

A COMPARATIVE STUDY OF ACADEMIC ACHIEVEMENT  
OF ACCELERATED STUDENTS WITH  
REGULAR PROGRESS STUDENTS OF COMPARABLE ABILITY

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## CHAPTER I

### STATEMENT OF THE PROBLEM

What effect does acceleration of gifted students have on their future scholastic achievement? Are they able to successfully compete with older children who are also gifted, but have taken the traditional amount of time to complete their work? This study will attempt to provide a partial answer to that question by an ex post facto study of an accelerated class taught by the author in the years 1958-1960.

#### I. The Problem

When there is no national crisis such as war, society usually begins to take a look at its school system. After World War II, and more immediately with the advent of Sputnik, our educational system has been subject to criticism. Scientific and technological advances have forced educators to examine the means and purposes of education, particularly the provision being made for the gifted.

When only a few children could avail themselves of formal education, there was no need to vary the pace of instruction, but as the American dream of education for all children became a reality, a need arose to provide for high, middle, and low abilities. Multiple track and flexible promotion came in during the late 1800's and early 1900's. Grade skipping occurred in the early part of this century.

When progressive education was the vogue, the importance of

the group to the individual began to be considered. Should the child be removed from his peer group and placed in another age group?

Enrichment began to be practiced instead of acceleration. Acceleration came to mean unwise hurrying; track systems were said to be for trains, not children; and "gifted" became synonymous with "elite".

The teachers were pledged to start with the child where he is, and take him as far as he can go. When the children in a given room began to vary seven to eight years in knowledge, skills, and capacity, as well as interests and aspirations, how could a teacher provide for each child? By 1945, critics accused our schools of fostering a "cult of mediocrity", aiming instruction at the average, and making too few attempts to help the capable.

The next period of years began a period of experimentation. Many types of acceleration and enrichment were tried.

In the middle fifties, the administration and teachers in Albert Lea were becoming increasingly concerned for children who they felt might not be challenged in the regular classroom. District-wide tests showed a great number of students of high ability. It was decided to set up an experimental accelerated class at the elementary level. Members of this class were to complete grades three, four, and five in two years. Details of the class appear elsewhere in this paper.

The purpose of this study is to compare statistically academic achievement of this group and an unaccelerated control group.

## II. DEFINITION OF TERMS

Acceleration. The modification of a program to allow rapid progress, enabling the student to complete the program in less time than usual or at an earlier age.<sup>1</sup> An actual saving of time must be involved.

Enrichment. Suggests program modification, but implies a technique for keeping children with their normal age group rather than placing them in special grades or altering the year to year progress through the grades. One hopes that the student will be offered differentiated activities, content materials, and guidance that will yield variety, depth, and breadth of learning experiences suitable to his needs.<sup>2</sup>

Gifted. According to the National Society for the Study of Education, the talented or gifted child is one "who shows consistently remarkable performance in any worth-while line of endeavor."<sup>3</sup> Giftedness encompasses those children who possess a superior intellectual potential and functional ability to achieve academically in the top fifteen to twenty per cent of the school population; and, or, talent of a high order in such special areas as mathematics, science,

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<sup>1</sup>A. Harry Passow, "Enrichment and Acceleration", Instructor, 70:4, December, 1960.

<sup>2</sup>Ibid.

<sup>3</sup>National Society for the Study of Education, Education for the Gifted, Fifty-seventh Yearbook, Part II (Chicago: University of Chicago Press, 1958), p.19.



arts, creative writing, music, and social leadership; and a unique creative ability to deal with their environment.<sup>4</sup>

Talent. The capacity for outstanding achievement. Conant defines the academically talented as the top fifteen to twenty per cent of high school students, the group that should be going to college.

Streaming. Separation of academically talented and average students into separate schools at the secondary level.

Lock-step. Educational sequence in our school system, whereby students must complete one grade at a time, taking twelve years to complete grades one to twelve. Rigid framework of arbitrary grades to which the student must adjust.

