AN INVESTIGATION TO DETERMINE IF THE SIZE OF THE SCHOOL STUDENTS ATTEND HAS AN EFFECT ON THE CONTINUATION OF THEIR EDUCATION

by

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TABLE OF CONTENTS

PAGE

CHAPTER I

INTRODUCTION 1

Statement of the Problem 3

Purpose of the Study 3

Procedure 4

Limitations of the Study 7

Definition of Terms 7

CHAPTER II

REVIEW OF LITERATURE 10

Values of Education 10

Studies of Elementary School Background 15

Studies of the Size of High Schools and Success in College . . 19

School District Reorganization 23

Optimum School Size 27

Summary of North Dakota Educational Facts 29

CHAPTER III

RESULTS 35

Geographical and Economical Features of Morton County 35

School Laws Pertaining to Attendance and School District Operation 36

School District Information 37

Interpretation of Results 37

PAGE

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS 45

Summary 45

Conclusions 46

Recommendations 49

APPENDIX

Appendix A, Letter to Administrators of Schools 51

Appendix B, Sample Questionnaire 52

Appendix C, Letter Explaining Nature of the Study 53

Appendix D, Map of School Districts in Morton County in 1955 . . 54

Appendix E, Map of School Districts in Morton County in 1968 . . 55

Appendix F, Enrollment of Parochial Grade Schools in Morton County 56

LITERATURE CITED 57

LIST OF TABLES

TABLE		PAGE
I.	Enrollment and Accreditation of the Schools Used in the Study	5
II.	Annual Median Income of Persons 25 Years of Age and Over	12
III.	Minimum, Maximum, and Optimum Enrollment for Elementary and Secondary Schools	29
IV.	Comparisons of Rural Garde School Students Attending Different Sized High Schools	38
V.	Comparisons of Students Attending Different Small High Schools	40
VI.	Comparisons of Students Attending Different Medium High Schools	42
VII.	Total Comparisons of Students Attending Different Sized High Schools	43

ABSTRACT

The purpose of this study was to determine if the size of the grade and high schools which the students of the Morton County area, in North Dakota, attended had an effect on the continuation of their education.

The schools were grouped according to the enrollment and accreditation o f the high school, as rural and graded elementary schools, small schools, medium schools, and large schools. All the rural and graded elementary school students in Morton County were used. Also used were five small schools, five medium schools, and one large school--all from Morton and adjacent counties. The study was further limited to the eighth grade students from 1955 through 1959 that attended the same school as seventh graders.

A list of all the seventh and eighth grade students of the participating schools was obtained from the county superintendents of schools' records. The administrators of these schools were contacted first by letter and then in most cases personally. They readily supplied the information they had available. The remaining students or their parents or friends were contacted by telephone and in some cases by questionnaires.

The following information was obtained concerning all the students: if they started high school; if they finished high school; if they started a college or vocational school; if they graduated from a junior college or vocational school; and if they graduated from a four year college or university. This information on all the students was placed in tables and analyzed.

The results indicated that there was a direct relationship between the size of the school and the per cent of students starting high school, starting college, finishing a four year college or university, and finishing some type of training at either a four year school, a junior college or a vocational school. This direct relationship also existed in per cent of students finishing high school except for the large school which had the lowest per cent of high school completion.

From these results the general conclusion was: The larger the school the student attended the more likely he was to continue his education.

From the results and conclusions, it was recommended that the rural and graded elementary schools along with the small schools be reorganized or annexed to an accredited high school district. A further recommendation was to conduct another study including all parochial school students in Mandan. Another study comparing other large school with Mandan should also be considered.

CHAPTER I

INTRODUCTION

The educational programs of the schools are of great concern to the people of local communities and states. Statutes have been enacted by most states requiring children of specific ages to attend school.

According to Dawson and Reeves (9:73), the fundamental purpose of a school was to provide an adequate educational program that would stimulate and guide each individual in developing his abilities to their fullest extent. The most important criterion in any school was the extent to which it could provide the kind of educational programs needed by the students and people of the community. The educational needs of children vary and the problems involved in meeting these needs are different in the various communities.

When interpreting the educational needs of students, many areas must be considered. It seemed reasonable to the investigator that the more services that were available to students the more likely their needs would be met. Much of the literature reviewed, Alm (1:10), Dawson and Reeves (9:127), Egerton (12:13), Hamilton and Rowe (16:404), Henry (18:122), Kent (23:133), Lathrop (25:48), Russell (42:156), and Weaver (50:516) indicated the importance of having many services available to the students. There was a definite trend that the larger the school the more likely they could provide: guidance and counseling services, health education and health services, vocational education, educational opportunities for handicapped students, school for young children of kindergarten age, adult education, wider curriculum offerings, better physical facilities, better qualified teachers, and more modern teaching aids.

Authorities, Altman (2:307), Dikerson (11:475), Gray (14:2631), Hamilton and Rowe (16:401), Hill (19:1840), Jackson (21:6472), Kent (23:133), Knapp (24:576), Lathrop (25:37), Lehmann (27:1937), McDaniel (29:1658), O'Donnell (36:926), Pearson (38:1621), Ptacek (39:200), Rowe (41:18), Smith (46:3332), Street (48:261), Teets (49:2375), Weaver (50:516), and Young (51:1960) considered a wide range of criteria which included rank in class, academic achievement, achievement tests, sequence and kinds of courses completed, and high school from which students graduated as methods used to predict a student's success in college and life. According to Altman (2: 307), there appeared to be no disagreement among writers and educators that rank in class or scholarship were factors important to academic success in college, but the size of a high school as a predictor of success was questioned.

According to Moore and King (32:28-29), "It has been shown that high school class rank is one of the better predictors of college success." Considering class rank as a good measure of achievement, Moore and King conducted a study using a class with an equal number of urban and rural students. They found that there was a significantly greater proportion of urban students ranking in the upper two-fifths of the class and more rural students in the lower two-fifths of the class.

Varifying the investigator's assumptions that high schools vary in quality, Pearson (38:1621) found that success in one high school was definitely more of an indication of college success than success in another high school.

Russell (42:154-55) noted that it is highly possible that within the next decade, 90 per cent or more of those students of high school age will

be attending some type of secondary school. He further pointed out that the President's Commission on Higher Education showed at least 32 per cent of the population had an intelligence level high enough to graduate from college and 50 per cent could profit from two years of college.

Research (35:9) revealed that one of the measures of the effectiveness of an educational program was the proportion of pupils being graduated from high school.

The disagreement among educators relative to the size of the school as an indicator of success and the information about the number of students that could profit from college attendance led to the formation of this problem.

STATEMENT OF THE PROBLEM

The problem in this study was to determine if the size of the schools, which the students of the Morton County area in North Dakota attended, had an effect on the continuation of their education.

PURPOSE OF THE STUDY

The purpose of this study was twofold:

1. To determine if there was a difference in the amount of education completed by students of rural or graded elementary schools in Morton County that attended small high schools, medium-sized high schools or large high schools. This comparison of students was used to evaluate the effectiveness of the instructional program in the different sized high schools. Jackson

(21:6472), Hammond (17:469-70) and others used similar methods to determine the quality of education of different sized high schools. The results of these and many other studies are given in Chapter II.

2. To determine if the size of the grade and high school had an effect on the amount of education a student completed by comparing:

   a. Rural and graded elementary students attending high school.
   b. Grade students of a small high school attending a small high school.
   c. Grade students of a medium-sized high school attending a medium-sized high school.
   d. Grade students of a large high school attending a large high school.

The results of this study were made available to the administrators of the schools compared for their use in evaluating and revising their educational programs. It was hoped further use of these results, along with the much publicized Alm Report (1:1-39) would be used by the people and legislators in forming new districts from the many rural, graded-elementary and small high school districts in the Morton County area.

PROCEDURE

The six high schools of Morton County were divided into three groups according to their enrollment in grades 9 through 12 as of September 15, 1967, and type of accreditation as of March 1, 1967. These groups included: large type I high school with an enrollment above 1000 students, medium-sized type II or III high school with an enrollment between 165 and 205

students, and non-accredited small high school with an enrollment below 60. One medium-sized high school and four small high schools in adjacent counties were included to give the study more validity. The groups were chosen in this fashion to include all the high schools in Morton County and yet have the greatest diversity. A list of the schools in each group with their enrollment and type of accreditation can be found in Table I.

TABLE I

ENROLLMENT AND ACCREDITATION OF THE SCHOOLS USED IN THE STUDY

Size of High School	Enrollment Grades 9-12 Sept. 15, 1967	Classification March 1, 1967
Large		
Mandan	1114	I-A
Medium		
Flasher	175	III-A
Glen Ullin	187	III-A
Hazen*	185	III-A
Hebron	165	II-A
New Salem	202	III-A
Small		
Almont	43	N/A
Dodge*	55	N/A
Golden Valley*	53	N/A
Selfridge*	48	N/A
Zap*	46	N/A

*Schools located in counties other than Morton County.

This study included all the eighth grade graduates of the rural and graded elementary schools in Morton County during the five year period from 1955 through 1959. Also included were the eighth grade graduates from the three groups of high schools during the same five year period. For the eighth grade graduates to be included in the study, they must have attended the same school for at least the seventh and eighth grades. A complete list of all the students used in the study was obtained from the county superintendents.

