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An Analysis of the Per Pupil Costs of Education in the Accredited Schools of Pembina County, North Dakota

Erling Logeland

AN ANALYSIS OF THE PER PUPIL COSTS OF EDUCATION IN THE ACCREDITED SCHOOLS OF PEMBINA COUNTY, NORTH DAKOTA

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Erling Logeland

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This thesis, presented by Erling Logeland in partial fulfillment of the requirements for the degree of Master of Science in Education, is hereby approved by the Committee of Instruction in charge of his work.

Committee of Instruction:

A. V. Overn.
Chairman

Erich Alke

C L Kjerland

J. V. Breitwieser
Director of the Graduate Department

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

The purpose of this study is to determine (1) the trend in the per pupil costs from 1939 to 1948, (2) the trend in the unit costs of education from 1942 to 1949 in the Pembina County, North Dakota, schools; and (3) to find out, if possible, if there is an ideal size of school, either in the county or in theory, where the costs are not prohibitive and yet where the school does an adequate job in the training of young people for a full life in American democracy.

During the last decade the public has become increasingly concerned over the education of its children. Thousands of teachers left the profession to go into higher paid positions in industry. The lure of better pay in other positions sent the young people into trade schools or commercial colleges and the teacher training institutions found but few prospective teachers to train. When the teacher shortage became acute, national magazines, daily newspapers, and the radio took up the problem of the shortage, with the result that the public became more and more school conscious.

With the increase in the salaries paid to teachers the tax burden became increasingly heavy and the local school boards began finding it increasingly difficult to operate and stay out of the red. Schools with as few as twenty pupils in high school were still attempting to offer four years of academic work, with the result that the per pupil costs rose, in some instances, as high as 880 per cent during the years of this study.

State legislatures in the United States have taken up the problem and are trying to solve it in various ways. The states of Minnesota and North Dakota are attacking the problem by trying to get their school districts to reorganize to contain larger areas and more school population. It is thought

that if the school districts became larger they can contain enough pupils to permit them to operate more efficiently. Many states also have assumed an increased proportion of the increasing tax burden that fell on the local districts. In North Dakota, for instance, the state equalization fund has helped many school districts to continue to operate that otherwise would have had to curtail seriously their already inadequate programs. For instance, the Drayton Special School District could raise by taxation the sum of $14,144 under its assessed valuation, but in 1948-49 its total operating costs exceeded $31,000. Most of the difference came from the equalization fund and from tuition charged to thirty-five Minnesota students. Still the general fund balance has been dropping about $4000 per year until it has almost disappeared.

This study attempts to analyze the cost situation in Pembina County and to suggest remedies wherever the cost analysis shows some definite improvements to be possible.

Several studies have been made in the past in North Dakota and a comparison of the past with the current costs will be recognized here. In 1924 William Bublitz made a study of the costs in fourteen of the larger high schools in North Dakota.[1] In Chapter 3 these costs will be compared with the current costs in Pembina County.

In 1912 a bulletin of the United States Bureau of Education gave the following per capita costs of public education in the United States.[2]

1870.....$2.00
1878.....$7.00
1885.....$15.00
1912.....$49.00

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[1]William Bublitz, "A Comparative Study of Instructional Costs in Ten North Dakota High Schools," Unpublished Master's Thesis, University of North Dakota Library, 1924.

[2]United States Bureau of Education Bulletin, Washington, D. C., 1912.

Since 1939, the teachers' salaries have risen considerably every year for ten years. Because instructional service and salaries ordinarily account for from 60% to 70% of the total cost of education in any school system, one can readily understand that such total cost has risen over the same period of time.[3] Salary costs are tied directly to the economic condition of the country. Undoubtedly, if another depression comes to pass, which is as serious as the one in the 1930's, the educational costs would decline. The current indications are that a teacher shortage at the elementary school level will continue to exist for several years, because of the large increase in births in the United States during the past decade. Hence, it is reasonable to assume that school costs will not decline appreciably for some time to come.

Sources of Data

Ten schools in Pembina County were included in this study. Seven of the ten schools were fully accredited, which would indicate that they were academically as good as the rest of the fully accredited schools in the state. Their standards and equipment should compare favorably with the other schools in the state that are accredited in the same manner. Three of the schools were minor accredited schools with fewer teachers and smaller enrollments. The largest school studied had a total enrollment of four hundred and fifty-six, while the smallest school had an enrollment of only seventy-six. The high school enrollment in the largest school was one hundred and ninety-seven, while the high school enrollment in the smallest school was twenty.

The largest school had a teaching staff of seventeen full-time instructors. The smallest school had a staff of four. The largest school

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[3]Recommended by Strayer.

offered courses in English, Social science, science, Mathematics, commerce, home economics, shop or industrial arts, and physical education. These courses were all fairly complete, so that the pupil had a wide variety of subjects from which to choose. The smallest school offered just the bare essentials necessary for graduation, and some of these were alternated in order to give the students the required courses. Their electives were necessarily limited. The purpose of this study was to find out which of the ten schools studied offered the most for the money expended. Were the graduates of the smaller schools handicapped when they went out into life? Would they have a more difficult time than those from other schools if they continued their education?

The materials used in compiling this survey were the yearly reports sent to the Department of Public Instruction at Bismarck, North Dakota. Due to the fact that many of the older reports were unavailable or incomplete, the unit costs were computed for the years 1942-43 through 1948-49. With very few exceptions the per pupil cost was available through the years 1939-48. This discrepancy was mainly because the older sets of records did not contain the lists of the number of pupils in the various classes. However, comparative costs were obtained that gave a reasonable picture of the educational opportunities in Pembina County. Other information in this survey was obtained by conferences with the various superintendents of the schools that were studied. This data covered mainly the extra-curricular activities of the various schools, such as athletics, dramatics, and music.

Method of Analysis and Limitations

In arriving at the per pupil costs in the various schools, all operating expenses were used, including interest and sinking fund. Hence, the schools with a bonded indebtedness or outstanding warrants would have a higher per

pupil cost than those that were debt free.

In arriving at the per pupil cost in the various particular subject fields, the only cost considered was the salary of the teacher. For instance, if the teacher taught four classes in English in an eight-period day, one-half of his or her salary would be attributed to the cost of English. This would be divided by the total number of the various classes in order to arrive at the per pupil cost in the department. The fixed charges were not included in these costs. However, since the salaries comprise approximately three-fourths of the costs, and are the most variable part of them, the comparisons made here should be valid.

CHAPTER 2

COMPARATIVE COSTS OF THE ELEMENTARY SCHOOLS

A listing was made of the accredited schools of Pembina County in the order of their total enrollment with the largest school listed first (Table 1). Some interesting facts were brought to light by that method.

Cavalier, the school with the largest enrollment, had costs slightly above the average in the years 1939-40, 1944-45, and 1945-46. However, its costs were fairly consistent with the trend of increasing costs, particularly from the school year 1944-45 through the year 1947-48. Its yearly costs were closer to the county average than those of any of the other schools studied. The reason for this is the fact that the board of education has maintained a pupil-teacher ratio of about 25 to 1, the ratio recommended by the state department of public instruction.

Walhalla, an exceptionally low cost school, has kept its elementary school costs far below the average. A look at the elementary grade enrollment and the number of elementary school teachers employed will undoubtedly give the correct answer to the reason for the low cost. For example, in 1944-45 the grade enrollment was 261 and the number of grade teachers employed, five. This made a pupil-teacher ratio of 52 to 1. The 1940-41 ratio was the same. The following year the ratio dropped to 42 to 1, and its costs rose from $33.58 per pupil to $38.29 per pupil.

The Pembina school system has kept the elementary school costs below the county average every year from 1939-40 to 1947-48 except during the year 1944-45 when the per pupil cost was $13.75 above the average. Its secondary school costs for the same year were proportionately higher. That year showed the largest yearly increase in the salaries paid to the Pembina teachers of any year in this study; and this increase was reflected in the per pupil costs

Table 1

Per Pupil Cost in Pembina County Accredited Schools,
Elementary School Departments

Year ending	1940	1941	1942	1943	1944	1945	1946	1947	1948
Cavalier	$45.92	38.67	46.91	47.93	52.20	77.65	91.15	95.31	109.36
Walhalla	29.02	33.58	38.29	39.98	34.62	49.87	66.90	62.95	88.29
Pembina	39.63	37.99	36.58	30.87	42.60	88.80	85.46	89.83	97.57
Drayton	40.25	44.23	46.90	54.22	57.18	58.19	85.56	83.57	95.04
St. Thomas	48.13	67.89	57.46	70.37	78.94	92.43	89.64	72.68	81.79
Crystal	45.00	50.00	56.00	59.00	69.35	73.41	93.92	98.50	114.67
Neche	35.00	32.50	33.70	36.30	36.92	65.00	54.45	79.66	85.37
Bathgate	45.16	56.32	59.38	45.81	97.40	115.53	113.00	123.00	175.00
Hamilton	46.56	54.00	54.00	54.00	65.00	65.00	115.21	129.46	139.00
Gardar	a	a	a	46.00	48.00	64.64	82.54	110.75	115.37
Average	44.89	44.97	49.13	48.45	58.31	75.05	87.78	95.57	110.15
Median	45.00	44.23	46.91	46.61	54.69	69.20	87.60	92.57	103.46
State Median for Fully Accredited Schools, 1947-48.....									$118.21
State Median for Minor Accredited Schools, 1947-48.....									$153.87

[a] No records available.

of the school system.