Developmental placement. Flexible program allowing the child to enter school when ready and proceed through the program at his own rate. Involves early entrance, ungraded classrooms, summer school opportunities, special classrooms, ceiling curriculums, subject matter seminars, group counseling, interdisciplinary activities, and probability of advanced placement to college.

### III. IMPORTANCE OF THE STUDY

American education has been pushed into a position where the school has had to operate within unrealistic limits. Tomorrow's schools will benefit by the differing theories of today's educators. This study will show one school's venture outside the limits of the

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<sup>4</sup>Louis A. Fliegler and Charles E. Bish, "The Gifted and Talented," Review of Educational Research, 29:408, December, 1959.

## CHAPTER II

### REVIEW OF THE LITERATURE

#### I. BACKGROUND OF NEED FOR IMPROVEMENT

Knowledge of our world is increasing at a very rapid rate. Research is needed in education so that children and youth acquire the increasing knowledge and the related skills with higher efficiency. Research of better design and in larger amounts is required. Equally important, however, the results of research must be incorporated into practice.<sup>1</sup>

The above quotation from an article by Herbert Klausmeier, very adequately expresses the philosophy of the author of this paper. With so much knowledge and so many skills to be taught, it seems expedient that we utilize the most efficient means possible in our schools, and not be bound by tradition to spend a certain number of years in school. Our system of grade levels arose from a need for administrative convenience. When there became too many students for a room, they were divided into two rooms, then three, and so on. Naturally, the children of an age were put together, until today "students are sentenced to a standard term with no time off for good behavior."<sup>2</sup>

Our people are our greatest resource, and we should certainly be as concerned about the best means of developing our potential in this area, as we are in developing our natural resources for industry,

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<sup>1</sup>Herbert J. Klausmeier, "Research and Educational Improvement," Teachers College Journal, 34:139, March, 1963.

<sup>2</sup>D. A. Worcester, "Methods of Acceleration," American School Board Journal, 140:11, June, 1960.

present lock-step system of education, evaluate the academic achievement of experimental and control groups at various levels of their education, and draw some conclusions and implications as to the effectiveness of acceleration at the elementary level.

#### IV. LIMITATIONS OF THE STUDY

The study is limited by the small number of subjects; only twenty of an original class of thirty two, graduated from Albert Lea High School. There would be variability in teacher marks, and in types of courses taken. Records for all the students were not available in some areas where comparisons might have been made. Only one variable, academic achievement, is considered, whereas such variables as participation in extra-curricular activities, or emotional and social adjustment, could be of value.

#### SUMMARY

1. The problem: A comparison of academic achievement by accelerated and non-accelerated students in the Albert Lea Schools.
2. Terms used throughout the paper are defined.
3. The importance of the paper is explained.
4. The limitations of the paper are set forth.

for example. Unless groups are very small, it is difficult to see how the able child capable of learning two or three foreign languages as well as his own, or of studying calculus at fourteen, can be given adequate stimulus where the majority find it difficult to learn any language but their own, or to grasp abstractions of elementary algebra. An isolated child with only one or two contemporaries is poorer than one who shares with many, and is more truly segregated than one who is brought up in a school where others came from different backgrounds.

The following sections will set forth some of the different means of acceleration, advantages and disadvantages of acceleration, and attitudes toward acceleration by various groups involved with its practice.

## II. WHY ACCELERATION IS NECESSARY

Basically there are three reasons for acceleration: (1) students are different, (2) they learn at different rates, and (3) they have different aspirations. According to A. Harry Passow, the following are important reasons for acceleration.

1. A gifted child should be given opportunities commensurate with his power to progress.
2. Students shouldn't be forced to spend traditional blocks of time simply to facilitate academic bookkeeping.
3. Children in classes where they are not challenged develop bad habits, that result in emotional maladjustment. Chronological age peers are not necessarily intellectual or social peers.
4. Years of maximum health, strength, endurance, productivity, creativity, and enthusiasm, all come near the beginning of life.
5. Schooling period has lengthened to where it is prolonged unduly.
6. There is now an extreme need to utilize our school facilities

to the utmost.<sup>3</sup>

D. A. Worcester gives two reasons for acceleration:

1. The gifted intellectually are more mature physically and socially, so must accelerate to keep up with peer growth.
2. The gifted are going in for longer periods of training and must get an earlier start or they will be old when entering their life's work.<sup>4</sup>

Quoting Frank T. Wilson:

Laggards are not over-age repeaters, but potentially brilliant minds forced to step in dragging unison with the average and dull.