The administrators of the schools in the study were contacted first by letter (Appendix A, page 51) and then interviewed by the investigator. From the follow-up records available, the administrators readily supplied the following information concerning the students: attendance in a high school, graduation from a high school, attendance at a college or a vocational school, graduation from a junior college or a vocational school, and graduation from a four year college or university. Where records were not available, personal interviews were conducted with parents and students, while other parents and students were contacted by telephone. When information concerning the students could not be obtained by the preceding methods, it was obtained by means of a mailed questionnaire (Appendix B, page 52). Included with the questionnaire was a letter explaining the nature of the study (Appendix C, page 53) and a stamped self-addressed return envelope.

The accumulated data concerning the students' amount of education was assessed and placed in tables according to the elementary school and the size of the high school they attended. The results of the tables were inter-

preted and used to draw conclusions concerning the effectiveness of the different groups of schools' educational programs. Recommendations for use by the schools, the public, and for further study were also formulated from the data accumulated.

LIMITATIONS OF THE STUDY

This study was limited to the eighth grade graduates of the public schools of Morton County and four other schools in adjacent counties during the years of 1955 through 1959. A further limitation was placed on the eighth grade graduates which required that they had attended the same school in at least the seventh and eighth grades. It was believed by the investigator that by using students in the same area, but of different sized schools, a comparison in the amount of education of the students of different sized schools could be made.

DEFINITION OF TERMS

The following terms, as defined by the investigator, are used throughout the study.

Alm Report: A comprehensive statewide study of the educational system in North Dakota between 1965 and 1967. This study was a joint effort of the North Dakota Department of Public Instruction, the University of North Dakota, a legislative subcommittee, and local educational agencies. It included a summary of key facts about the North Dakota public school system along with several recommendations for improving the system.

Consolidation: An enlarged school formed by uniting small schools, usually two or more one or two teacher schools in the same or adjoining districts, for the purpose of providing better facilities and increased educational opportunities.

Graded Elementary School: A school that has one or more classrooms that may contain all eight grades and is taught by one or more teachers.

Graded Elementary School District: A school district that has at least one graded elementary school.

Large High School: Schools classified by the North Dakota State Department of Public Instruction as type I accredited and having more than 1000 students in grades 9 through 12.

Medium-Sized High School: Schools classified by the North Dakota State Department of Public Instruction as type II or III accredited and having between 165 and 205 students in grades 9 through 12.

Reorganization: The formation of a new school district by altering the boundaries of present districts, by uniting two or more established districts, by subdividing one or more districts, or by any combination of these methods.

Rural School: A one room school that may include all eight grades and is taught by one teacher.

Rural School District: A school district that has at least one rural school.

Small High School: Schools classified by the North Dakota State Department of Public Instruction as non-accredited and having fewer than 60 students in grades 9 through 12.

CHAPTER II

REVIEW OF LITERATURE

Considerable information is available regarding the values of education, the elementary school's effect on students, size of the high school a student attends and his success in college, school district reorganization, optimum school size, and the North Dakota educational system. A summary of the material related to this study has been included.

VALUES OF EDUCATION

The educational system in the United States has always been and still is of great importance to all people living in this country. Crow and Crow (6:109) stated, "Democracy is based on the principle that every individual should be given an opportunity to develop his talents to the limit of his ability." An individual could best develop his talents by attending school. Realizing that the financing of education is a critical problem, Russell (42:158) believed this country can well afford an investment that will encourage all young people to attend high school and college just as far as their talents warranted time and energy spent on the advanced level of education.

This leads to the question of how much school should be attended to fully develop a person's talents and how many people can benefit from high school and college. Russell (42:154-55) stated that it is greatly possible that within the next decade 90 per cent or more of those of high school age will be attending some type of secondary school. He further noted a conservative figure of the President's Commission of Higher Education

which stated that 32 per cent of the population has an intelligence level high enough to graduate from college and 50 per cent could profit from two years of college. Berdie (4:57), using figures in the President's Commission on Higher Education report, indicated that since fewer than half [Simon and Grant (44:52) gave the 1965-66 figure to be 75 per cent] of the appropriate age group graduate from high school, a group as large as our total group of high school graduates could benefit from college training. In the same book, Hollinshead, estimated that 35 per cent rather than 50 per cent of our young people could benefit from at least two years of college. If we accept this more conservative figure, a group approximately 75 per cent as large as our group of high school graduates should attend college, as compared with the 35 per cent who actually attend.

Simon and Grant (44:1, 12, 63), in the 1967 Digest of Educational Statistics, revealed these latest United States statistics: In 1960, 41.1 per cent of the population 25 years and over had at least four years of high school while 7.7 per cent of the same population had four years of college. By 1966, 71 per cent of the adults 25-29 years old were high school graduates and 14 per cent had four years of college. In 1951, 24 per cent of the population 18-21 years old were attending college and by 1965, 46 per cent of the same population were attending college.

Many reasons were given for all the stress encouraging people to attend high school and college. These reasons varied from it is necessary to get a job, the amount of money that can be made, to the parents saying and realizing that education is necessary for their children. Attention

has also been directed to the assumption that too many people will become educated for the number of jobs available.

Russell(42:153, 155) indicated that employers are requiring a higher level of education, for their employees, than in the past. Many employers are following this policy even when the preparation itself has no particular relation to the work to be done. He also noted that more parents are realizing that high school education is practically a necessity for their children.

Simon and Grant (44:1, 14) cited that in 1965 the median income of men 25 years and older that were college graduates was $9,000, high school graduates was $6,500, and elementary school graduates was $4,200. In a life time the earnings of the college graduate would be $185,000 more than the high school graduate and $270,000 more than the eighth graduate. Table II gives 1965 data concerning the median, annual income of persons 25 years of age and over.

TABLE II

ANNUAL MEDIAN INCOME OF PERSONS 25 YEARS OF AGE AND OVER

	Men	Women
8th Grade Graduate	$4,210	$1,388
High School Graduate	6,458	2,544
College (4 years)	8,748	4,293
5 years or more	9,613	5,670

Russel (42:155, 157) stated that the educated will find jobs. The call is for more college prepared personnel than are now available. More doctors, engineers, and highly trained technicians are needed. This trend will continue in our expanding economy and relatively high social mobility. Adequate guidance and counseling should prevent overcrowding in specific professions. Daughtry (7:2465) was in agreement with Russell and noted there is a serious shortage of college educated people for the professional and technical vocations. Berdie (4:3) expressed his opinion as follows:

> "It seems . . . evident that our society is rapidly developing more specialized activities, vocations, and professions, each one presupposing that a supply of personnel will be available of very high innate ability and with special training. The aggregate of these demands, when seen over against the character of the population, seems to make it clear that we do not possess the requisite number of highly competent personnel to satisfy these demands. We are paralleling in the field of human resources the phenomenon which is becoming more and more characteristic of America, that our demands for material resources outstrip our supply."

A study by the American Council of Education (4:21) revealed that in cities with a population of more than one million, 44 per cent of the high school seniors applied for admission to college, in small towns 26 per cent applied for admission, and of the children of farmers only 21 per cent applied for admission to college. Hunt (20:60) found that of the 1953 graduates of Montana high schools, if the graduating class was over 100 students 46.7 per cent attended college, while if the graduating class was 15 or below only 35 per cent attended college.

Students of small towns and rural schools are not attaining the essential educational background and this is becoming a major concern. According to Dawson and Reeves (9:25-6), when the first United States census was

taken in 1790, approximately 94 per cent of the population lived in rural communities. By 1870 nonagricultural industries were providing employment for more people than farming and by 1940 only 17.6 per cent of the nation's labor force were employed in agriculture. Studies of population shifts between 1940 and 1944 show that many rural communities lost as much as one third of their population during this period. The largest group of migrants from rural areas to urban centers were the boys and girls seeking their first employment. The National Resources Committee (9;26) found that 25 per cent of the boys and 30 per cent of the girls between 10 and 14 years of age who lived on farms in 1920 had migrated to large population centers by 1930. Henry (18:7) reported that because of changes taking place in methods of agricultural production more than half of the young people reared on farms will be unable to find employment on farms when they enter the labor force. The rural young people will be competing with the urban youth for employment and cannot afford to be placed at a disadvantage because of their educational opportunities.

Dawson and Reeves (9:126-27) expounded on this situation and cited that new educational needs are arising because of the changes in social and economic life. These changes have increased the demands on the schools for new and better services. Most of these newer and expanded services can be made available only in the larger schools. Some of the services available to meet the needs of students are: a curriculum broader in scope available to the entire population of secondary school age, educational opportunities and facilities for adults, educational facilities for young children of

kindergarten age and younger, educational opportunities and facilities for handicapped children, vocational education, health education and health services, guidance and counseling services, school library service, and specialists for the identification and correction of atypical children.

Dawson and Reeves (9:22) gave specific criteria that Americans should desire from an educational program. An educational program should: (1) Give quality and scope to develop insight, cultural understanding, and breadth of vision that will enable different groups of people to work together on problems of common interest. (2) Break down the artificial, economic and social barriers and promote the true ideals of democratic living. (3) Build up the special interests, aptitudes and abilities of each individual and help him to correct and remove his personal shortcomings. (4) Prepare each person to do the job or fill the positions in life that interests him most and for which he is best fitted. (5) Insure the wise use of natural resources to promote the welfare of present and future generations.

STUDIES OF ELEMENTARY SCHOOL BACKGROUND

Many studies and investigations have been conducted and almost unanimously indicated that elementary students from large city or urban schools score higher on intelligence and achievement tests than small school or rural students.