The school system at Drayton operated below the county average during every year of the study, with the exception of the year 1942-43 when its cost was $5.77 per pupil above the county average. There has been a steady rise in costs through the years with the greatest increases being recorded during the last three years of this study.

St. Thomas has had consistently higher than average costs in seven of the nine years studied. The 1946-47 and 1947-48 costs were below the county average because of the fact that some of the smaller schools had costs so high that the county average was brought up more than normally.

Crystal, a school with an enrollment about half-way between the largest school and the smallest school studied, has had costs consistently higher than the county average except during the year 1944-45 when its per pupil cost was $1.64 below the county average.[4] During that year the school board employed three elementary instructors for an enrollment of 100; while in previous years they had employed four elementary teachers for approximately the same number of pupils. If the per pupil costs are directly related to the enrollment, it would be reasonable to assume that the yearly per pupil costs in the Crystal school system would be about the same as the yearly county average.

The Neche school system has been operating its elementary school department very economically. Its per pupil cost has been far below the county average during the past nine years. In fact, it has the lowest per pupil cost of any of the accredited schools in the county, and previous to the school year 1944-45, its per pupil cost remained below $37.00. Its average elementary

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[4] North Dakota Educational Directory, 1944-45, Department of Public Instruction, Bismarck, North Dakota.

grade enrollment has been 120. It employs four elementary school teachers and its pupil-teacher ratio has remained constant at 30 to 1.

Except for the school year 1942-43, the Bathgate school system has had a consistently higher per pupil cost than the county average. This can be explained by the fact that the enrollment in the school has been dropping each year, without a corresponding decrease in the number of teachers employed. During the school year 1947-48 its per pupil cost was $175.00 and it is questionable whether such a cost is justifiable.

Hamilton has also had a higher than average per pupil cost, but its elementary school enrollment has dropped from ninety-eight in the school year 1940-41 to fifty-nine in 1948-49. However, the school board eliminated an elementary teaching position in 1943, and thus the costs did not increase as much as they would have done had not that action been taken.

Until 1946-47 Gardar's costs were below the county average, but during the past two years its costs have increased to third high in the county. But since its grade enrollment has remained fairly constant, perhaps the higher costs can be attributed to higher teachers' salaries and higher operational expenditures.

Summary of Chapter 2

This study indicates that during the past four years, when teachers' salaries have risen the most, the per pupil costs have risen most in the smaller schools of the county. If this upward trend in the smaller school costs continues, it would be advisable to consolidate the districts so that more elementary school children could attend school. That would cut the per pupil cost (Table 1).

A study of this table brings out the fact that the minor accredited schools have had a higher per pupil cost than the fully accredited schools,

particularly from 1945-46 through 1947-48. Since the salaries of elementary school teachers are approximately the same in both classes of schools, it would seem that grade enrollment is a definite factor in per pupil costs.

Table 1 also brings out the fact that the county median in per pupil costs in the fully accredited schools for the school year 1947-48 is below the state median for the fully accredited schools, and that the county median for the minor accredited schools for the same year is above that of the state median in the minor accredited schools.

CHAPTER 3

COMPARATIVE COSTS OF THE SECONDARY SCHOOLS IN PEMBINA COUNTY

The per pupil costs in the ten secondary schools studied were calculated and presented next (Table 2). The schools were listed in the same order as in the tabulation for the elementary departments in Chapter 2, with the largest school listed first.

The per pupil cost in the Cavalier school system has been well below the county average for the last nine years with the greatest increases coming after the school year 1942-43. Part of the increase can be attributed to higher teachers' salaries and other operating expenses, but the remainder must be explained by the fact that the district has been adding more teachers without a corresponding increase in enrollment. For example, in 1942-43 the high school enrollment was 190 and five high school teachers were employed, while in 1948-49 the enrollment was 197 and nine high school teachers were employed.[5] The pupil-teacher ratio has dropped from 38 to 1 to 22 to 1. Prosperity has evidently had something to do with the increased per pupil cost of the system.

The Walhalla school system has had the same kind of a record in its secondary school department as in its elementary school department. Its costs run far below the average for the county even though its per pupil-teacher ratio has been in the neighborhood of 25 to 1.

Pembina has had a consistently high operating cost. In 1940-41 its per pupil cost was $103.57 over the county average. This was due to the fact that the district had a large bonded indebtedness that it was liquidating. The following year its costs dropped over $80.00 per pupil. However, its

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[5] North Dakota Educational Directory, State Department of Public Instruction, Bismarck, North Dakota.

Table 2

Per Pupil Cost in Pembina County Accredited Schools,
Secondary School Departments

Year ending	1940	1941	1942	1943	1944	1945	1946	1947	1948
Cavalier	$79.11	72.51	76.95	74.03	101.42	110.08	151.06	145.89	184.86
Walhalla	50.50	59.40	69.74	66.29	83.85	102.68	132.98	140.82	127.39
Pembina	174.49	194.13	113.29	112.79	112.79	141.50	196.73	171.45	229.32
Drayton	63.29	65.12	69.29	86.57	102.91	139.16	102.63	115.54	158.64
St. Thomas	99.08	74.56	76.15	87.42	177.40	161.45	161.31	177.83	195.89
Crystal	80.00	60.00	69.00	71.00	91.00	183.33	203.11	212.17	304.55
Neche	90.00	67.55	68.75	76.95	76.70	166.09	173.37	189.05	179.10
Bathgate	75.26	72.10	76.99	80.58	113.50	230.85	169.00	254.00	661.00
Hamilton	128.46	154.00	127.00	125.00	128.00	129.00	178.17	238.69	263.74
Gardar	88.93	86.21	84.96	90.00	90.00	187.46	164.78	249.80	225.92
Average	92.92	90.56	83.21	87.06	107.76	141.91	163.31	189.52	253.04
Median	84.46	72.30	76.55	83.57	102.16	151.47	166.89	183.44	210.90

State Median for Fully Accredited Schools, 1947-48.....$194.30

State Median for Minor Accredited Schools, 1947-48.....$231.70

per pupil-teacher ratio has been low, generally about 16 to 1, which indicates a high cost.

The Drayton school system has operated well below the county average every year since 1939-40. This is due to the fact that the school district has been free of indebtedness and that the school board has been ultra-conservative, being unwilling to spend more than its anticipated revenue.

St. Thomas is another high priced school when compared with Cavalier, Walhalla, or Drayton. The reason is obvious. Its per pupil-teacher ratio has been as low as 10 to 1, and has rarely gone over 13 to 1. However, its school district is large and its financial difficulties have been far less than some of the smaller districts like Pembina or Drayton.

From 1939-40 to, and including 1943-44, Crystal's per pupil cost was about average. The following year, however, its costs almost doubled, and since that time have been going up until its 1947-48 costs were second high in the county, a cost of $304.55 per pupil. Their high school enrollment has dropped from 77 in 1942-43 to 45 in 1948-49.[6] This, plus higher salaries for teachers, would explain its high cost of operation.

While salaries were low and enrollment was in the seventies, Neche employed four high school teachers. But when enrollment started dropping off, the school board dropped one teacher. Even with this elimination, Neche's costs rose spectacularly in 1944-45 and have stayed up since. During the past year they have employed three male teachers at $3000, $3000, and $3200 per year. This total of $9200 divided by its enrollment would give a per pupil cost of over $164.00 for salaries alone, which indicates that its 1948-49 costs would be considerably higher than its 1947-48 costs.

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[6] North Dakota Educational Directory, Department of Public Instruction, Bismarck, North Dakota.

The situation in the Bathgate school system has become more serious as the years have gone by. Its great increase in costs started in 1944-45, when costs more than doubled. Its 1947-48 cost of $661.00 per pupil would be about the same if a school district would operate a one-room rural school for four pupils. Transportation of its students to another school would be far more economical than the present system.

Only in one year, 1944-45, has Hamilton's per pupil cost been below average. Its costs have been consistently much higher than the county average. Its high school enrollment has also been consistently small, some years falling below thirty. This undoubtedly explains the situation in Hamilton. If Hamilton and Bathgate, which are only seven miles apart, could combine their high schools, they could operate an economical school and offer their high school students a far better curriculum. Most towns are not in favor of closing their high schools, and would rather pay an exhorbitant price for education just to keep their young people at home.