1. To say that the teacher will individualize activities to suit varying abilities is unrealistic.

2. To say that the bright will aid and encourage the latter is contrary to the testimony of teachers.

3. To say that many do excellent work without much help is only part of the truth. At least twenty per cent fall way below.

### III. TYPES OF ACCELERATION

According to the S. L. Pressey, "Acceleration is the most advantage yielding, and on the whole sound method of dealing with talented youngsters, and may desirably occur anywhere from kindergarten to professional school. In choosing the type of acceleration, we should be guided by two precepts: (1) nature of children, their needs, characteristics, and problems, and (2) nature of society,

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<sup>3</sup>D. A. Worcester, "Methods of Acceleration," American School Board Journal, 140:11-13, June, 1960.

<sup>4</sup>Frank T. Wilson, "Educator's Opinions About Acceleration of Gifted Students," School and Society, 80:120, October, 1954.

<sup>5</sup>Sidney L. Pressey, "Educational Acceleration: Occasional Procedure or Major Issue," Personnel and Guidance Journal, 41:12 September, 1962.

our social heritage, and the future citizens.<sup>6</sup> This section deals with various types of acceleration.

1. Early admission to kindergarten. Modern communication exposes the child to symbol recognition and formal learning at an early age, consequently many children are ready for school at an earlier age. Early admission involves the expense of screening and testing children who might be ready for early admission.

2. Rapid progress sections. There are many ways in which a year or more may be cut from the normal twelve years required to complete grades one to twelve.

a. Non graded primary--A child enters grade one and may use two, three, or four years to complete primary work and be ready for grade four. There may be children of various ages in a group.

b. Complete grades one, two, and three in two years with summer school.

c. Complete grades three, four and five in two years.

d. Complete grades four, five, and six in two years.

e. Specific subject acceleration, for example, completing arithmetic for grades five to eight by the end of grade seven. There is the greatest need for acceleration in a cumulative subject such as mathemation. Here enrichment by way of alternative experiences at the same content level has obvious limitations.

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<sup>6</sup>A. Henry Passow, Education for the Gifted, National Society for the Study of Education, 1958. pp. 193-221.

f. Complete junior high school in two years.

g. Foreign language in elementary school. This counts only when the first year of a language is completed earlier than usual.

3. Advanced placement. This may take place in several ways.

a. Take college classes in high school, such as statistics, geometry, or elementary calculus, allowing a student advanced standing in college.

b. Enter college a year earlier because of courses taken previously.

c. Testing program placing a student directly into a more advanced course.

#### IV. ADVANTAGES OF ACCELERATION

Acceleration recognizes individual differences, "The most unequal thing that happens in our schools today is that unequals are treated like equals. We know that learning proceeds according to individual differences and it follows logically that teachers must take these differences into account." <sup>7</sup>

The brighter student is challenged at an earlier age, and isn't allowed to develop poor study habits. To illustrate, the experiences of Allen Berger, who wrote of his experiences as a bright child in a regular classroom, are related as follows:

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<sup>7</sup>Jean D. Grambs and Walter B. Waetjen, "Being Equally Different: A New Right for Boys and Girls, Education Digest, 32:8, March, 1967.

He entered kindergarten at age five. In grade one in a test of one hundred one simple items, he completed them all correctly in a few minutes; then had to wait a half hour for the others to finish. This pattern was to continue all through school. He skipped a grade, which made him the youngest, yet he still showed in an aptitude test that he could do seventh grade work in grade four. Double promotion was considered but dropped because emotional problems might develop. He was considered a "brain" and by sixth grade he was the class comedian, and was deliberately making errors which was to slow down his thought process. In high school he was no longer top in his class; sometimes he couldn't even get an A when he tried. He dropped out of college, but later came back and graduated creditably.