Lehmann (27:1937) conducted a study to determine if there is a significant difference in the intelligence quotients between rural and urban children, and between boys and girls in grades 1-6. He gave 44 boys and

44 girls from southeastern Wisconsin form L of the Stanford-Binet Test. The mean intelligence quotient of the rural students was 105.4 and of the urban students 111.8. Lehman concluded that his findings supported earlier studies showing differences in intelligence quotients in favor of urban over rural children and negligible sex difference in intelligence quotients. Ptacek (39:200) was concerned with determining whether there were any significant differences in achievement scores of rural school eighth grade pupils and town eighth grade pupils who attended schools in western Nebraska. There was no significant difference in intelligence quotients between the two groups. His results revealed that the eighth graders in town schools scored higher in all tests of the Metropolitan Achievement Test. In two of the tests, arithmetic problem solving and concepts, and science, there was a statistically significant difference in favor of the eighth grade town pupils. Street, Powell and Hamblen (48:261, 266) examined the possible relationship between performance of students on standardized achievement tests and the size of the schools (in terms of enrollment) which they attended in a mining and rural area of eastern Kentucky. They found that students in large schools (above 300 enrollment) tend to out-perform students in smaller schools in the same or comparable districts.

According to Moore and King (32:28-9), high school class rank has been shown to be one of the better predictors of college success. Using class rank as a good measure of school achievement, they conducted a study of the 1962 graduating class at Hickman High School in Columbia to determine if rural students in grades one through eight and urban students in grades one through eight with comparable intelligence quotients varied in class rank.

They found that there was a significantly greater proportion of urban students in the upper two-fifths of the class and a significantly greater proportion of rural students in the lower two-fifths of the class in the ninth grade. By the twelfth grade there was a significantly greater proportion of urban students in the upper one-fifth of the class and no differences in the other four-fifths of the class. Moore and King believed the poorer background received by the rural students prevented them from catching up completely.

Hill (19:1840) was concerned with the educational development of pupils, at grade nine and then at grade twelve, with elementary education in parochial, public urban, and rural schools. He used 1497 pupils from twenty-eight Iowa schools to check development in five areas. He found urban pupils are superior to rural pupils in all areas at grade nine and in all areas except quantitative thinking at grade twelve. The urban pupils were superior to parochial pupils at grade nine in three areas and above in the other two but not significantly. By the twelfth grade, the public urban pupils were still favored in all areas but significantly in only one area. When the rural and parochial pupils were compared there was no superiority in any area at either level. It was noted that when comparing the public urban group with either the parochial group or the rural group, differences tended to become larger in magnitude and more differences tended to become statistically significant as the public urban schools involved larger enrollment. Armstrong's (3:237) investigation suggested that children of a rural environment are to some extent handicapped by assessment which is weighted in favor of speeded tests.

Teets (49:2375-6) examined the relationships existing in elementary schools among size, per pupil cost, and the extent of educational opportunity available in ninety Florida schools. He stated that an inverse relationship existed between the size of the elementary school and the extent of educational opportunity available. This statement was of great concern as he elaborated on his findings and cited a peak in extent of educational opportunity was reached in schools of 300-399 membership, diminished in schools of 400-499, a greater peak was reached in schools of 600-699, lessened and formed a plateau for schools of 700-1099 in membership. He concluded, "To obtain the greatest extent of educational opportunity at least instructional cost per pupil per unit of educational opportunity, elementary schools should be constructed to house from 600-720 pupils."

Finley and Thompson (13:471,475) made a comparison of the achievement of multi-graded (four teachers or less) and single-graded rural school children in Sonoma County, California. Their findings indicated that there were no differences in the achievement of rural school children, whether they were educated in a single-graded or multi-graded school.

Egerton (12:13) and Henry (18:3) believed some serious obstacles to the improvement of rural schools lay within the immediate province of education. These obstacles included: outmoded school districts, poorly trained teachers, shortage and high turnover of teachers, out-of-date or nonexistent equipment, lack of effective in-service education, dilapidated buildings, and political influences that block educational progress. It is necessary that these obstacles be removed so all children have equal educational opportunity.

STUDIES OF THE SIZE OF HIGH SCHOOLS AND SUCCESS IN COLLEGE

Studies have been cited which indicate rural students are inferior to urban students on intelligence and achievement tests. These rural students are still at somewhat of a disadvantage in their senior year in high school as shown by the results of tests at ninth and twelfth grade levels. In this section special attention is directed to the studies relative to students of various size schools and their achievement in high school and college.

Pearson (38:1621) conducted a study of the academic achievement of graduates of selected high schools in their freshman year at Northwestern University. He found that success in one high school definitely was more of an indication of college success than success in another high school. Weaver (50:516-17) attempted to determine if the size of the high school has an influence on the quality of North Carolina high schools. His conclusion stated that size does influence the quality of the high school. He further recommended consolidation of the small high school as one of the solutions to the problem of the inadequacy of the small high school. Davis (8:1266) determined if differences existed between small and large union schools in the state of North Carolina. He concluded with the following recommendation: "that either special help be given the small union schools that they might provide a better educational opportunity or that these schools should become part of a larger district." Hammond (17:469-70) studied the large and small county high schools in Ohio. His study indicated that the large county high school was superior to the small county high school.

One of the purposes of Jantze's (22:1969-70) study was to determine if differences existed in scholastic achievement in the basic school subjects of the various sized high schools in Nebraska. He found scholastic achievement in the basic school subjects increased as enrollment increased, up to a point, somewhere between an enrollment of 400-799 and then decreased. Jackson (21:6472) investigated the relationship between high school size and program adequacy. His investigation was unique because it included all 4,773 high schools in eleven southern states. Jackson's data presented a strong case in favor of schools which were larger than most of the high schools in the South. The inferiority of the small school, which enrolled fewer than 500 pupils, was evident in terms of practically every factor used as a basis for the comparison.

Smith (46:3332-33) analyzed the relationship of the size of the Arkansas high schools and the achievement of college-bound seniors on the American College Test (ACT). He grouped the Arkansas high schools (grades seven through twelve) according to the 1958-59 average daily attendance as: very small--150 or less, small--200-350, medium--400-550, large--600-750, and very large--800 or more. Smith's findings forced him to reject his hypothesis and revealed that the Arkansas high schools of 400 or more are graduating college-bound seniors who achieve at a significantly higher level in total educational development than smaller high schools. Another investigation of Arkansas students was conducted by Dikerson (11:475-76) to determine if a significant relationship existed between academic success in the first year at the University of Arkansas and the size of the preparatory high school. Mental ability as measured by the American Council on Educa-

tion Psychological Test was held constant. Dikerson concluded that students from the small high school (125 and below) in Arkansas tended to withdraw from the University of Arkansas at a higher rate than those from the large high schools of 300 or more students. Students coming to the University of Arkansas from the large public preparatory high schools of the state had a significantly greater scholastic ability than those from the small schools. But when the mental ability was held constant, the size of the preparatory high school seemed to have very little, if any, influence on the academic achievement of the students after they reached college.

Lathrop (25:37, 48) ascertained that the students from small and large high schools achieved equally well scholastically and that the various course patterns available at the different size high schools prepared the students equally well for entrance at Iowa State College . He analyzed that the size of the high school from which a student graduated had little influence on achievement at Iowa State College if the course pattern was eliminated. But the pattern of courses a student completed in high school greatly influenced his achievement at this college. Lathrop felt assured to conclude that, if the small high school could offer the diversity of courses that the large school offers, there would be no difference in the college achievement of graduates from the large and small high schools.

Young (51:1960-61) investigated the academic preparation and the academic achievement of graduates of various sized high schools while in college. He grouped the 1240 freshman students, at Purdue in 1952, into four university schools: engineering; science, education, and humanities; agriculture; and home economics according to their major field. Students en-

tering the school of engineering from large high schools were found to have significantly better mathematics preparation. The school of agriculture noticed a significant difference in English favoring the large high school. Physical science preparation of students entering the school of engineering favored the large high schools. None of the students from a small school came to the university better prepared than students from a larger school. There were no significant relationships between high school size and the number of times students were on grade probation, number of courses failed, and the number of semesters completed.

Knapp (24:576-77) compared the achievement of the 1954 Montana high school seniors from small schools (75 or less) with seniors of larger schools (approximately 300) in English and history. He concluded the small schools should attempt to reduce teacher turn-over and that the poorer achievement in English and history cannot be used as an argument against the small school. Therefore, any pleas for consolidation should consider other factors such as finances or breadth of program.

McDaniel's (30:1658) study was concerned with comparing the academic achievement (competence in mathematics, reading, and language) of pupils in large and small high schools. His study indicated there was no difference in the level of academic achievement attained by the white pupils attending the different sized secondary schools in Alabama. One of the problems O'Donnell (36:926-27) investigated concerned the academic success of rural and urban students in the 1956 freshman class of the University of Alabama. He found the academic success of rural and urban students did not significantly differ during their first semester there.

Schneider (43:115-16, 120) compared the achievement of 111 public high school graduates with that of 103 Catholic high school graduates selected from the freshman class at the University of Kentucky during the 1961-62 school year. The Catholic high school graduates scored significantly higher on the entrance examination but the public high school graduates scored significantly higher at the end of the first semester on grade points adjusted for entrance examination scores. No significant differences in achievement were discovered between graduates during the second semester or cumulatively during the entire freshman year. Schneider concluded there were no significant differences in achievement between the two groups that persisted beyond the first semester and that the differences in personality which existed were merely problems of orientation and adjustment.