Gardar is another school where costs have skyrocketed during the past few years. Until 1944-45, its per pupil cost has been close to the county average. Its enrollment has remained fairly constant, so evidently, the increase in cost is due to higher salaries and higher operating expenses.

Summary of Chapter 3

Table 2 shows rather conclusively that per pupil costs are directly tied to enrollment and the per pupil-teacher ratio, with the smaller schools generally having the higher costs. The exception is St. Thomas, where the pupil-teacher ratio is small and per pupil cost is high.

The per pupil cost in secondary education is higher in the minor accredited schools than in the fully accredited schools with the exception of Crystal, where per pupil costs in 1947-48 were higher than any other school in the

county except Bathgate. It is possible that the Crystal school system offers more to its pupils than the minor accredited schools. This could account for its higher costs. That will be brought out in later chapters.

CHAPTER 4

THE PER PUPIL COST OF ENGLISH INSTRUCTION

The per pupil cost of English instruction has risen from a county average of $7.62 in 1942-43 to an average of $24.56 in 1948-49. The average in 1947-48 was $26.07, which was undoubtedly due to the fact that Bathgate, Gardar, and Hamilton had excessively high per pupil costs in English.

Cavalier high school has a uniformly low per pupil cost in English and its yearly increase has been consistently low. Its enrollment has varied from 181 in 1942-43 to 202 in 1945-46. In 1942-43 one teacher spent half of her time teaching English. Her salary of $1350 was split and divided by 181 to get the per pupil cost of $3.73. The following year the English teacher's salary was increased to $1800 and the enrollment was only seven more. Thus, costs jumped a little over a dollar per pupil. The following year saw a $300 raise in the instructor's salary, with a drop of 17 in enrollment. Thus, costs increased to $8.77. That year, the teacher spent three-fourthes of her time with English students, and that was also a factor in costs. In 1945-46 the school board hired two English teachers, one of them devoting one-half of her time to English, and the other three-eighths of her time. Salaries also rose to $2200 and $2115 respectively. The factor that kept costs down to $9.32 was an increased enrollment to 202. 1947-48 saw a further increase in salaries and costs rose to $11.33 per pupil. The top salaries were paid during the 1948-49 school term and costs again took a raise, this time to $11.96. Over this seven-year span, however, Cavalier's cost in English was the lowest in the county.

As is indicated, (Table 3), Walhalla had the lowest per pupil cost in English during the year 1942-43 when their cost was $3.31. The English teacher spent one-half of her time teaching English to 136 pupils, and her salary of

Table 3

Per Pupil Cost in English

Year ending	1943	1944	1945	1946	1947	1948	1949
Cavalier	3.73	4.80	8.77	9.32	11.33	11.96	12.93
Walhalla	3.31	7.66	8.11	11.17	11.97	12.02	13.85
Pembina	5.10	8.66	12.83	12.04	7.85	14.54	20.88
Drayton	8.13	8.57	11.96	12.20	12.30	10.95	14.10
St. Thomas	8.92	9.70	15.16	11.25	13.66	23.53	19.23
Crystal	7.86	9.77	11.66	14.15	17.86	22.41	24.00
Neche	8.10	12.30	12.03	15.16	20.20	15.49	19.50
Bathgate	6.75	15.89	29.73	28.44	34.65	75.00	52.76
Hamilton	16.88	19.29	26.64	21.84	30.76	35.90	34.00
Gardar	a	19.21	a	30.46	28.12	36.46	34.38
Average	7.62	11.59	15.21	16.60	18.87	26.07	24.56
Median	7.86	9.74	12.03	13.17	15.76	19.51	20.19

[a]No statistics available.

$900 was the lowest of any teacher in the county. The following year, the salary paid to the English instructor increased to $1575, and costs jumped to $7.66. Another factor was a drop in enrollment in English classes to 103. In 1944-45 salaries rose to $1800, so costs took a moderate raise. The large increases in salaries started in 1945-46, and per pupil costs took a corresponding increase. Beginning that same year, the Walhalla school board increased its English instructors to two, and more time was spent on the subject. Classes became so large that the freshmen and sophomore classes were split in order to give the pupils more personal attention. Their per pupil cost has remained below the county average during the period studied.

During the school year 1942-43 Pembina had only three courses in English, alternating English III and IV. With 81 pupils, its per pupil English cost was only $5.10. The following year, they offered five English courses to 80 students, and their costs rose to $8.66. A contributing factor here was that the superintendent spent one-eighth of his time with an English class. He, naturally, was the highest paid teacher in the system. The 1944-45 school year saw an increase in the English teacher's salary from $1800 to $2600, and per pupil costs rose to $12.83. In 1945-46 costs remained practically the same, but the following year the school board hired an English teacher for $1800, and costs dropped to $7.85 per pupil.

The 1947-48 costs were almost double those of the previous year, and in 1948-49 the costs again took a big raise, going above twenty dollars for the first time. That year two-thirds of the English instructor's time was used in the teaching of English to 91 students. She was being paid a salary of $2850 per year which also helped raise costs. The situation in Pembina in regard to the per pupil cost in English is a little out of line compared to Cavalier, Walhalla, and Drayton.

The Drayton school system has had a rather consistent increase in costs from the school year 1942-43 to and including the school year 1948-49. It had been employing one English teacher until the last year of this study. During 1948-49 the high school principal taught English II and English IV, and the other English teacher taught freshman English and also seventh and eighth grade English. Drayton has been alternating English III and English IV, so they have taught only three English courses per year. This has kept costs down, but in the future it will be impossible to do this, as the junior and senior classes have grown so large that it would be unwise to keep them consolidated. Thus, Drayton can look for an increase in English costs in the future.

St. Thomas had reasonably low English costs in 1942-43 and 1943-44 because of low salaries and an enrollment of over 90. In 1944-45 enrollment dropped to 63 and salaries increased from $900 to $1530, so costs rose over $5.00 per pupil. The following year attendance was up to 74, and costs came back down to $11.25, which was below the county average. Attendance dropped the next year and costs rose to $13.66. A large increase in teachers' salaries for 1947-48 boosted the per pupil cost to $23.53, but the following year less time was spent on English, and costs came down below $20.00 However, it was still far above the per pupil costs for Cavalier, Walhalla, and Drayton.

During the school year 1942-43 Crystal high school had 62 pupils in their English classes. Three classes in English were taught,--English III and English IV being alternated. Its per pupil cost that year was $7.86, which was near the county average of $7.62. The next year, enrollment dropped, and a slight increase in teachers' salaries increased the cost to $9.77. A steady drop in enrollment during the ensuing years and a gradual increase in teachers' salaries pushed costs up until they reached a peak of $24.00 per pupil in

1948-49. The increase in per pupil cost in the Crystal school is definitely linked with its drop in enrollment from 62 in 1942-43 to a low of 41 in 1947-48. Certainly, a good English instructor can handle more than 41 pupils efficiently.

Neche has had a fairly consistent cost in English, when one takes into consideration the increase in salaries paid to teachers over the period of years covered by this survey. Its enrollment has been fluctuating, starting with a high of 70 in 1942-43, going to a low of 47 in 1945-46, and climbing back to 65 in 1947-48. During 1946-47 Neche offered one extra English class and that increased its cost to $20.00 per pupil. Since that time it has gone back to the teaching of three English courses per year. Taken as a whole, the situation in Neche seems to be reasonably well established.

Bathgate, which had a total enrollment of 45 in high school in 1942-43, had the below average cost of $6.75 per pupil that year. The following year the enrollment dropped to 35, and the per pupil cost more than doubled. This increase was also partly due to the English instructor's salary increase from $810 to $1485. The 1944-45 costs almost doubled again when enrollment dropped to 21. The following year saw an increase in enrollment and a reduction in costs. The 1947-48 school year was the low in enrollment--14--and the per pupil cost in English hit the fantastic figure of $75.00. A slight increase in enrollment lowered the cost to $52.76 during the 1948-49 school year, this being more than double the county average. It seems that there should be some method of eliminating this high cost of instruction in the Bathgate school system.

Hamilton's high school enrollment has remained very stable during the past seven years, so its increase in per pupil English costs can be attributed to increased salaries. Here, again, the table shows that cost is inversely

proportional to enrollment, with the smaller schools having by far the greater costs.

The same holds true for Gardar, a school with an average high school enrollment of 25.

Summary of Chapter 4

In this chapter, no attempt has been made to evaluate the success of the English program. It could be that the pupils in the smaller schools receive better instruction than those in the larger schools, but this is doubtful. Many times, the heavy loads that the teacher carries in the smaller schools prevent him or her from doing his or her best. Taken as a whole, the per pupil costs in English in the various schools of the county take the same cost pattern as the total per pupil costs in the secondary schools.