This student attended a good school and was physically adequate in every sport. He wrote this article to show what happens when a child has to plod through the machinery of school.

Many feel that a high school and first year of college overlap in the present system. Our four year college system came from Europe, and they long ago went to three years.

Most statistics show that accelerated classes do equally well and sometimes better than control groups. They should emphasize that a year has been saved. Terman found that of seventeen, sixteen, and fifteen year old high school graduates, a progressive increase is shown from oldest to youngest in percentages graduating from college, taking graduate work, and in vocational success. This is probably because they had more time for education, more likelihood of funds, and they were less likely to leave school for marriage or jobs.<sup>9</sup>

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<sup>8</sup>Allen Berger, "The Inside Story of a Bright Child," Educational Research Bulletin. 39:155-156+, September, 1960.

<sup>9</sup>Pressey, Op Cit. pp.12-17.



Longer periods of training are now required to prepare for one's life work. Fifty years ago an American Doctorate took three years, now it takes four or more. The Ph.D. program was important less than a century ago from Germany, where it followed the secondary school "gymnasium". Here it was put after the four year college, so a doctorate in Germany is obtained four years earlier. Could this influence German scientific productivity?<sup>10</sup>

Acceleration enables the gifted student to complete his schooling at an earlier age. Utilization of creative manpower may be improved immeasurably through acceleration, thereby utilizing the early creative powers of the gifted. Dennis R. Bromley found that "In quality of intellectual output, there was decline with age: quality fell off more rapidly than quantity, original ideas declined more rapidly than ideas of lesser merit; quantity and quality were closely associated. Peak years for quality and quantity occurred early."<sup>11</sup> The median age for obtaining a Doctorate of Psychology is thirty one, only one per cent get it at twenty four or younger, but the last twenty five presidents of the American Psychological Association earned the degree at a median age of 25.7.<sup>12</sup>

Acceleration could help relieve crowded schools if one fifth

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<sup>10</sup>Pressey, Op Cit., pp.12-17.

<sup>11</sup>Ibid.

<sup>12</sup>Louis A. Fliegler and Charles E. Bish, "The Gifted and Talented," Review of Educational Research, 29:408-439, December, 1959.

of the high school graduates could complete school in eleven years or less, and if one fifth of the college students finished in three years.<sup>13</sup>

A compilation of advantages of acceleration as named by various educators would include the following:

1. Acceleration recognizes individual differences. The bright child is challenged at an early age, so that poor study habits won't develop.

2. The overlap of last year of high school and the first year of college can be avoided in part.

3. Accelerated classes save a year or more of time, enabling students to graduate younger. Early creative powers of gifted can thus be utilized by society.

4. Saving a year, will compensate in part for the long periods of training required in preparation for many careers.

5. If many students can complete school in fewer years, some relief can be obtained for crowded schools.

#### V. DISADVANTAGES OF ACCELERATION

Several educators have cited various disadvantages of acceleration. A. Harry Passow has listed several of them as follows:

1. Education is not neatly compact and logically organized

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<sup>13</sup>Billie K. Press and Mildred C. Robeck, "Planned Acceleration for Gifted Second Grade Pupils in Pasadena," California Education, 2: 16-18. June, 1965.

in sequence. Rich learning does not come from a pattern of subject matter.

2. There are other ways to relieve boredom than reducing time spent in class.

3. A young student can be intellectually mature, but disadvantaged socially and emotionally among the older students.

4. Acceleration deprives the child of time to think, to appreciate, to reflect, and to explore.

5. Comparability of mental age does not mean similar intellectual functioning or maturity. A six year old and a nine year old with an M.A. of nine, perform qualitatively quite differently.

6. Students may profit from acceleration in one area and not in another.

7. Acceleration sets the gifted apart from his peers.

8. In case of skipping, gaps result in students' learning.

9. Possible rigidity of curriculum through standardization of examination for advanced placement, might foster a kind of national curriculum.<sup>14</sup>

## VI. ATTITUDES TOWARD ACCELERATION

Various groups are involved in any process of acceleration.

