum amount in each high school in 1927-28 is as follows: Sedan, Manual Arts; Cedar Vale, Manual Arts; Peru, Home Economics; Elgin, Manual Arts; and Chautauqua, Manual Arts.

The department costing the most in each high school in 1929-30 is as follows: Sedan, Manual Arts; Cedar Vale, Language; Peru, Manual Arts; Elgin, Manual Arts; and Chautauqua, Commercial.

The department costing the most in each high school in 1929-30 is as follows: Sedan, Manual Arts; Cedar Vale, Manual Arts; Peru, Home Economics; Elgin, Manual Arts; and Chautauqua, Manual Arts.

Manual Arts and Home Economics are the most expensive subjects on a per pupil clock-hour basis. Languages cost the most in Cedar Vale High School in 1928-29. With this one exception, the Manual Arts and Home Economics always cost the most in each high school during each year of the study.

At least some connection seems to exist between the size of the school and the cost per pupil per clock-hour. The three larger

schools always have the smaller cost on this basis and the two smaller schools always have the larger cost. The largest school does not, however, always have the smallest cost; nor the smallest school always have the largest cost.

The cost of secondary education is high in the five high schools studied. As has been shown, no high school in the county operated during any year of the three studied at a cost per pupil in average daily attendance as small as the amount allowed by the state to high schools for tuition of students from outside the high school district.

In some of these communities the tax levy for schools is severe. This is particularly true in the case of Elgin. The costs per department per pupil clock-hour as a whole are higher than in many other counties where studies have been made of these costs.

What remedy can be offered, is hard to determine. Small enrollment is the largest determining factors of high costs in these schools. Four of these five high schools are located within a single radius of about nine miles. With good all weather roads becoming general in this county, a consolidation of high schools might be a solution, if satisfactory disposal might be made of expensive buildings and grounds. Elgin, in an effort (during the summer of 1931) to solve the financial problem of her schools is moving her grade school to the high school building and abandoning a good grade school building. At the present time it seems that education must continue to be burdensome to some of these communities and that the only means of lessening this burden is to narrow the curriculum, increase enrollment in other departments, and to practice economy of operation in every way possible.

It is also very necessary that the people of these communities do not cease to make at least the same effort that they have made in the past, to provide adequate educational facilities for their young people.

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