CHAPTER 5

THE PER PUPIL COST OF SOCIAL SCIENCE INSTRUCTION

The same trend in per pupil costs in social science (Table 4) should appear as appeared in English costs (Table 3), since the state requires that each high school graduate should have one credit in World History, one in United States History, and one in Problems of Democracy. The same number of credits are required in social science as are required in English.

The Cavalier school system again shows a consistently low cost in social science because of the fact that the teachers have large classes. In 1942-43 it had 173 pupils enrolled in its social science courses, and its per pupil cost was only $5.03. In 1944-45 the number of pupils dropped to 112, and its costs increased to $11.38 per pupil. That year, the superintendent taught the social science classes, and his salary was above average. The next year, however, costs dropped to normal, with an increase in the number of students and a lower salaried teacher being contributing causes. In 1946-47 one extra class was offered, so costs again increased. But, during 1948-49, with this extra class eliminated, costs again decreased.

Walhalla's cost in social science is far below the county average in every one of the seven years studied. A large enrollment is undoubtedly the factor that keeps costs reasonable. Its cost of $10.61 per pupil in 1943-44 was due to the fact that only 37 pupils were enrolled in social science classes when, ordinarily, its classes run from 61 to 135.

The picture in the Pembina school is rather peculiar, in that costs during the three years 1942 through 1945 were higher than the following two years. The large increases in salaries did not come until 1945-46, so it would be logical to assume that costs would show a greater increase beginning with that period. It is evident here that the superintendent was the social science

Table 4

Per Pupil Cost in Social Science

Year ending	1943	1944	1945	1946	1947	1948	1949
Cavalier	5.03	7.93	8.04	11.38	7.66	10.80	8.55
Walhalla	7.92	10.61	6.73	11.11	9.00	12.20	11.07
Pembina	13.41	10.83	13.64	6.79	10.00	14.19	19.40
Drayton	12.96	11.03	13.24	14.57	11.06	19.75	17.76
St. Thomas	7.89	8.08	15.14	13.57	17.17	22.30	25.11
Crystal	4.45	9.10	9.11	9.65	13.97	16.55	22.32
Neche	12.20	9.04	11.47	8.80	20.62	15.34	30.79
Bathgate	6.85	21.84	24.65	21.77	24.23	43.33	35.63
Hamilton	21.05	7.65	17.00	24.11	21.90	22.72	26.90
Gardar	a	a	25.57	19.21	36.30	33.00	28.00
Average	10.20	10.76	14.46	14.10	17.19	21.02	22.55
Median	7.92	9.10	13.44	12.47	15.57	18.15	23.71

[a]No statistics available.

instructor, and, as he has been the highest salaried instructor in the Pembina County schools during the period studied, its costs have been adversely affected.[7]

Drayton's social science cost has been fairly consistent with the salary trend, although its costs increased greatly in 1947-48 due to the fact that the school board hired a band man at a comparatively high salary. As all of the band work was scheduled during the school day, the time spent on social science was pro-rated the same as it was pro-rated for the other schools. Sometimes, special services demanded by the public have their effect upon regular costs.

St. Thomas had its large increase in per pupil cost in social science in 1944-45, when its large increase in salary offered to the social science instructor occurred. Every year since that time, the superintendent has taught one social science class, and that has also affected costs. This school also has offered more courses in social science than any other school in the county, and this has had its influence. Indications are that the more courses offered in any particular field, the fewer students are enrolled in each course.

During the year 1942-43 Crystal had the lowest per pupil cost in social science of any school in the county. Low salaries, plus a large enrollment in the social science classes, were responsible for the unusual cost of $4.45 per pupil. The following year, its costs were more than doubled, and they have risen moderately since.

Neche's per pupil cost in social science has fluctuated from year to year, partly due to changes in enrollment, and partly due to the salary of the instructor. For instance, in 1947-48, seventy pupils had courses in

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[7] North Dakota Educational Directory, State Department of Public Instruction, Bismarck, North Dakota.

social science, while in 1948-49, only 13 pupils were enrolled in the only course offered. In addition to that, the superintendent taught the class. Hence, the per pupil cost more than doubled.

The situation in the Bathgate system is the same in social science as it is in English. In 1942-43, when 46 pupils enrolled in social science courses, the cost was exceedingly reasonable, being $6.85 per pupil. When the enrollment started to drop and salaries began their climb, cost mounted beyond reason. For instance, in 1947-48, fifteen pupils in two classes took one-fourth of the time of a teacher whose salary was $2600. Per pupil cost rose to $43.33, which was the highest of any in this study (Table 4). The following year showed a decrease due to a slight increase in enrollment. Bathgate also alternated courses so that it never offered more than two social science courses during any one year. This was necessary in order to offer the required courses for graduation with its limited staff.

Except for the year 1943-44, when Hamilton had a low per pupil cost, its cost in social science has been consistently high, always running between seventeen and twenty-seven dollars per pupil. Only in isolated cases did any of the larger schools approach these figures.

The same holds true for the Gardar school system. Low enrollment has kept costs high. One other reason for high costs, of course, is the fact that the principal does a great deal of teaching, and his salary is generally higher than the average high school teacher's salary in a larger school system.

Summary of Chapter 5

As a general rule, then, the cost pattern in social science runs fairly close to the cost pattern in English. The three minor accredited schools have higher per pupil costs in social science than the fully accredited schools.

The per pupil cost in social science is geared to the instructor's salary

and whenever a superintendent or a high salaried band instructor taugh social science, as was the cause in Pembina and Drayton, costs became comparatively high.

CHAPTER 6

THE PER PUPIL COST OF SCIENCE INSTRUCTION

In most of the schools of Cavalier County it has been the custom to alternate physics and chemistry, and to teach general science every year. As a rule, the freshmen compose the largest class, and it is generally necessary to teach general science yearly in order to hold the size of the class down to a size that the instructor can handle. Physics and chemistry can be more or less elective, so naturally, these classes would be smaller and could be alternated without adversely affecting the size of the classes. Some schools, such as Drayton, alternate biology and bookkeeping, so some years, three sciences are taught, and some years, only two sciences are taught.

The average yearly per pupil costs in science seem to be higher than the average costs in English and social science. One reason, of course, is that more time is spent on each subject due to the doubling of the laboratory periods. The salaries of the different instructors in the same system do not seem to vary much, so their effect upon costs would be negligible.

During 1943-44 Cavalier had a full day of science, that is, the equivilant of eight periods per day were used for science. However, 163 pupils were enrolled in these classes, so its costs did not increase much over the previous year. In the school year 1948-49 science costs dropped to the lowest of any school in the county. During that year, it offered three courses to one hundred and thirty-two pupils. An interesting comparison here is that while Walhalla had two years of low costs, Cavalier had two years of comparatively high costs (Table 5).

Walhalla's enrollment in science classes has remained fairly stable, and since 1943-44, its costs have reflected the increases in salaries granted to teachers. Only during one year was its cost above the county average. That

Table 5

Per Pupil Cost in Science

Year ending	1943	1944	1945	1946	1947	1948	1949
Cavalier	a	16.27	17.33	13.50	13.19	18.00	8.90
Walhalla	a	5.40	7.91	12.50	19.51	19.10	18.30
Pembina	18.10	6.29	6.97	11.80	15.51	21.43	22.44
Drayton	a	16.43	17.18	15.16	12.00	14.52	23.61
St. Thomas	a	10.12	17.18	19.00	21.60	26.46	67.00
Crystal	10.86	9.17	8.80	14.28	11.94	33.33	39.47
Neche	11.60	27.62	11.95	17.27	19.24	22.22	20.00
Bathgate	8.04	20.83	30.44	24.11	22.96	46.43	37.50
Hamilton	6.90	10.23	16.07	18.75	16.81	22.50	28.85
Gardar	a	a	35.16	10.55	20.68	25.02	22.10
Average	11.10	13.60	16.90	15.69	17.34	24.90	28.82
Median	10.86	10.23	16.62	14.72	18.02	22.36	23.02

[a]Statistics not available.

was due to a drop in enrollment and an increase in science teachers' salaries of $1625.

Pembina showed a high per pupil cost in science in 1942-43 because only about half of its pupils were enrolled in science classes. Since that time, however, its costs have shown a steady rise from a low of $6.29 per pupil in 1943-44 to a high of $22.44 per pupil in 1948-49.

Drayton's cost in science has remained fairly constant. Its enrollment has fluctuated due to the fact that biology was offered every other year. Its chemistry and physics classes have not been large, generally falling between 15 and 20. Its general science classes have averaged about 22 and its biology classes about 30.

The St. Thomas school system's cost in science has shown a consistent upward trend since 1942-43. There was no radical rise until 1948-49, when costs took a staggering rise. During that year, with a teacher cost of $2075, and 31 pupils enrolled in science classes, its per pupil cost rose to $67.00. That cost is far higher than the highest cost in the smaller schools of the county, where one would expect to find high costs.