According to a study made by Fred M. King, the following opinions were expressed:

### Pupils

1. Wonder about attitudes of peers toward acceleration.
2. Are afraid pupils might get snobbish.
3. Think teachers expect more of you in other subjects if you are accelerated in one.
4. Think accelerated programs are too demanding.

### Teachers

1. Many do not favor it.
2. Think they are not prepared to teach the gifted.
3. Feel groups of pupils should not be kept together year after year.
4. Think grading presents problems.

### Parents

1. Feel pupils would get better grades in a regular classroom.
2. Some are dissatisfied with the screening process.

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<sup>14</sup> Passow, Op. pp.193-221.

### Educators

1. Bish--Visited one hundred schools and found much emphasis on prestige.
2. Braydon--Found a tendency to regard teachers and pupils as elite with special privileges.
3. McGrath--Studies of superior students show that they do not suffer in any way under acceleration.
4. Anthony--Bright students are happier in accelerated class, they like hard work, and their parents are enthusiastic.
5. Pressey--Outstanding accelerated students are more mature when they come to college. Understand goals better.
6. Flesher and Pressey--In questionnaires sent to women who had been accelerated ten years previously, responses showed none had been adversely affected.
7. Applebaum--National Merit winners favored a gifted program.<sup>15</sup>

### SUMMARY

1. Background philosophy of the author.
2. Need for acceleration in our schools
3. Means of acceleration
4. Advantages of acceleration.
5. Disadvantages of acceleration.
6. Attitudes of various groups toward acceleration.

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<sup>15</sup>Fred M. King, "Acceleration in Our Schools," Education, 87:259-262, January, 1967.

## CHAPTER III

### THE DESIGN OF THE STUDY

How do we provide for our academically talented children? With an ever-increasing amount of knowledge to disseminate and ingest, it seems imperative that our gifted children be given every opportunity to develop their talents at a pace commensurate with their abilities. Acceleration is one of the means advocated for providing for students of high ability. This study will make a statistical comparison of the scholastic achievement of a group that has been accelerated one year in the elementary school, with a matched group that has not been accelerated. The study is ex post facto in nature, as these students graduated from high school in 1967. It will be longitudinal in scope; groups were matched at grade six, and compared scholastically from grade four to twelve.

#### I. BACKGROUND OF THE IDENTIFICATION OF THE MEMBERS OF THE ACCELERATED GROUP, AND THE FORMATION OF THE CLASS

In the mid fifties, teachers and administrators of District 241 in Albert Lea, Minnesota, were becoming increasingly concerned with the problem of challenging the gifted students who were in the regular classroom. District-wide tests showed a very wide range in both intelligence and achievement test scores. Most teachers had tried in various ways to provide for these students, but were they meeting the need?

After discussion of various methods of procedure, it was decided to identify several of these gifted children, and place them

all in one class instead of having them scattered throughout the schools of the district. It was felt that these students could cover three years work in two, if they were placed in a group composed of academically gifted children.

The next consideration was what grade level should be chosen for identification of students to comprise the class. Second grade was chosen for the following reasons:

1. Group testing as a screening device is less reliable at an earlier age.

2. Most children with high mental ages have acquired the basic reading skills by this time.

3. Teachers now would be able to identify students with good academic achievement.

4. Early in their school careers, rapid learners begin to form poor attitudes toward learning, and acquire poor work habits.

Accordingly, 475 second graders in District 241 were given a group test to measure intellectual capacity. About one-third of the group, who seemed advanced, were checked with another group test. One hundred twenty six were identified as having above average ability, They were given a Stanford Binet Test by a qualified tester, and interviewed by a psychologist to determine social acceptability. It was found that sixty four had IQ's of 130 or more. The school board had authorized only one class which would include about thirty children. Children with highest mental ages and those whose records revealed the greatest need for an accelerated program were given first consideration.

Sixteen boys and sixteen girls were identified in the spring of 1957. Range in Mental Age was from 10-6 to 14-6; in Chronological Age from 7-4 to 8-3; and the median IQ was 152.