SCHOOL DISTRICT REORGANIZATION

Many of the previous studies have indicated the disadvantages of the rural and small schools relative to the students' intelligence and achievements. Suggested recommendations to these small school problems invariably mention school consolidation or school reorganization. The Council of State Governments (5:66) revealed:

> "The weakness of local districts constitutes one of the most serious roadblocks to educational progress in many states and contributes to economic waste and poor quality education in most states. All states need to examine their provisions for school district reorganization to see that no unnecessary handicaps to reorganization exist, and that both incentives and guidance are provided for the creation of districts having the ability to provide needed educational programs and services at reasonable costs."

McClurkin (28:4-5) believed small school districts handicapped educational progress. He recommended school district reorganization for reasons of economy, efficiency, and equality. In the opinion of Dawson and Reeves (9:15), school district reorganization is imperative. The reason for their opinion was that a large majority of school districts now operating cannot give people the kind of educational programs they need to deal with the complex problems of present day life or adequately prepare youth to cope with problems of the future.

Rowe (41:18-19) stated, "Even the most skeptical opponents of school district reorganization agree that if evidence is provided which indicates that larger, more comprehensive districts produce better educated children than non-reorganized, smaller districts, they will support consolidation programs." Proponents of reorganization had long relied on logic, but now have studies to support their stand. In the same article, Dr. Krietlow of the University of Wisconsin conducted a comprehensive, carefully designed, seventeen year study to determine effects of school district reorganization. He paired ten communities on the basis of reorganized and non-reorganized schools. The achievement of the children at the first grade level was evaluated by the use of standardized tests. Subsequent tests were given the same pupils in the sixth, ninth and twelfth grades. The first grade pupils in the non-reorganized environment showed slightly higher achievement than the students in the reorganized districts. This status was only temporary and changed significantly as the pupils in non-reorganized districts progressed through school. Costs per pupil in reorganized districts exceeded the costs of educating a pupil in the non-reorganized district by

less than $12 per pupil per year. Consequently this small cost did not detract from the advantages in academic achievement in reorganized districts. This study was still in progress as Dr. Krietlow and his staff were making follow-up studies of the graduates over a five year period to determine if the dichotomy in academic achievement continues after graduation from high school.

Rowe also noted a study, reported by the National Science Foundation, which compared graduates of small high schools with graduates of large high schools. This study indicated that the number of students per thousand, throughout the United States, who received doctorates in all fields during the year 1958 were more than three times as great among students from the largest high schools when compared to students from the smaller schools. Many controlled variables were involved in the results, but the study left little doubt that a direct relationship existed between the size of the school and the extent of formal education.

In addition to Krietlow's study and the study reported by the National Science Foundation, Hamilton and Rowe (16:401-403) gave a complete summary of the following studies concerned with achievement and reorganization. Hieronymus studied the Iowa Basic Skills tests given to 71,000 sixth, seventh and eighth grade students. He found that of the eight variables investigated the greatest difference in achievement generally occurred between schools with multi-graded classes and single-graded classes, favoring the latter. Achievement test results at the ninth and twelfth grades which favored students from larger districts gave Feldt evidence to conclude that the pupil in Iowa who received his elementary education in a rural

school and his high school education in a school of 100 or fewer students was in "double jeopardy" as compared to his counterpart in large schools.

A study by Drier and another by McIntosh and Schrammel which often have been interpreted as yielding "no difference" conclusions actually end with statements which contradict or at least challenge the interpretation. Nelson's study which concluded that "size of a school is no guaranty of its efficiency," is often cited by opponents of reorganization. But in Nelson's study twenty-two of the twenty-four studies reviewed favored large schools. Hamilton and Rowe concluded that from the preponderent evidence mentioned greater academic achievement is more likely to take place in the larger and/or reorganized schools.

Dent (23:133) determined the extent and adequacy of selected educational characteristics in nine reorganized high schools in Indiana. He used nine reorganized high schools which were twenty-three high schools before reorganization and twenty-three matching high schools which were not reorganized. In all areas under consideration, the nine reorganized high schools were superior to the twenty-three original high schools. Greatest gains associated with reorganization occurred in providing a wider scope of subject offerings and in providing more adequate physical facilities. Instructional staffs of the nine reorganized high schools were <u>not</u> superior in training and experience, but they were working under conditions more favorable to satisfactory achievement. The nine reorganized schools were rated, using the <u>Evaluative Criteria</u>, in the areas of program of studies, activity program, and school plant and appeared to be average or above in providing educational opportunities.

OPTIMUM SCHOOL SIZE

The inadequacy of the small schools and the advantages of large or reorganized schools have been discussed. Many studies have been conducted to find the optimum school size in different parts of the country.

Sollars (47:3214) attempted to determine a desirable size range for elementary schools enrolling only pupils in grades one through six in twenty-one central Ohio counties. He used thirty schools with three schools in each of ten groups ranging from an enrollment of 0-99, 100-199 . . .to 900 and over. Sollars found that when all indicators were considered the 300 to 499 pupil range was the size category in which favorable indicators approached the maximum and unfavorable indicators approached the minimum. Leavitt (26:4573) indicated that the optimum sized elementary school is within a range of 200 to 699 pupils.

Gray (14:2631) analyzed forty Iowa public secondary schools that fit into four groups (A--1000 and above, B--400 to 999, C--150 to 399, and D--0 to 149). He found that the D schools did not excel on any of the factors investigated. There appeared to be an increase in quality as the school size increased with a plateau being reached on most factors at an enrollment of about 400 students. Ovaitt (37:1229 A-30 A) determined the optimum size for the high schools in Michigan to be within an enrollment from 1000 to 1200 students. Smith (45:2181-82) attempted to determine the optimum school-size range for three and four-year secondary schools in Ohio. His findings indicated that when all factors are considered, 800 to 1200 is the range at which favorable factors approach the maximum and unfavorable factors approach the minimum.

The study by Jackson (21:6472), that included all the schools in eleven southern states, proved that high schools should offer in grades nine through twelve a minimum of 3.2 times the number of course units required for graduation. For three year high schools, the minimum number should be 2.4 times the number required for graduation. He suggested the following pupil enrollment ranges: grades 7-12, 900 to 1300 students; grades 8-12, 810 to 1150; grades 9-12, 890 to 1250; and grades 10-12, 700 to 950 students. The defensible minimum for southern high schools was 500.

Dawson and Reeves (9:22-23) cited the Commission on School District Reorganization which concluded that where population and topographical factors permit the minimum size of any high school should be 300 pupils, or 75 pupils in each grade, with a minimum of twelve full-time teachers. The minimum size of an elementary school was one teacher at every grade level for each 25 pupils, or 175 pupils with seven teachers in grades K-6. Better quality education was received by the pupils if the elementary school had 300 pupils and at least twelve full-time teachers. Morphet, Johns and Reller (33:271, 324) suggested every elementary school should have at least two teachers per grade and junior or senior high at least 100 pupils at each grade level. Widespread agreement for the desirable size range was: for the elementary schools K-6, 200 to 700; for the junior high, 300 to 900; and for the senior high, 400 to 1500 pupils. Grieder, Pierce and Rosenstengel (15:15-16) summarized the recommendations of forty-five leading authorities on minimum, maximum, and optimum sizes of various school units which are included in the following table.

TABLE III

MINIMUM, MAXIMUM, AND OPTIMUM ENROLLMENT

FOR ELEMENTARY AND SECONDARY SCHOOLS

School Unit (grades)	Minimum	Maximum	Optimum
1-6	175	750	525
1-8	250	825	550
7-9 (Jr. H.S.)	300	1100	700
10-12 (Sr. H.S.)	350	1525	950
7-12 (Jr.-Sr. H.S.)	350	1150	775
13-14 (Jr. College)	275	1400	1000
1-12 (one building)	400	1075	800

Grieder, Pierce and Rosenstengel noted, "Deviations must be made when justified by reason of local or regional conditions over which school officials have little or no control." Examples of these conditions would be an area of sparse population or geographical barriers.

SUMMARY OF NORTH DAKOTA EDUCATIONAL FACTS

This study was conducted in North Dakota. To give the reader a view of North Dakota's educational situation, this summary was included. Many current facts and much statistical information was available from the recently published Alm Report.

McDonald (30:3427 A) had this to say about the public education system in North Dakota: It is essentially ineffective, inefficient and inequitable; it is correctable within present fiscal and human resources; and the corrective measures could be assimilated into a potentially effective plan of

action that could alleviate the basic ills of the educational system. Mazie (31:17 B) noted that North Dakota, by many standards, has one of the worst educational systems in the country.

Dawson and Reeves (9:265) reported that North Dakota had 4,216 schools--3,767 elementary and 449 secondary--in 1943-44. Of these 3,141 were one teacher schools. The Council of State Governments (5:56, 57, 192, 194) cited that North Dakota had 2,271 school districts in 1947-48. Also 92.4 per cent or 2,848 of North Dakota's elementary schools were one teacher schools. There were 422 high schools in the state with 60.4 per cent (243 schools) with below 50 students and 80.1 per cent (322 schools) with below 100 students. Therefore, North Dakota ranked 48th with more than 80 per cent of its high schools having an enrollment of less than 100 students. Latest statistics (10:8-9, 85) revealed as of September 15,1967, North Dakota had 498 school districts (207 high school, 66 graded elementary, 102 one-room rural and 66 not operating schools). There were 279 high schools in the state in 1966-67 and 160 of these had an enrollment below 100 students. As of September 15, 1967, there were 174 one teacher schools in session.