Crystal's large increase in science costs developed in 1947-48, when costs jumped to $33.33 per pupil. The following year, another increase was noted. These increases can be attributed to two things--increases in salaries paid to instructors, and decreases in high school enrollment. Salaries jumped $1000 from 1945-46 to 1948-49, and when this increase is added to costs, the upward trend would be very much in evidence.

Neche had one year when its science costs were out of line with the other schools in the county. This was in 1943-44, when its per pupil cost was $27.62, compared to a county average of $13.60. The major reason was that the superintendent, with a salary of $2600, spent three-eighths of his time

teaching science. The following year, a teacher with a salary of $1530 taught the classes in science, and costs dropped to $11.95 per pupil. As a whole, Neche's consistent high school enrollment has tended to stabilize costs in its regular academic subjects.

During the school year 1942-43 Bathgate had fifty-six pupils enrolled in academic courses, and its per pupil cost was below the county average. Since then, its science costs have been consistently high. Its trouble has been a large decrease in enrollment. In fact, during the school year 1947-48 a science course was offered to seven pupils and its per pupil cost rose to $46.43. As long as its total high school enrollment remains in the low twenties, its science costs will remain high.

For a small school, Hamilton's science costs have not been out of line with the other schools in the county. It has kept costs down by offering only one science course per year, and having classes ranging in size from 15 to 20. If they were to offer more courses to smaller classes, their costs per pupil would be greater.

Gardar has been offering more science than Hamilton, and its costs have been higher, except for the year 1945-46. That year, 48 pupils took science courses, and its per pupil cost was down to $10.55. Its greatest cost was in 1942-43, when a science course, taught by the principal, was offered to eight students. Enrollment in classes should be larger than that, but occasionally, in small schools, it is necessary to offer courses in order to have students fulfill requirements for graduation.

Summary of Chapter 6

As a general rule, the per pupil cost in science is greater than the per pupil cost in English and social science because of the time factor involved.

The per pupil costs in the Bathgate and Gardar school systems have been

much higher, as a rule, than the per pupil costs in the other eight schools.

Per pupil costs in science can be reduced in some of the schools in the county by alternating courses to secure larger classes.

CHAPTER 7

THE PER PUPIL COST OF MATHEMATICS INSTRUCTION

The teaching of such specific courses in mathematics as elementary algebra in North Dakota high schools has long been a controversial subject. For many years, algebra was one of the subjects required for graduation from a North Dakota high school. It was found that a great number of pupils were unable to assimilate enough algebra to pass the state examinations, and finally, the requirement was dropped. In many of the schools today, a course in general mathematics is being substituted for algebra. At the present time, most of the schools of Pembina County offer either general mathematics or algebra, and a course in plane geometry. A few of the schools teach a course in higher algebra.

The per pupil cost in mathematics (Table 6) varies greatly, and this chapter will attempt to bring out the reasons. Why should the per pupil cost during the school year 1948-49 be $15.00 in the Cavalier school system, and $28.57 in the Drayton school? A careful study of the different schools will bring out the answers.

Over a period of seven years, the per pupil cost of mathematics in the Cavalier school system has shown only a moderate increase, starting with a cost of $8.32 in 1942-43, and ending with a cost of $15.00 in 1948-49. With increases in the mathematic teacher's salary from $1620 per year in 1942-43 to $4000 in 1948-49, it would be expected that costs would more than double. However, Cavalier has increased its enrollment in mathematics classes from 76 to 97 during the years covered by this survey. Approximately one-half of its students take a course in mathematics yearly. This is a higher percentage than any other school in the county, and helps to explain the reasonable per pupil cost in the school system.

Table 6

Per Pupil Cost in Mathematics

Year ending	1943	1944	1945	1946	1947	1948	1949
Cavalier	8.32	8.00	9.43	10.17	10.65	13.07	15.00
Walhalla	a	5.96	8.57	11.41	11.63	14.32	18.02
Pembina	8.11	7.08	17.58	24.54	25.27	19.91	25.30
Drayton	a	13.23	14.29	13.67	16.22	25.71	28.57
St. Thomas	a	13.41	18.76	20.69	19.00	32.14	32.03
Crystal	6.43	11.96	19.12	23.50	34.10	34.48	34.10
Neche	12.37	29.55	25.00	31.82	23.81	21.05	20.83
Bathgate	8.66	27.77	51.56	38.13	39.38	b	34.09
Hamilton	18.18	23.07	15.34	37.50	16.28	12.98	38.64
Gardar	a	a	31.25	b	20.45	46.46	b
Average	10.35	15.56	21.09	23.49	21.68	24.46	27.40
Median	8.49	13.23	18.17	23.50	19.72	21.05	28.57

[a]No statistics available.

[b]No mathematics taught.

The cost picture in the Walhalla school system is also very favorable when compared with the county average. Walhalla's enrollment in mathematics classes have shown a wide fluctuation. Their enrollment figures are as follows:

1943-44.....47
1944-45.....70
1945-46.....83
1946-47.....86
1947-48.....55
1948-49.....45

During the three years of high enrollment in classes, Walhalla offered three courses in mathematics--general mathematics, algebra, and plane geometry. Since that time, it has offered only algebra and geometry, with a corresponding decrease in enrollment. It is clearly evident here that general mathematics was a popular course. It is also clear that per pupil costs in mathematics was kept down by the offering of such a popular course.

Pembina's per pupil cost in mathematics increased greatly in 1944-45, when the present superintendent arrived to take charge of the system. He has been teaching most of the courses offered in mathematics, and consequently, costs rose sharply. Another factor here is the fact that the Pembina school board has kept the superintendent's salary higher than any other superintendent's salary in the county. Pembina has offered more courses in mathematics than any other accredited school in the county also. During the school year 1948-49 it offered four courses, and it had 84 pupils enrolled. Three of the courses were taught by the superintendent, who had a salary of $4500, and one by the coach, who had a salary of $3500. Here is proof that per pupil costs, to a large extent, depend upon the salary of the instructor.

The Drayton school system shows a picture similar to that of Pembina. Drayton has been offering algebra to freshmen, and geometry to sophomores.

Algebra has been required of all the students, but geometry has been an elective. Consequently, the classes in geometry have been small, ranging from between eight and twelve pupils enrolled. Approximately forty per cent of the total high school enrollment take courses in mathematics yearly. The great cost increase in the Drayton school system occurred in 1947-48, when the superintendent took over the mathematics department. Its cost per pupil average was above the county average in 1947-48 and in 1948-49. However, in Drayton, as well as in Pembina, a shift of the superintendent to some other field of teaching would only shift the higher costs to some other department, and that would not affect the cost picture as a whole.

The St. Thomas school has also had a very limited curriculum in mathematics, never offering more than two courses in any one year. Its enrollment in these courses has been small, never going over 31 for the years covered in this survey. In fact, during the two school years, 1947-48 and 1948-49, its enrollment dropped to 14 and 16 respectively, when it offered only one course in mathematics. This is an unusual situation for a school that is accredited by the North Central Association of Colleges and Secondary Schools. Since the school year 1944-45, one of the two courses offered has been taught by the superintendent, and this has made per pupil costs comparatively high in the system. During the school years 1947-48 and 1948-49, St. Thomas' per pupil cost has been considerably above the county average.

Crystal's per pupil cost in mathematics has been below average from 1942-43 to 1944-45, and has been above average from 1945-46 to 1948-49. During the first three years studied, it had an average enrollment in its lone mathematics class of 20. During the next three years, its class enrollment averaged 12, with a corresponding increase in costs. Only once during the period studied--in 1948-49--have they offered more than one course

in mathematics. That year, they offered two courses to 22 pupils, so its costs remained high. Crystal's relatively high costs in the department of mathematics is definitely linked to low enrollment.

A look at statistics will show a downward trend in the per pupil cost in mathematics in the Neche school system, beginning with the year 1946-47 (Table 6). Its costs during the three previous years were far above the county average, but since that time, per pupil costs have dropped, so that it is in a favorable position compared to other schools in the county. The reason, in the case of this school, is that enrollment in mathematics classes has increased during the past three years.

Bathgate's per pupil cost in mathematics is definitely linked to their drop in total enrollment. The great drop in enrollment came in 1943-44, and the great percentage of increases in the cost of instruction in mathematics came the same year. The fluctuations in per pupil costs since then is accounted for by the variations in the size of the classes from year to year. Its per pupil cost in this field shows the same trend as its per pupil cost in other fields studied. A definite remedy for this situation will be suggested later.

The per pupil cost in mathematics in the Hamilton school system has fluctuated more than in any of the other schools studied, costs going up radically one year and down the next. This is caused by the great change in enrollment in the mathematics classes. For instance, in 1945-46, a course in mathematics was offered to nine pupils, and during 1948-49 two courses were offered to a total of 22 pupils. During the other five years covered in this study, the class average has been 20.