The parents were interviewed as they must consent to their children being placed in the class. The parents were given the following information:

1. Children would complete three school years in two.
2. Conversational Spanish would be offered as well as more literature and creative writing. Problem solving techniques were to be applied to social studies and science.
3. Class would be taught by a staff member, the author of this paper.

The parents agreed and in the fall of 1958 the class started third grade.<sup>1</sup>

## II. PURPOSE OF THE STUDY

The members of the class at the time the study is being made have graduated from high school. The study will compare academic achievement of this group with classmates, comparable in intelligence, but not accelerated. The null hypothesis is that the scholastic achievement of accelerated class will be equal to the scholastic achievement of students who spent the regular amount of time in school.

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<sup>1</sup>Lois Ann Hanson Anthony, "Accelerating the Gifted," Minnesota Journal of Education, 40:19-20, October, 1959.

### III. SELECTION OF THE CONTROL GROUP

To choose the control group, matched pairs were selected by using IQ scores and Iowa Basic Skills Test composite scores. This was complicated by the fact that IQ scores were not available for the group from which the control group was to be chosen until grade six. It would have been preferred to have matched the groups at grades two or three when the accelerated program began. The permanent records in the cumulative file were used to secure the information.

A scattergram was made placing IQ scores on the vertical axis, and Iowa Basic score on the horizontal axis. (Appendix A). The closest pairs of the same sex were matched to be used as subjects in the study. To substantiate statistically that the groups were comparable, the "t" test was applied. The critical ratio "t" is based upon the chance difference between pairs of samples selected from the same population, and tends to be distributed in a normal distribution curve, provided the number of cases is made of a combined sample of at least thirty subjects. Since the combined sample in this study was twenty, "t" was obtained in the same manner, but Fisher's Table of "t" was used to look up probability values. Fisher's table varies from the regular table of distribution of "t" probability in three ways:

1. P (probability) is expressed in terms of decimal fractions rather than in terms of per cent or chances in 100.

2. T values corresponding to a relatively small number of P values, ending with  $P = .01$ , are given rather than giving the



probabilities corresponding to certain values.

3.  $N$  in Fisher's Table is not equal to  $N$ ,  $n = N - 1$ .<sup>2</sup>

For the purpose of this study,  $n = 19$  degrees of freedom. To be considered statistically significant at the .05 level, the "t" would have to be larger than 2.093. The .05 level of significance was used in proving the two groups comparable, as there is less chance of a Type II error. This error consists of not rejecting the null hypothesis when it should be rejected. The comparison of intelligence test scores is shown in Table I.

TABLE I

COMPARISON OF SCORES OF ACCELERATED AND CONTROL GROUPS  
ON THE BASIS OF INTELLIGENCE TEST SCORES

Comparison of Means						
Group	N	Mean	Diff. of Mean	S. D. of Mean	S. E. of Mean	t
Accelerated	20	132.75				
Control	20	131.15	1.6	4.32	.91	1.61

In intelligence test scores, the matched pairs had means differing only slightly, resulting in a "t" test indicating no significant statistical difference.

<sup>2</sup>G. Milton Smith, A Simplified Guide to Statistics, (New York: Rinehart and Company, 1958) pp. 68-69.

The statistical substantiation of the equivalence of the groups upon the Iowa Basic Achievement Test given in grade six, using the composite scores given in Table II.

TABLE II

COMPARISON OF SCORES OF ACCELERATED AND CONTROL GROUPS ON THE BASIS OF SECOND GRADE COMPOSITE IOWA BASIC SKILLS TEST SCORES

Comparison of Means						
Group	N	Mean	of Mean	of Mean	of Mean	t
Accelerated	20	87.0				
Control	20	87.8	.8	2.45	.56	1.43

In composite Iowa Basic Skills Test scores the matched pairs had means differing only slightly, resulting in a "t" test indicating no significant statistical difference.

The matched pairs were thus picked on the basis of these two tests.

#### SUMMARY

1. Background of the identification of the accelerated group and the formation of the class.
2. Purpose of the study.
3. Selection of the control group.

## CHAPTER IV

### FINDINGS OF THE STUDY

The purpose of this chapter is to determine what effect, if any, acceleration has had on scholastic achievement of a group of students. Specifically, it was the purpose of this study to determine if children who were accelerated differed with respect to scholastic achievement, from children who used the conventional amount of time in completing elementary school.