Many other key facts were revealed in the Alm Report (1:6-17). North Dakota ranked 50th among the states in the professional preparation of elementary school teachers. Only 1853 (40.8 per cent) of the elementary teachers held a college degree. Half of these non-degree teachers had not been back to school during the past five years. The average teacher whose age is forty-three that goes back to school only completes about one course per year. At this rate it would take them ten to twenty years to complete

their training. The high school situation is somewhat brighter as nearly all 2,456 teachers have a college degree. Even so, North Dakota ranks 50th in high school teacher preparation as only 13 per cent of the present teachers have masters degrees. Only 56.1 of the high school teachers devote themselves exclusively to high school teaching. The rest are employed as part-time administrators, librarians, counselors, or elementary teachers. Only 68 of North Dakota's 261 elementary principals qualify for state certification. Fifty-eight of these principals were employed by eleven school districts. There were only 38 fully qualified high school principals in the state. Another 210 people hold part-time administrative positions but are not qualified according to minimum certification standards. School superintendents were somewhat better prepared as 196 or 67.8 per cent hold masters degrees and thereby meet minimum certification standards.

North Dakota ranked 50th in overall opportunities for elementary education. Very few public kindergartens were available in the state. Kindergartens available enrolled only 22 per cent of the pupils elgible to attend. In the elementary schools nearly 23,000 or about 23 per cent of the children were taught solely by non-degree teachers. Their later achievement at the high school level was markedly and negatively affected by this practice. Twenty per cent of the full time teachers teach two or more grade levels. The typical high school enrolls fewer than 90 students in grades 9-12 and employs an average of only five or six teachers. This type of high school offers an average of 26-27 courses per year. Therefore, the students have very little freedom to pursue a certain area. The average number of courses available in the six largest high schools is 71. About 22,900 or

53.7 per cent of all high school students are enrolled in such substandard school programs.

The Alm Report (1:11-12) indicated students in the State's small school districts do not, on the average, perform as well as students in large school districts on standard tests of academic achievement. In 1966, 16,500 ninth and eleventh grade students--43 per cent of all the State's high school students--were tested in eight significant areas of academic achievement. Test scores at the ninth grade level reflected the pupils elementary school preparation since they had been in high school only one month. Test scores of eleventh graders fairly well reflected two years of high school experience. Ninth graders composite scores on all tests were significantly lower in schools enrolling fewer than 200 students in the upper four grades (one school with twenty-two students was an exception). The best average scores were achieved in districts that enrolled 500 or more students in grades nine through twelve. Similar tests results were obtained from eleventh grade students, again with one exception. The best average scores were achieved by students in districts that enrolled more than 1000 students in the upper four grades.

Everything is not this bleak as NEA Research (40:13) reported that North Dakota ranked 34th with $2,133 per capita personal income in 1964. However, it ranked 13th with 4.2 per cent of the 1964 income being used for current expenditures of education in 1964-65. North Dakota residents are putting forth an honest effort in supporting education as indicated by amount of income used for education. Alm reported an estimated 7 per cent

of annual expenditures for education is lost due to organizational structure alone. In 1966, this meant a loss of $3.65 million.

The inequality in educational costs also was a major concern. The rural elementary and small non-accredited twelve-grade districts are expensive to operate, but still worse the students received less educational benefits. In 1965-66 the per pupil cost (exclusive of transportation and capital outlay) were:

One-room rural districts	$486.97
Graded elementary districts	409.42
Non-accredited 12 grade districts	450.15
Accredited 12 grade districts	424.95

This reveals that the sixty-seven small non-accredited twelve grade districts spent twenty-five dollars more per pupil than the accredited districts; yet they employed significantly more non-degree teachers, provided less extensive programs, and offered fewer services to the pupils.

The Alm Report gives many specific recommendations for legislative action, action by the North Dakota State Department of Public Instruction, and action by the state colleges and universities. The main areas to be improved were the over elaborate systems of local school district organizations, the reliance on the underprepared and partly qualified personnel, improved curriculum, more funds for instructional materials, and increased salaries.

The Alm Report may not be the whole or the only answer to North Dakota's educational problems, but it is one that has many merits. Mazie (31:17 B) reported that this plan has been hailed as the first of its kind

in the country and is being watched by other states. It has received a six million dollar stamp of approval from the U. S. Office of Education. In Mazie's article Harold Howe II, U. S. Commissioner of Education, called the Alm Report, "the most exciting new venture in U. S. education today." In the same article a noted British educator says it's "the most imaginative program being developed in the United States."

CHAPTER III

RESULTS

To give the reader a more meaningful interpretation of the results of this study, some of the geographical and economical features of Morton County are included.

GEOGRAPHICAL AND ECONOMICAL FEATURES OF MORTON COUNTY

Morton County, which is located in south central North Dakota, has an area of 1937 square miles. It has a population of about 21,000 friendly, hardworking, well fed people almost entirely of the white race. It is bordered on the east by the once mighty Missouri River and partially on the south by the Cannonball River. Interstate 94, a divided four lane highway, goes across Morton County from east to west parallel to the northern border and about ten miles south of it. The Northern Pacific Railroad runs across the county near the interstate highway.

The county is considered rural with the croplands producing wheat, barley, oats and other cereal crops and the grazing lands holding large herds of beef and dairy cattle.

Mandan, the county seat and largest city, has a population of about 11,000 people. It is a switching station for railroad crews. Just north of Mandan is one of the largest oil refineries in the Northwest, the American Oil Company, which produces over 30,000 barrels of gasoline per day. North of the refinery is the Montana-Dakota Utilities power station which puts out 100,000 kilowatts of electricity per hour. Located just across the Missouri River to the east is Bismarck, a city of 35,000 and the capital of North Dakota.

Other towns in Morton County are: Flasher a town of about 500, Glen Ullin about 1200, and Almont about 200. These are noted for their cereal crops and beef cattle. New Salem a town of about 1000 is the heart of the dairyland. Hebron a town of about 1300 has a brick factory. These towns and cities are the only ones in Morton County over 50 people and all have a high school and grade schools.

SCHOOL LAWS PERTAINING TO ATTENDANCE AND SCHOOL DISTRICT OPERATION

During the years of this study, all the children were required to attend school until they reached their seventeenth birthday or until they finished the eighth grade. Therefore, students were not required to go to high school. Starting with the 1961-62 school year, all students were required to attend school until they reached their sixteenth birthday. This law required almost all students to start high school.

School districts could continue to operate, even if they did not have a school in operation, until the 1961-62 school year. Starting at this time, if a school district had no school in operation for two consecutive years, the County Reorganization Board called a hearing and asked the people of the district which district they would like to join. The district could be divided among two or more districts. This procedure was known as dissolution of a district.

When part of a district was annexed or reorganized with another district, the remaining part of the district must have had an evaluation of $100,000 for each teacher to continue operation. If the remaining part

of the district did not have the necessary evaluation, the County Reorganization Board would call a hearing to dissolve the district.

SCHOOL DISTRICT INFORMATION

The same records for the size of a district were used until the 1958-59 school year when the size of many districts was slightly adjusted because of the Missouri River and as a result of the start of school district reorganization.

A map of the school districts in Morton County in 1955 (Appendix D, page 54) and a map showing the school districts in 1968 (Appendix E, page 55) are included.

At the time of this study parochial grade schools were in operation in Mandan, Flasher, Glen Ullin (Curlew district), Selfridge, St. Anthony (Little Heart district), Fallon (Oak Coulee district) and rural Glen Ullin (Wehri district). A list of these schools with their enrollments is included (Appendix F, page 56). Remember parochial grade school students are not included in this study.

INTERPRETATION OF RESULTS

The results of this study are summerized in four tables. Table IV shows the comparisons of the rural grade school students of Morton County attending the different sized high schools and the totals for these rural students. When interpreting the results of this table, it should be remembered that Morton County had only one large and one small high school. Therefore, almost all the rural students attending the small high school

TABLE IV

COMPARISONS OF RURAL GRADE SCHOOL STUDENTS ATTENDING DIFFERENT SIZED HIGH SCHOOLS

	Correspondence	Small H.S.	Medium H.S.	Large H.S.	Totals
Total students					491
Total reported					483
% reported					98.4
No. started H.S.	13	34	163	191	401
% started H.S.					83.0
No. finished H.S.	8	27	146	147	328
% finished H.S. (reported)					68.0
% finished H.S. (started)	61.5	79.4	89.6	77.0	81.8
No. started college	3	8	59	61	131
% started college (reported)					27.1
% started college (H.S.grad.)	37.5	29.6	40.4	41.5	39.9
No. finished Jr. Col. or Voc. S.	1	6	17	17	41
% finished Jr. Col. or Voc. S. (reported)					8.5
% finished Jr. Col. or Voc. S. (H.S. grad.)	12.5	22.2	11.6	11.6	12.5
No. finished 4 yr. school		1	26	28	55
% finished 4 yr. school (reported)					11.4
% finished 4 yr. school (H.S. grad.)	0.0	3.7	17.8	19.0	16.8
No. finished 4 yr. school, Jr. Col. or Voc. S.	1	7	43	45	96
% finished 4 yr. school, Jr. Col. or Voc. S. (reported)					19.9
% finished 4 yr. school, Jr. Col. or Voc. S. (H.S. grad.)	12.5	25.9	29.4	30.6	29.3
% finished 4 yr. school, Jr. Col. or Voc. S. (started college)	33.3	87.5	73.0	73.8	73.2

attended Almont and those attending the large high school attended Mandan. Attention should be drawn to the fact that the table looks incomplete; however, it is not. It was impossible to determine what high school a student should have attended.