Gardar has had no consistent program in mathematics, and when a course was offered, the classes were so small (class average--9), that per pupil

costs were high. In fact, during two of the last five years studied, the pupils were offered no mathematics. It is true, however, that many of Gardar's graduates have gone to college without any apparent handicaps as far as mathematics was concerned.

Summary of Chapter 7

The high per pupil cost in mathematics in the Pembina and Drayton school systems was caused by having the superintendents of the schools teach the courses offered.

In the ten schools as a whole, fewer pupils take courses in mathematics than in any other regular academic field, so per pupil costs are higher.

CHAPTER 8

THE PER PUPIL COST OF HOME ECONOMICS INSTRUCTION

Of the ten accredited high schools in Pembina County, only six have offered courses in home economics during the years covered by this study (Table 7). None of the smaller schools have offered home economics. One reason is the fact that the smaller schools have not employed enough teachers, and those that were employed necessarily confined their work to instruction in the subjects required for graduation. According to the superintendents interviewed, another factor was lack of space in their physical plants and lack of equipment.

During the depression of the 1930's, lack of adequate finances curtailed the development of home economic departments in the various schools, and during the war years of the 1940's, it was almost impossible for schools in the county to employ certified home economic instructors. The instructor situation is still acute. Many of the women trained in the field of home economics went into hospitals as dietitians, or were employed by business firms engaged in the manufacturing and selling of food products or kitchen equipment.

Another factor that made its impact felt in the teaching of home economics in the schools was that a large number of women taking home economics married while in college and went directly into home-making. Hence, the growth of the home economic departments has been retarded, and, in the case of schools in Pembina County, has actually gone backward. Only three schools in the county have operated their departments with any consistency.

The Cavalier school system has operated a home economics department during all of the years of this study. Its per pupil cost was low during the school years 1941-42 and 1942-43. This was due chiefly to the number of girls enrolled in the courses. During 1941-42, seventy girls were taking courses

Table 7

Per Pupil Cost in Home Economics

Year ending	1942	1943	1944	1945	1946	1947	1948	1949
Cavalier	10.91	8.12	25.57	19.92	31.25	22.27	45.11	40.88
Pembina	b	13.78	21.25	42.04	34.40	64.38	54.00	50.20
Drayton	b	b	b	b	12.50	b	25.19	21.90
St. Thomas	b	b	b	b	39.64	50.00	75.00	a
Crystal	b	16.25	29.46	26.40	55.55	75.00	66.66	63.63
Neche	b	13.30	40.00	a	a	a	a	a

[a]Discontinued.

[b]Statistics not available.

in home economics, and the following year, the number jumped to 120. From that time on, its enrollment has averaged 50, with a corresponding increase in cost. Its highest cost appeared in 1947-48, when 38 girls took the course offered, and the cost per pupil was $45.11. It showed a slightly decreasing cost, $40.88, during 1948-49, when 48 girls were enrolled.

Pembina has also offered home economics every year. Its costs have averaged higher than Cavalier's costs mainly because of smaller class enrollment. From 1946-47 to 1948-49 they have employed a full-time home economics instructor. During that period, its enrollment has been 28, 25, and 44 respectively. If all of the girls could be induced to take the courses offered, costs per pupil could be decreased in the Pembina school system.

Faulty record keeping has obscured the picture in the Drayton schools, since no records were kept until the present superintendent took charge of the school. During 1945-46 one course was offered in home economics, and 18 girls were enrolled. The per pupil cost that year was $12.50. The following year, no instructor was available, so the course was dropped. The next year, the superintendent was fortunate enough to hire an instructor, and two years of home economics have since been offered. Enrollment jumped to 26 and 32 during 1947-48 and 1948-49. Costs per pupil for those years were $25.10 and $21.90 respectively. An important factor in costs in Drayton has been the fact that only one-fourth of the instructor's time was used in the teaching of home economics. The remainder of her time was used in the teaching of science and vocal music.

The records for St. Thomas show that for the three years from 1945-46 through 1947-48, the per pupil cost in home economics were $39.64, $50.00, and $75.00 respectively. In 1948-49 it discontinued home economics. The reason is not clear, and it is doubtful whether the school board realized

that they had as high a per pupil cost as they did in 1947-48. It is also questionable whether it is economically sound to spend $75.00 per pupil in the teaching of home economics. It may be justified many times over in the total welfare of future generations.

In the Crystal school system the per pupil cost in home economics has shown a considerable increase since the school year 1942-43. As has been true in other schools, the per pupil cost increases when enrollment drops and decreases when enrollment goes up. During the first three years covered in this survey, the average enrollment in home economic classes in the Crystal school was 17, and its per pupil cost compared favorably with the other schools of the county. During the last four years of the study the average enrollment was nine, and its per pupil cost rose so much that it is very questionable whether the per pupil cost justifies the employment of a home economics instructor (Table 7).

Neche discontinued its home economics courses in 1944-45, and has made no effort to introduce it again.

One of the most peculiar things brought out in this study was the fact that a school system as large as Walhalla has never offered home economics. Walhalla has a mixed population, with a great number of Indian breeds attending its public school. It would seem that one of the outstanding services that the community could do would be to develop a sound home economics department in its high school. In that way, the standards of living of the "breed" population could gradually be improved. That section of the population would gain the most by the inclusion of home economic courses in the high school curriculum.

In a conference with the superintendent of the Walhalla school, the fact was brought out that the school plant was wholly inadequate, and that it would

be impossible to add new departments until the school district erected new buildings. As the situation is today, some of the grade classes are taught in public buildings near the business section of the city.

Summary of Chapter 8

In conclusion, it can be stated that the situation in Pembina County in regard to home economics is serious. With only four of ten schools in the county offering home economics, the majority of high school girls have no chance to take any course in home-making. Under these circumstances, home-making standards cannot be expected to improve to a very great extent. It is, of course, true that the various girls' 4-H Clubs in the county reach some of the girls to teach them sewing and cooking, but it would undoubtedly be better if every high school could give them the proper training.

It was suggested at the School Administrators' Conference held at the University of North Dakota in April of 1949 that perhaps several school districts could hire one home economics teacher who would spend part of her time in each school, teaching home-making. This would have its drawbacks, but it would at least give more girls a chance to learn the vitally important things necessary to a happy home life. This could be a partial answer to the problem until the schools are reorganized on a basis large enough to warrant a complete home economics department in each high school.

CHAPTER 9

PER PUPIL COST IN COMMERCE

Most of the graduates of the high schools of the United States do not continue their education by attending colleges. For this reason many of the schools have attempted to incorporate into their curriculum, courses which would be of practical value in the life work of their students. This is definitely the case in the teaching of commercial subjects.

Many of the high school graduates who have taken courses in bookkeeping, typing, and shorthand go directly into business establishments. Some business institutions would rather take the graduate, and train him or her in their methods, rather than take graduates of commercial colleges. One reason, of course, is financial. The high school graduate would receive less pay while learning the system used by the company. Commercial college graduates would expect to receive more pay than high school graduates, and they would still have to be trained in the institution's methods.

The course of study for the state of North Dakota includes business relations, bookkeeping, typing, shorthand, and commercial arithmetic. These subjects are all electives. However, most of the smaller schools of the state offer only the first three, namely, business relations, bookkeeping, and typing. The teaching of shorthand requires specialized training, so the courses in shorthand are necessarily limited to the larger schools.

In Pembina County, only the fully accredited schools offer courses in commerce (Table 8). The minor accredited schools--Bathgate, Hamilton, and Gardar--do not attempt to include commercial subjects in their curricula.. Some of the fully accredited schools teach only typing, and that in a haphazard manner. One school teaches three classes in typing. These classes are all taught by the superintendent, who also teaches four other classes during the day.

Table 8

Per Pupil Cost in Commerce

Year ending	1943	1944	1945	1946	1947	1948	1949
Cavalier	11.52	10.74	11.00	9.86	26.58	16.41	16.16
Walhalla	5.00	4.08	15.23	a	13.86	12.30	21.33
Pembina	7.07	5.57	18.75	20.41	20.31	15.44	15.62
Drayton	8.08	8.56	11.26	13.17	16.26	43.00	25.62
St. Thomas	13.60	a	16.90	19.90	13.80	19.57	27.67
Crystal	18.75	68.75	27.95	59.10	47.64	68.75	56.25
Neche	20.63	29.55	20.97	38.88	22.75	22.46	21.70
Average	12.10	21.21	17.58	26.89	23.03	28.28	26.34
Median	11.52	9.65	16.90	20.15	20.31	19.57	21.70

[a]No statistics available.

Very little supervision is given the pupils in the typing classes. The superintendent says that this system works out well and that the school has developed typists who can type as high as 60 words per minute.

The Cavalier school system has been offering a complete course in commerce. Its commercial teacher has been spending three-fourths of her time in this field. During the period covered, the instructor has taught either five or six classes per day. The number of students enrolled in these classes has been high. For instance, 154 of a possible 171 took commercial subjects during the 1945-46 school year. This would indicate the popularity of the courses. The per pupil costs in commerce have remained comparatively low for this reason. Only once during the seven years covered was the per pupil cost above average, in 1946-47, and that year the enrollment dropped from 154 to 79. The enrollment during the following two years increased, and costs dropped.

Walhalla has not offered as many courses in commerce as Cavalier, but its enrollment in the courses offered has been high. The average enrollment has been 71 and its per pupil cost has been low. The increase in costs occurred when the large salary increases took place. Walhalla's per pupil costs have been the lowest in the county, and have always been below the county average.

Except for one year, 1944-45, when it offered bookkeeping, Pembina has taught only typing. Its per pupil cost rose during 1944-45, and has remained fairly constant since. That year, the superintendent taught typing, and has done so until the present time. Its per pupil cost of $18.75 was above the county average of $17.58 during 1944-45, but it has remained below the average during the last five years of this study.

The Drayton school system has offered general business, bookkeeping, and typing to its students. Every student in the school has had an opportunity

to enroll in these classes. Its per pupil cost has remained below average except for the school year 1947-48, when its cost rose to $43.00. That year, the enrollment dropped to 25, as no bookkeeping course was offered. Its enrollment in bookkeeping classes has been large, and this has kept its costs down.

The per pupil cost in commerce in St. Thomas has been below the county average every year except during the two years 1942-43 and 1948-49. Its enrollment has ranged from a low of 34 to a high of 64, the average being 42.

Crystal's per pupil cost in commerce has been far above the county average. The per pupil cost of $68.75 for the years 1943-44 and 1947-48 can be attributed to the fact that the superintendent taught three classes daily to 12 pupils in 1943-44 and 18 pupils in 1947-48. Lack of a sufficient number of typewriters was a contributing factor. An investment of $1000 in typewriters by the board of education would eliminate high costs in the system, and free the superintendent for more important work.

Neche, with its limited teaching staff, has been attempting to teach all of the courses in commerce, with the exception of commercial arithmetic. Its classes have been small, so its per pupil cost has been high. During the school year 1945-46 it offered bookkeeping and typing to only 18 pupils. One-fourth of the teaching time of an instructor with a salary of $2800 per year was consumed teaching these students, so it was natural that per pupil costs should rise to $38.88.

Summary of Chapter 9

There is rather conclusive evidence that the five larger schools in Pembina County are operating their commercial departments at a reasonably low per pupil cost, and that the two smaller schools have costs that are not in line with the other schools. A combination of two methods could be

used to reduce costs in Crystal and Neche. Business relations could be offered in alternate years to freshmen and sophomores; bookkeeping could be offered in alternate years to juniors and seniors; and the school boards could purchase additional typewriters so that classes in typing could be larger. Drayton's position could also be improved by the addition of ten new typewriters. That would eliminate at least one of its typewriting classes, or possibly, two.

CHAPTER 10

THE PER PUPIL COST IN SHOP COURSES

The superintendents of the high schools of Pembina County are in complete agreement on the advisability of teaching shop to the high school boys. They feel that in order to keep the boys at home, they must have a program that will give the boys the training that they need. A predominantly agricultural county should train its boys in the type of work that they naturally would be interested in doing.

However, there has been only one school in the county that has attempted to meet the problem. Cavalier has had a shop program that has been carried out during the past two decades, except for two years when instructors were not available. Until 1941-42, it operated under the Smith-Hughes program. Because of difficulties encountered in arranging its high school program to fit the requirements of the federal government, it dropped the federal set-up in favor of a shop program controlled entirely by the local authorities.

During the nine years for which statistics were available, its costs have varied from a low of $28.39 per pupil in 1948-49 to a high of $52.38 in 1943-44 (Table 9). Here, again, the per pupil cost was dependent upon the number of pupils enrolled in the courses. During the first four years covered in the table, the number of pupils enrolled averaged 41, while the last three years covered, the enrollment averaged 69. Even though salaries of teachers increased, per pupil costs decreased.

The Pembina school system operated a war training program during the war years. This program was sponsored and paid for by the federal government, and was dropped at the conclusion of the war. Arrangements have been made by the board of education to start a shop program in the fall of 1949.

Drayton has taught manual training at intervals during the last decade.

The last time it was offered was in 1945-46. The increase in school enrollment forced the school district to remodel the manual training room into class rooms. Until the school district builds, no shop work can be offered to its students.

Summary of Chapter 10

The foregoing paragraphs make sad reading for a group of superintendents who would like to see their boys get an adequate education for an agricultural community. Must they sit and wait for an enlightened public? or can they promote a program that will solve the problem?

Table 9

Per Pupil Cost in Shop

Year ending	1941	1942	1943	1944	1945	1946	1947	1948	1949
Cavalier	44.57	39.02	a	52.38	56.62	a	32.23	35.70	28.79

[a]Instructors not available.

CHAPTER 11

THE PER PUPIL COST IN PHYSICAL EDUCATION

The course of study for the high school in the state of North Dakota requires that physical education be taught at least twice per week to every pupil enrolled. For completing this work, the pupil receives one-fourth of a credit per year. A pupil may bypass this regulation by acquiring a doctor's certificate excusing him or her from the class because of physical handicaps.

Most of the schools of Pembina County excuse the boys and girls who are members of athletic teams during the regular season of the sport. Boys who play football, basketball, and baseball are seldom members of the physical education classes.

The per pupil cost in physical education closely parallels the per pupil cost in other subject fields, (Table 10). The four schools with the highest per pupil cost in their secondary school departments have the highest per pupil cost in physical education. This is caused primarily by the fact that the class enrollment in these four schools is small.

Cavalier, which had a large high school enrollment, did not spend much per pupil on physical education. Its gradual increase in costs from 1942-43 to 1948-49 can be attributed to higher teacher cost almost entirely. Its costs have been below the county average every year.

Walhalla's per pupil cost was above the county average during the school years 1942-43 and 1943-44, but since that time, its costs have been below average.

The Pembina school system has also operated its physical education department on a very economical basis. During the seven years studied, it had a low per pupil cost of $1.75, and a high of $4.53, with not much of a varia-

Table 10

Per Pupil Cost in Physical Education

Year ending	1943	1944	1945	1946	1947	1948	1949
Cavalier	2.87	3.03	3.89	3.96	4.54	4.56	5.94
Walhalla	3.66	7.37	4.86	5.60	6.51	6.27	6.41
Pembina	2.04	1.75	3.80	4.01	3.56	4.53	4.22
Drayton	3.66	3.96	4.02	4.39	5.77	8.08	6.19
St. Thomas	3.25	3.67	3.92	4.05	5.00	5.23	5.94
Crystal	3.50	7.55	9.62	6.19	14.53	10.06	11.92
Neche	2.73	3.50	4.04	7.45	5.50	5.61	6.61
Bathgate	2.50	7.14	9.91	11.21	11.98	24.11	17.86
Hamilton	6.82	7.60	7.50	9.64	10.11	11.70	12.50
Gardar	a	a	a	8.17	16.28	14.88	13.78
Average	3.45	5.06	5.73	6.47	8.38	9.50	9.14
Median	2.87	3.96	4.04	5.23	6.14	7.18	6.51

[a]No regular physical education classes.

tion from year to year.

Drayton's per pupil cost has been slightly higher than Pembina's cost, but not out of line with the costs of the five largest schools in the county. Its highest per pupil cost of $8.08 occurred in 1947-48, when the superintendent had charge of both boys' and girls' physical education classes.

St. Thomas' per pupil cost in physical education has been below that of Drayton's per pupil cost during every year of this study. That is contrary to the differences in costs between the two schools in other departments.

Crystal is the first school in the table that deviates from the pattern set by the five larger schools. This could tend to indicate that the schools with small high school enrollments have the higher per pupil cost. For example, Drayton, with an enrollment of 81, had a per pupil cost of $6.19 for the school year 1948-49, and Crystal, with an enrollment of 45 for the same year, had a per pupil cost of $11.92.

Neche, with an average high school enrollment of 65 during the seven years covered by this survey, has had a favorable per pupil cost when compared with the county average, and also, when compared to the four largest schools in the county. Neche's salary schedule accounted for the favorable picture.

It is expected that Bathgate's per pupil cost in physical education would be high. When enrollment dropped to 16 in 1947-48, its per pupil cost in physical education rose to $24.11. The following year, when enrollment increased to 21, its per pupil cost dropped to $17.86, but it was still about double the county average.

The Hamilton school system has had a higher than average cost per pupil for physical education. Here, again, enrollment has dictated cost.