The results indicated the per cent of students completing high school was higher as the high school became larger, with one exception--the largest high school. The per cent of students starting college and graduating from some four year college, junior college or vocational school followed this pattern: the larger the high school the greater the per cent. It was also found that students taking high school by correspondence or attending a small high school were more likely to finish a junior college or vocational school. Students attending the medium and large high schools were much more likely to finish a four year school.

Table V compares the rural students attending a small high school with students attending the same grade and high school. The totals do not include the rural students attending a small high school.

Recalling that Almont was the only small high school in the county, we can compare the rural students with the students attending both grade and high school in Almont. It should be noted that in all areas, the per cent was higher for the Almont grade students than the rural students. This is also true in every case except per cent of high school graduates finishing junior college or a vocational school when we compare rural students with the totals.

All three of the Almont students that graduated from a four year college were from the same family.

TABLE V

COMPARISONS OF STUDENTS ATTENDING DIFFERENT SMALL HIGH SCHOOLS

	Rural Students	Almont	Dodge	Golden Valley	Selfridge	Zap	Total Town students
Total students		28	53	33	20	55	189
Total reported		28	51	32	18	54	183
% reported		100	96.2	97.0	90.0	98.2	96.9
No. started H.S.	34	28	50	30	16	46	170
% started H.S.		100	98.1	93.8	89.0	85.2	92.9
No. finished H.S.	27	26	40	27	14	38	145
% finished H.S. (reported)		92.8	78.5	84.5	77.7	70.4	79.3
% finished H.S. (started)	79.4	92.8	80.0	90.0	87.5	82.6	85.4
No. started college	8	14	18	7	8	19	66
% started college (reported)		50.0	35.3	21.8	44.4	35.2	36.1
% started college (H.S.grad.)	29.6	53.8	45.0	25.9	57.1	50.0	45.5
No. finished Jr. Col. or Voc. S.	6	8	8	3	3	8	30
% finished Jr. Col. or Voc. S. (reported)		28.6	15.7	9.4	16.7	14.8	16.4
% finished Jr. Col. or Voc. S. (H.S. grad.)	22.2	30.8	20.0	11.1	21.4	21.0	20.7
No finished 4 yr. school	1	3	7	3	2	9	24
% finished 4 yr. school (reported)		10.7	13.7	9.4	11.1	16.7	13.1
% finished 4 yr. school (H.S. grad.)	3.7	11.5	17.5	11.1	14.3	23.7	16.5
No. finished 4 yr. school, Jr. Col. or Voc. S.	7	11	15	6	5	17	54
% finished 4 yr. school, Jr. Col. or Voc. S. (reported)		39.3	29.4	18.8	27.8	31.5	29.5
% finished 4 yr. school, Jr. Col. or Voc. S. (H.S. grad.)	25.9	42.3	37.5	22.2	35.7	44.7	37.2
% finished 4 yr. school, Jr. Col. or Voc. S. (started college)	87.5	78.5	83.3	85.8	62.5	89.5	81.9

Table VI page 42 compares the rural students attending a medium high school with students attending the same grade and high school. Again the totals do not include the rural students attending a medium high school.

When comparing the rural students attending the different medium high schools with the totals of the medium high schools, the following were found to be true. The per cent of students starting college, finishing a four year school, and finishing a four year school, junior college or vocational school was higher for the students attending the medium sized schools than the rural schools. The inverse was true for the per cent of students finishing high school and finishing junior college or a vocational school.

Table VII page 43 is used to compare the total number of students attending each of the three different sized high schools and the totals for all the students in the study. It can also be used to compare the rural students attending a large high school with the students attending the same grade and large high school.

Remembering that Mandan is the only large high school in the county, the statistics revealed the students attending grade school in Mandan were superior percentage wise to the rural students in all areas except one. This one exception was the per cent of students finishing high school.

When comparing the total rural school students, total small school students, total medium school students, and total large school students, it was found that the per cent varies directly as the size of the school increases in seven of the twelve areas considered. No pattern was found

TABLE VI

COMPARISONS OF STUDENTS ATTENDING DIFFERENT MEDIUM HIGH SCHOOLS

	Rural students	Flasher	Glen Ullin	Hebron	Hazen	New Salem	Totals Town schools
Total students		28	54	145	139	94	460
Total reported		28	53	135	136	92	444
% reported		100	98.2	93.1	98.0	97.9	96.5
No. started H.S.	163	27	49	133	129	91	429
% started H.S.		96.5	92.5	98.5	95.0	98.9	96.6
No. finished H.S.	146	20	42	109	118	77	366
% finished H.S. (reported)		71.5	79.3	80.8	86.8	83.7	82.5
% finished H.S. (started)	89.6	74.1	85.7	81.9	91.5	84.6	85.5
No. started college	59	6	19	50	78	40	193
% started college (reported)		21.4	36.8	37.0	57.4	43.5	43.5
% started college (H.S. grad.)	40.4	30.0	45.2	45.8	66.1	52.0	52.7
No. finished Jr. Col. or Voc. S.	17	2	6	6	9	6	29
% finished Jr. Col. or Voc. S (reported)		7.1	11.3	4.4	6.6	6.5	6.5
% finished Jr. Col. or Voc. S. (H.S. grad.)	11.6	10.0	14.3	5.5	7.6	7.8	7.9
No. finished 4 yr. school	26	2	12	32	49	26	121
% finished 4 yr. school (reported)		7.1	22.6	23.7	36.0	28.3	27.3
% finished 4 yr. school (H.S. grad.)	17.8	10.0	28.6	29.3	41.5	33.8	33.1
No. finished 4 yr. school, Jr. Col. or Voc. S.	43	4	18	38	58	32	150
% finished 4 yr. school, Jr. Col. or Voc. S. (reported)		14.2	33.9	28.1	42.6	34.8	33.8
% finished 4 yr. school, Jr. Col. or Voc. S. (H.S. grad.)	29.4	20.0	42.9	34.8	49.1	41.6	41.0
% finished 4 yr. school, Jr. Col. or Voc. S. (started college)	73.0	66.7	94.8	76.0	74.4	80.0	77.7

TABLE VII

TOTAL COMPARISONS OF STUDENTS ATTENDING DIFFERENT SIZED HIGH SCHOOLS

	R. students (Large H.S.)	R. students Totals	Small H.S. Totals	Medium H.S. Totals	Large H.S. Totals	Combined Totals
Total students		491	189	460	302	1442
Total reported		483	183	444	268	1378
% reported		98.4	96.9	96.5	88.8	95.5
No. started H.S.	191	401	170	429	263	1263
% started H.S.		83.0	92.9	96.6	98.2	91.8
No. finished H.S.	147	328	145	366	179	1018
% finished H.S. (reported)		68.0	79.3	82.5	66.8	73.8
% finished H.S. (started)	77.0	81.8	85.4	85.5	68.0	80.5
No. started college	61	131	66	193	130	520
% started college (reported)		27.1	36.1	43.5	48.5	37.8
% started college (H.S. grad.)	41.5	39.9	45.5	52.7	72.6	51.1
No finished Jr. Col. or Voc. S.	17	41	30	29	22	122
% finished Jr. Col. or Voc. S. (reported)		8.5	16.4	6.5	8.2	8.8
% finished Jr. Col. or Voc. S. (H.S. grad.)	11.6	12.5	20.7	7.9	12.3	12.0
No. finished 4 yr. school	28	55	24	121	75	275
% finished 4 yr. school (reported)		11.4	13.1	27.3	28.0	20.0
% finished 4 yr. school (H.S. grad.)	19.0	16.8	16.5	33.1	41.8	27.0
No. finished 4 yr. school, Jr. Col. or Voc. S.	45	96	54	150	97	397
% finished 4 yr. school, Jr. Col. or Voc. S. (reported)		19.9	29.5	33.8	36.2	28.8
% finished 4 yr. school, Jr. Col. or Voc. S. (H.S. grad.)	30.6	29.3	37.2	41.0	54.1	39.0
% finished 4 yr. school, Jr. Col. or Voc. S. (started college)	73.8	73.2	81.9	77.7	74.6	76.4

in one of the areas. This area was the per cent of students starting college and then graduating from a four year school, junior college or vocational school. A higher per cent of the rural and small school students (reported and graduated) finished a junior college or a vocational school. In the other two areas the per cent of reported students finishing high school and the per cent of students finishing high school that started high school again varied directly as the size of the school increased, except for the large high school.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY

The purpose of this study was to determine if the size of the grade and high schools which the students of the Morton County area, in North Dakota, attended had an effect on the continuation of their education.

The schools were grouped according to the enrollment and accreditation of the high school as rural and graded elementary schools, small schools, medium schools, and large schools. All the rural and graded elementary school students in Morton County were used. Also used were the grade students from five small schools, five medium schools, and one large school all from Morton and adjacent counties. The study was further limited to the eighth grade students from 1955 through 1959 that attended the same school as seventh graders.

A list of all the seventh and eighth grade students of the participating schools was obtained from the county superintendents of schools' records. The administrators of the schools were contacted first by letter and then in most cases personally. They readily supplied the information they had available. The remaining students or their parents or friends were contacted by telephone and in some cases by questionnaires. The following information was obtained concerning all the students: if they started high school, if they finished high school, if they started a college or vocational school, if they graduated from a junior college or vocational school, and if they graduated from a four year college or university. This information on all the students was placed in tables and analyzed.