During the war years, Gardar had no regular physical education classes. This was undoubtedly caused by the fact that all of the teachers in the sys-

tem were women. During this period, one of the local men coached basketball, and that was the extent of its physical education. Since 1944-45, the superintendent has been the coach of athletics, and he has also had charge of physical education. Here, again, enrollment has caused higher per pupil cost in the department.

Summary of Chapter 11

In this chapter, no attempt has been made to differentiate between physical education and coaching. In most of the schools of the county, the coaching of athletic teams has been carried on outside of school hours. It is undoubtedly true that the per pupil costs in physical education could be lowered if the school boards did not hire coaches. A man who has the ability to coach athletics can demand and get a higher salary than a regular class room teacher. This naturally affects costs. However, as long as the public demands good athletic teams, it will have to pay for the increased cost of physical education. This fact, of course, also holds true for the other subjects that the coach teaches.

CHAPTER 12

THE PER PUPIL COST IN MUSIC

Even though the state course of study for North Dakota lists music as an elective, most of the schools have considered music as an extra-curricular activity, and unless the community or the superintendent wanted a strong music department, it has been neglected in favor of other activities. Therefore, a study of the per pupil cost in music will show a great variation between different schools (Table 11). The schools with the least music will show the least cost.

During the period of this survey, Cavalier has maintained a music department that included both vocal music and band. Because its band has been large, and its vocal groups have included a large number of boys and girls, its per pupil costs have been relatively low and fairly stable. The rise in per pupil costs can be attributed to the increase in salaries granted to the instructors.

Walhalla's per pupil cost in music has been very low. Until the school year 1948-49, they h ve offered only group singing twice per week to the student body. In December of 1948 it procured a full-time music instructor, and the Walhalla school is in the process of developing a complete music department, including a band and vocal music. Its per pupil cost during 1948-49 has undoubtedly increased greatly.

The Pembina school system had a very low per pupil cost in music during 1942-43, and in 1943-44. The following year, no music was taught. Its greatest increase in cost occurred in 1947-48, when the superintendent directed the music that was offered. During 1948-49, two instructors spent one period each per day teaching music. Per pupil costs decreased because more pupils were enrolled in music, and the instructors were not as highly paid as the

Table 11

Per Pupil Cost in Music

Year ending	1943	1944	1945	1946	1947	1948	1949
Cavalier	3.66	4.32	4.08	5.36	5.96	6.17	6.50
Walhalla	.63	1.59	1.30	1.52	1.33	2.13	a
Pembina	.75	.73	b	2.01	2.83	13.54	7.79
Drayton	1.92	2.06	2.82	5.22	4.80	11.72	16.00
St. Thomas	a	a	a	3.15	3.69	b	5.21
Crystal	a	6.86	2.86	4.46	5.43	7.50	8.75
Neche	a	3.19	3.46	8.75	b	11.23	4.93
Hamilton	5.00	4.29	4.56	3.25	3.25	3.63	4.58
Average	2.39	3.29	3.18	4.22	3.90	7.70	7.68
Median	1.92	3.19	3.16	3.85	3.69	7.50	6.50

[a]No statistics available.

[b]No music taught.

superintendent.

During February of 1945-46 the Drayton school board hired a music teacher who could teach both band and vocal music. The fourth period of the day was used for the teaching of music, and more than twice as much time was devoted to it than had been spent in previous years. Hence, per pupil costs almost doubled that year. Another change occurred in 1947-48, when an additional music instructor was hired. One of the teachers in the department taught vocal music and the other taught instrumental music. Costs per pupil have risen sharply since this practice was started. No attempt will be made here to evaluate the program, but the public is evidently getting what it wants and what it is willing to pay for in this line of music.

No statistics were available for the St. Thomas school system from 1942-43 to 1944-45. No music was taught during the school year 1947-48, as no instructor was available. During the other three years, per pupil costs ranged from a low of $3.15 to a high of $5.21. The school system has not maintained a band, its efforts being confined to vocal music.

Crystal has maintained a music department during the seven years of this study. Its costs for vocal music have been above the county average every year, except in 1947-48. It, also, offers only vocal music.

Neche's per pupil cost in music has varied greatly. Its high per pupil cost occurred in 1947-48, when the school changed its program to one-hour classes, and one period daily was used in instructing 40 pupils. The following year, it changed back to 40-minute periods, and offered music only twice per week. Per pupil costs dropped from $11.23 to $4.93.

Bathgate had no statistics available for music.

The Hamilton school system has offered vocal music twice per week to its high school pupils, and per pupil costs have remained fairly stable.

Music in the Gardar school system has been handled differently than in any other school in Pembina County. An instructor from rural Gardar has been instructing in piano and vocal music, but the individual pupils paid for their lessons. A few weeks before the county music festival was to be held, the instructor would develop the girls' chorus and several smaller groups for entry in the festival. The instructor was not paid by district funds, so there was no cost to be computed for this study.

Summary of Chapter 12

Only instructor costs have been taken into consideration in this study. The purchase of about $5000 worth of instruments and $1500 worth of uniforms for the Drayton band, and the purchase of uniforms for the Cavalier band have not been included. If that cost were to be considered, it should be spread over a period of years in order to arrive at a reasonable cost picture for these schools.

Music as a whole has not been a serious contributing factor to the high cost of instruction in the high schools of Pembina County. The cost of regular class room instruction has had far more influence upon the cost picture.

CHAPTER 13

CONCLUSIONS

Remembering that the primary purpose of this study was to discover and to present statistics relating to the cost of instruction in the accredited schools in Pembina County, and to discover whether there were any specific trends, the following generalizations can be presented:

1. The total per pupil cost in the secondary schools is dependent upon the adequacy of the curriculum.

Walhalla, the second largest high school in Pembina County, has shown consistently lower per pupil costs than Cavalier, the largest high school in the county. Cavalier has been the only school in the county that has offered a complete, well-rounded program to its pupils. It has offered adequate courses in home economics, shop, commerce, and music, in addition to its regular academic courses. Walhalla, on the other hand, has not had a home economics department or a shop department. Its music department has been small. It has offered some vocal music, but it has not supported a band. Cavalier, on the other hand, has employed both a vocal instructor and a band instructor. The difference in the per pupil cost of $127.39 for the Walhalla school system for the school year 1948-49 and the per pupil cost of $184.86 for the Cavalier school system for the same year can be attributed to the difference in the schools' curricula. Even so, Cavalier had a per pupil cost below the median, $194.30, for the fully accredited schools of the state.

Crystal, with a decreasing high school enrollment--94 in the school year 1941-42 to 41 in the school year 1948-49--did not attempt to discontinue any of its departments. The results were that its per pupil cost increased over 500 per cent during the same period of years. The continuation of its home economics department has been a contributing factor. High per pupil costs in

this department directly affect the general per pupil costs. For the school year 1947-48, Crystal's per pupil cost of $304.55 was one of the highest in the state, far above the state median of $194.30. It should either discontinue some of its services, or increase its high school enrollment, if it wishes to keep its costs in line with the other fully accredited schools of the state.

2. The per pupil cost is dependent upon the pupil-teacher ratio.

Two of the fully accredited schools of the county had a particularly low pupil-teacher ratio. Pembina has employed five instructors for an average high school enrollment of 81, and St. Thomas has employed the same number of teachers for an average high school enrollment of 65. Both of these schools had higher per pupil costs during the period studied than Cavalier, Walhalla, or Drayton, where the pupil-teacher ratio was higher.

Pembina and St. Thomas have been members of the North Central Association of Colleges and Secondary Schools. The fact that the scholastic requirements of this association were higher than the state's requirements for a fully accredited school has made itself felt here. Unless these two schools can increase their high school enrollments, their per pupil costs will remain relatively high.

The three minor accredited schools--Bathgate, Hamilton, and Gardar--also have had a low pupil-teacher ratio. Considering the fact that their per pupil costs have been far above the per pupil costs of the other schools where the high school program has been more complete, it would seem that some effort should be made for the consolidation of these schools. The Hamilton high school could be absorbed by Cavalier, as these towns are only eight miles apart, and a paved road connects them. Bathgate could transport its high school pupils to Neche, which is only a short distance away. The Gardar high

school students could be transported to Mountain, where a new high school is under construction. In that manner, the per pupil costs could be decreased in the high schools that do operate, and the pupils who are transported could attend schools where the programs are more adequate. A possible solution for the Crystal situation would be a consolidation of schools with Hoople, a fully accredited school in Walsh County, only six miles away.

3. Redistricting alone will not decrease the per pupil cost in the Pembina County secondary schools.

The only apparent solution of the problem of high costs is the elimination of some of the high schools. This can be done by the transportation of the pupils to other schools where the enrollment is large enough to warrant the maintenance of the secondary school departments.

4. The calculation of costs thus helps to give one an objective basis for judging whether the schools in certain villages should be encouraged to continue to grow larger, or whether they should be abandoned and the children transported to other schools.