CONCLUSIONS

Information was obtained on 95.5 per cent of the 1442 students used in the study. The students were compared by per cent in six major areas: 1) starting high school; 2) finishing high school; 3) starting college; 4) finishing junior college or vocational school; 5) finishing a four year school (college or university); and 6) finishing a four year school, junior college or vocational school. The rural students could not be compared as to the per cent starting high school because it was impossible to determine which high school a rural student should have attended.

When the rural and graded elementary school students (hereafter referred to as rural school students) were compared using the size of the high school they attended, the following were found:

1. There was a direct relationship between the size of the high school and the per cent of students starting college, finishing a four year college or university, and finishing a four year school, junior college or vocational school.
2. The per cent of students finishing high school was higher as the size of the high school increased except for the largest high school which had the lowest per cent.
3. The students attending the small high school had the greatest per cent of students finishing a junior college or vocational school. The medium and large high schools had the same per cent. This indicated that if the student attended a medium or large high school he was more likely to complete more education.

When the rural school students that attended small, medium and large high schools were compared with the grade students of these different sized schools the following were true:

1. There was a direct relationship in four of the five areas in favor of the grade students of the small high schools over the rural students attending the small high school. The exception being the per cent of students finishing a junior college or vocational school.
2. The per cent of students starting college, finishing a four year school and finishing a four year school, junior college or vocational school was higher for the grade students of medium high schools when compared with rural school students attending medium sized high schools. Again the per cent of students finishing a junior college or vocational school was higher for the rural school students. The per cent of rural school students finishing high school was also higher.
3. When the rural school students attending a large high school were compared with the grade students of the large high school it was found that the grade students of the large high school were superior in percentage in four of the five areas. The per cent of students graduating from high school was higher for the rural school students.

When comparing the rural students attending any size high school with the grade students of the small, medium and large high schools attending their respective high schools, the following were found:

1. There was a direct relationship between the size of the school (from rural to large) and the per cent of students starting high school, starting college, finishing a four year college or university, and finishing

a four year school, junior college or vocational school.

2. The rural and small schools had a higher per cent of their students finish a junior college or vocational school than the medium and large schools.

3. The per cent of students finishing high school also followed the direct relationship between size and per cent of students except for the large school which had the lowest per cent.

The specific conclusions support the general conclusion that there was a direct relationship between the size of the school and the per cent of students starting high school, starting college, finishing a four year college or university, and finishing some type of training at either a four year school, a junior college or a vocational school. This direct relationship also existed in per cent of students finishing high school except for the large school which had the lowest per cent of high school completion in all cases. The rural students attending a medium high school also had a higher per cent of its students finishing high school than did the medium schools. A greater percentage of the rural and small school students completed a junior college or vocational school. This indicated that students attending a medium or large school were more likely to continue their education.

Even though the students of the large high school, Mandan, had the highest percentage in four of the six areas, the low per cent of students finishing high school is of some concern. The Mandan High School principal indicated a reason for this. He stated that many of the lower class

of students along with the trouble makers at the parochial schools were attending the public grade school. Another reason may be that the Mandan school is too college oriented and may overlook the poorer students.

RECOMMENDATIONS

The following recommendations were formed from the results and conclusions of this study:

1. It is recommended that the rural and graded elementary schools in Morton County with only a few students (about six to fifteen) be closed and the rural and graded districts be reorganized or annexed to an accredited high school district.
2. To give all students an equal educational opportunity, it is recommended that small non-accredited high school districts be reorganized or annexed to an accredited high school district whenever geographical possible.
3. It is recommended that another study be made of the grade students in Mandan and include the parochial school students.
4. A similar study should also be made of other large high schools and compared with the results of the Mandan students.
5. The Alm Report and the results of this study be used by the school administrators and state legislators to make the educational system in North Dakota more effective, both in quality of education and economical use of funds.

APPENDIX

Appendix A

Superintendent _____
_____High School
_____, N. Dak.

Superintendent _____:

This letter is part of a follow-up of eighth grade students in the area. The results will be used to write a professional paper for partial completion of a masters degree in school administration.

The purpose of my study is to determine if the size of the grade and high school has an effect on the amount of education completed by a student.

In my study I will be using the students that attended the eighth grade in your school from 1955 through 1959. Enclosed is a list of these students. I will be visiting administrators in your area on _____ and would like to visit you at your school office on _____ at about _____. If you will be out of town or if this time is inconvenient for you, please notify me.

I am enclosing a questionnaire that will show you the type of information I am gathering. Any information you could make available from follow-up records, class reunions, etc. about the students will be greatly appreciated.

If you would like a summary of this study when completed, I will be happy to satisfy your request.

Enclosed also find a postcard for your convenience in replying.

Sincerely,

Leland A. Fleischer
1413 2nd St. N. W.
Mandan, N. Dak.
58554

Appendix B

Name _____

Eighth Grade Attended _____
School Date

DIRECTIONS: Please answer the following questions in the space provided. Space is provided following the questions for any comment or explanations you would like to make.

1. Did you start high school? _____ Where? _____
(Yes or No) School Town

   Approximate number of students in your freshman class. _____

2. Did you graduate from high school? _____
(Yes or No)

   Where? _____
School Town

   Approximate number of students in your graduating class. _____

3. Did you attend a college, university or vocational school? (or any type of school after graduating from high school) _____
(Yes or No)

4. Did you graduate from a junior college or vocational school? _____
(Yes or No)

5. Did you graduate from any type of school with a two-year degree? _____
(Yes or No)

6. Did you graduate from a four-year college or university? _____
(Yes or No)

7. Indicate the highest number of years of school completed. (Circle one)
   8 9 10 11 12 13 14 15 16 _____

COMMENTS:

Appendix C

1413 2nd St. N. W.
Mandan, N. Dak. 58554
March 1, 1969

Dear _____:

This letter is part of a follow-up study of the eighth grade students who attended school in the Morton County area during the years 1955 through 1959.

The results will be used to write a professional paper for partial completion of a masters degree in school administration.

These results will be made available to the administrators of the schools in the Morton County area for their use in developing a better educational program for their present students.

Enclosed you will find a questionnaire to be completed. Please complete the questionnaire promptly and return it in the envelope provided.

Your cooperation will be greatly appreciated.

Sincerely,

Leland A. Fleischer

MERCER COUNTY

OLIVER COUNTY

STARK COUNTY

BURLEIGH COUNTY

GRANT COUNTY

GRANT COUNTY SIOUX COUNTY

Hebron #13

Wehrl #19

Union #20

Eagen No. 13

Moltzen #11

Garfield #10

Mars #24

Crown Butte #15

Harmon #16

Square Butte #1

Heilbron #18

Tavis #38

Curlew #9

Monson #31

Caribou #22

New Salem #7

Judson #6

Justice #43

#47

Unorganized

Gerson #41

Columbia #23

Spring Valley #27

Sweet Briar No. 17

unorganized

Highland No. 1

Custer No. 3

Olin #26

Feland #28

Valley Forge #21

Beaver Valley #45

Chimney Butte No. 33

Rural No. 2

Big Bend #40

Oak Coulee No. 35

Little Heart No. 45

Bonanza No. 12

Fair Valley #29

Copenhagen #42

Hill Top No. 46

Ambulance Butte No. 32

Fort Rice No. 30

Flasher #39

Flasher No. 9

Lonesome #37

Fairview #36

Timmer #44

Sims No. 8

Twp 140

Twp 139

Twp 138

Twp 137

Twp 136

Twp 135

Twp 134

Twp 133

Rge 90

89

88

87

86

85

84

83

82

81

80

79

Appendix D

54

MAP OF SCHOOL DISTRICTS MORTON COUNTY, N. D.

Scale: 1/4" = 1 Mile

REVISED JANUARY, 1968

RED BY MORTON COUNTY ENGINEERING OFFICE

MAP OF SCHOOL DISTRICTS MORTON COUNTY, N. D.

Scale: 1/4" = 1 Mile

REVISED JANUARY, 1968

PREPARED BY MORTON COUNTY ENGINEERING OFFICE

MERCER COUNTY

OLIVER COUNTY

STARK COUNTY

GRANT COUNTY

BURLEIGH COUNTY

SIOUX COUNTY

EMMO

Rge 90 89 88 87 86 85 84 83 82 81

Twp 140 139 138 137 136 135 134 Twp 133

80 79

HEBRON No. 13

GLEN ULLIN No. 10

EDEN No. 23

SIMS No. 8

NEW SALEM No. 1

SQUARE BUTTE No. 2

SWEET BRIAR No. 17

MARMOT No. 9

HIGHLAND No. 14

CUSTER No. 3

LINCOLN No. 38

CHIMNEY BUTTE No. 33

RURAL No. 12

OAK COULEE No. 35

LITTLE HEART No. 4

BONANZA No. 12

FLASHER No. 5

HILL TOP No. 46

AMBULANCE BUTTE No. 32

FORT RICE No. 30

Appendix E, 55

ENROLLMENT OF PAROCHIAL GRADE SCHOOLS IN MORTON COUNTY

School	1954-55		1955-56		1956-57		1957-58		1958-59		1967-68	
	Total	8th	Total	8th	Total	8th	Total	8th	Total	8th	Total	8th
St. Josephs**** (Mandan District)	959	78	940	71	1022	86	1020	80	742	85	547	52
Sacred Heart** (Curlew District)	196	30	196	17	180	22	173	15	224	19	228	26
St. Anthony***** (Little Heart District)	103	7	101	6	88	7	84	5	72	5	57	7
St. Clement*** (Wehri District)	29	0	40	4	36	3	37	4	43	4		
St. Paul and Peter*** (Oak Coulee District)	40	6	56	8	33	5	27	4	50	6		
St. Lawrence*** (Flasher District)	113	10	108	14	113	10	132	10	141	14		
Christ the King* (Mandan District)									310	0	455	51

* in 1958-59 St. Josephs school split and Christ the King opened and had grades 1-7
** includes ninth grade students
*** schools no longer in operation
**** discontinued 7th and 8th grades for the 1968-69 school year
***** school closed for the 1968-69 school year

LITERATURE CITED

1. Alm, Kent G. (director). Educational Development for North Dakota: 1967-1975: An Overview. Grand Forks, North Dakota: The University of North Dakota Press, n. d. 39 pp.

2. Altman, Esther Royal. "The Effect of Rank in Class and Size of High School on the Academic Achievement of Central Michigan College Seniors Class of 1957," Journal of Educational Research, 52: 307-9, April, 1959.

3. Armstrong, H. G. "A Comparison of Rural Schools' Performance in a Test-Controlled and Test-Free Selection Procedure at Eleven," The British Journal of Educational Psychology, 34:237-46, November, 1964.

4. Berdie, Ralph F. After High School---What? Minneapolis: The University of Minnesota Press, 1954. 240 pp.

5. The Council of State Governments. The Forty-Eight State School Systems. Chicago: The Council of State Governments, 1949. 245 pp.

6. Crow, Lester D., and Alice Crow. An Introduction to Guidance. New York: American Book Company, 1960. 463 pp.

7. Daughtry, Alex A. "The Post-Graduation Activities of the Kansas High School Graduates of 1955," Dissertation Abstracts, 17: 2465, October-December, 1957.

8. Davis, Elwood Dale. "A Study of Objective Differences Existing in Selected Small and Large Union Schools in North Carolina," Dissertation Abstracts, 19:1266, November-February, 1959.

9. Dawson, Howard A., and Floyd W. Reeves (co-chairman). Your School District. Washington, D. C.: Department of Rural Education, 1948. 286 pp.

10. Department of Public Instruction. North Dakota Educational Director: 1967---1968. Bismarck, North Dakota: Department of Public Instruction, n. d. 91 pp.

11. Dikerson, Elbert Lee. "An Analysis of the Relationship of Size of Arkansas High School to the Academic Success of Graduates in the First Year at the University of Arkansas," Dissertation Abstracts, 19:475-76, July-October, 1958.

12. Egerton, John. "One-Teacher Schools Are Still Around," Educational Digest, 32:12-14, January, 1967.

13. Finley, Carmen J., and Jack M. Thompson. "A Comparison of the Achievement of Multi-Graded and Single-Graded Rural Elementary School," The Journal of Educational Research, 56:471-5, May-June, 1963.

14. Gray, Stuart Calvin. "A Study of the Relationship Between Size and a Number of Qualitative and Quantitative Factors of Education in Four Sizes of Secondary Schools in Iowa," Dissertation Abstracts, 22:2631, January-March, 1962.

15. Grieder, Calvin, Truman M. Pierce, and William Everett Rusenstengel. Public School Administration. New York: The Ronald Press, 1961. 642 pp.

16. Hamilton, DeForest, and Robert N. Rowe. "Academic Achievement of Students in Reorganized and Non-Reorganized Districts," Phi Delta Kappan, 43:401-4, June, 1962.

17. Hammond, Granville Sharp. "A Critical Appraisal of the Ohio County High School," Dissertation Abstracts, 18:469-70, January-March, 1958.

18. Henry, Nelson B. (ed.). Education in Rural Communities. Chicago: The University of Chicago Press, 1952. 429 pp.

19. Hill, Robert Edward, Jr. "An Investigation of the Educational Development of Selected Iowa Secondary School Pupils From Varied Elementary School Environments," Dissertation Abstracts, 16:1840, October-December, 1956.

20. Hunt, Ivan Ronald. "A Study of Attendance at Institutions of Higher Learning by the 1953 Graduates of Montana High Schools," Unpublished Master's professional paper, Montana State University, Bozeman, 1958.

21. Jackson, Joe LeRoy. "School Size and Other Factors Affecting Program Adequacy in Southern High Schools," Dissertation Abstracts, 26: 6472, May-June, 1966.

22. Jantze, Ralph Dale. "An Analysis of the Relationship of Accreditation, Finance and Size of Nebraska High Schools to Scholastic Achievement," Dissertation Abstracts, 22:1069-70, October-December, 1961.

23. Kent, Walter Knight. "Educational Opportunities in Nine Indiana Reorganized High Schools," Dissertation Abstracts, 18:133, January-March, 1958.

24. Knapp, Henry William. "Influences of School Size and Consistency of Instruction or Achievement in English and History of 1954 Graduates of Small Montana High Schools," Dissertation Abstracts, 17:576-77, January-April, 1957.

25. Lathrop, Irvin T. "Scholastic Achievement at Iowa State College Associated With High School Size and Course Pattern," Journal of Experimental Education, 29:37-48, September, 1960.

26. Leavitt, Urban James Desrosier. "Elementary School Size Relationships," Dissertation Abstracts, 20:4572-73, April-June, 1960.

27. Lehmann, Irvin Jack. "Rural-Urban Differences in Intelligence," Dissertation Abstracts, 17:1937-38, May-September, 1957.

28. McClurkin, W. D. (director). Public Education in Nevada: Digest of the Survey Report. Nashville: Division of Surveys and Field Services George Peabody College for Teachers, 1954. 84 pp.

29. McDaniel, Edward Donald. "A Study of Pupil Achievement as It Relates to School Size," Dissertation Abstracts, 25:1658, September-October, 1964.

30. McDonald, Brendon John. "A Plan of Education for North Dakota," Dissertation Abstracts, 28:3427-A, March, 1968.

31. Mazie, David. "N. D. Schools Could Become Among Nation's Best," The Minneapolis Tribune, March 24, 1968, pg. 17-B.

32. Moore, James C., and Paul T. King. "A Comparison of Rural and Urban Pupils on Achievement," School and Community, 51:28-29, November, 1964.

33. Morphet, Edgar L., Roe L. Johns, and Theodore L. Reller. Educational Organization and Administration: Concepts, Practices and Issues. Englewood Cliffs, New Jersey: Prentice-Hall Inc., 1967. 569 pp.

34. National Education Association. "Estimates of School Statistics, 1967-68," NEA Research Bulletin, 46:14, March, 1968.

35. National Education Association. "Where Does Your State Stand?" NEA Research Bulletin, 40:9-13, February, 1962.

36. O'Donnell, Jerry Myles. "A Comparative Study of Rural and Urban Groups of College Freshmen," Dissertation Abstracts, 20;926-27, July-September, 1959.

37. Ovaitt, Stanley Wilson. "A Study of the Optimum Size of the High School," Dissertation Abstracts, 27:1229-30-A, November, 1966.

38. Pearson, John Charles. "A Study of Academic Achievement of Graduates of Selected High Schools in Their Freshman Year at Northwestern University," Dissertation Abstracts, 14:1621, September-October, 1954.

39. Ptacek, William Joseph. "Eighth Grade Pupil Achievement in Rural and City Schools in Western Nebraska," Dissertation Abstracts, 25:200-1, July-August, 1964.

40. "Ranking the States," NEA Research Bulletin, 44:11-14, February, 1966.

41. Rowe, Norman N. "Student Achievement in Reorganized and Nonreorganized Districts," American School Board Journal, 144:18-19, February, 1962.

42. Russell, John Dale. "High School and College for All?" Phi Delta Kappan, 37:153-58, January, 1956.

43. Schneider, Wilbur F. "Comparative Achievement of Graduates of Public and Catholic High Schools in Their Freshman College Year," The Journal of Educational Research, 59:115-21, November, 1965.

44. Simon, Kenneth A., and Vance W. Grant. Digest of Educational Statistics 1967. Washington, D. C.: U. S. Government Printing Office, 1967. 125 pp.

45. Smith, Clifford Basil. "A Study of the Optimum Size of Secondary Schools," Dissertation Abstracts, 21:2181-82, January-March, 1961.

46. Smith, Fay Windel. "An Analysis of the Relationship of Size of Arkansas High School and the Achievement of College-Bound Seniors," Dissertation Abstracts, 21:3332-33, April-June, 1961.

47. Sollare, Ralph Damon. "The Relationship of Size of Elementary Schools to Operational Cost and Program Quality," Dissertation Abstracts, 23:3214, January-March, 1963.

48. Street, Paul, James H. Powell, and John W. Hamblen. "Achievement of Students and Size of School," Journal of Educational Research, 55:261-66, March, 1962.

49. Teets, Louis Edward. "Relationships in Elementary Schools Between Size, Per Pupil Cost, and Extent of Educational Opportunity," Dissertation Abstracts, 16:2375-76, October-December, 1956.

50. Weaver, Charles Horace. "An Investigation of the Influence of Size on the Quality of the High School," Dissertation Abstracts, 23: 516-17, July-September, 1962.

51. Young, John Frederick. "A Comparison of the Academic Preparation and Achievement of College Students From Various Size High Schools in Indiana," Dissertation Abstracts, 19:1960-61, November, 1958-February, 1959.