On the basis of statistical substantiation, it is reasonable to assume that the population of accelerated and control groups were comparable at the beginning of the study with respect to intelligence and basic skills. At the various grade levels, the two groups are compared to see if any significant difference occurs in the means. It is the purpose of this study to see if the accelerated students perform as well as the control group. The critical ratio is 2.093 at the .05 level and 2.861 at the .01 level of significance.

#### I. ANALYSIS OF FINDINGS

Table III shows the comparison of the Accelerated and the Control groups on the basis of Iowa Basic Skills Test, where only a very slight difference between the means is noted.

TABLE III

COMPARISON OF ACCELERATED AND CONTROL GROUPS  
ON THE BASIS OF IOWA BASIC SKILLS TEST SCORES IN GRADE 4

Comparison of Means						
Group	N	Mean	Diff. of Mean	S.D. of Mean	S.E. of Mean	t
Accelerated	20	60.0	3.8	8.87	2.03	1.87
Control	20	56.2				

In comparing the Iowa Basic Skills Test scores, there was a difference of 3.8 in the means, with the Accelerated Group attaining a mean of 60.0 and the Control Group having a mean of 56.2. The range of scores for the Accelerated Group was 46 - 77, while the Control Group was 35 - 71, the Control Group having a wider range of scores. The critical ratio of 1.87 indicated no statistical significance between the means of the two groups of this test.

TABLE IV  
 COMPARISON OF ACCELERATED AND CONTROL GROUPS  
 ON THE BASIS OF IOWA BASIC SKILLS TEST SCORES IN GRADE 10

Comparison of Means						
Group	N	Mean	Diff. of Means	S.D. of Means	S.E. of Means	t
Accelerated	20	24.45				
Control	20	24.95	.5	3.04	.69	.72

In comparing the Iowa Basic Skills Test Scores, there was a difference of .5 in the means, with the Accelerated Group attaining a mean of 24.45 and the Control Group a mean of 24.95. The range of scores for the Accelerated Group was 17 - 34, while the range of scores for the Control Group was 17 - 33, the range being very nearly the same. The critical ratio of .72, indicated no statistical significance between the means of the two groups on this test.

TABLE V  
 COMPARISON OF ACCELERATED AND CONTROL GROUPS  
 ON THE BASIS OF IOWA BASIC SKILLS TEST SCORES IN GRADE 12

Comparison of Means						
Group	N	Mean	Diff. of Mean	S.D. of Mean	S.E of Mean	t
Accelerated	20	28.5				
Control	20	28.85	.35	4.09	.93	.37

In comparing the Iowa Basic Skills Test scores, there was a difference of .35 in the means, with the Accelerated Group attaining a mean of 28.5, and the Control Group a mean of 28.85. The range of scores for the Accelerated Group was 12 - 39, while the Control Group had a range of 16 - 40; a slightly wider range for the Accelerated group. The critical ratio of .37 indicates very little difference between the means, and of course no statistical significance.

TABLE VI

COMPARISON OF ACCELERATED AND CONTROL GROUPS  
ON THE BASIS OF M.S.A.T. SCORES IN GRADE 12

Comparison of Means						
Group	N	Mean	Diff. of Mean	S.D. of Mean	S.E of Mean	t
Accelerated	20	59.0				
Control	20	54.3	4.7	13.39	3.01	1.56

In comparing the Minnesota Scholastic Aptitude Test scores, there was a difference of 4.7 in the means, with the Accelerated Group attaining a mean of 59.0, and the Control Group a mean 54.3. The range of scores for the Accelerated Group was 25 - 78, while for the Control Group it was 29 - 72; a difference of ten in the range of the two groups. The critical ratio of 1.56 indicated no statistical significance in the means of the two groups.

The next series of tables will show a comparison of grade point averages of the two groups at various grades. The grade point averages were figured on the basis: A = 4 points, B = 3 points, C = 2 points, and D = 1 point. Failures received no points. Students had not necessarily taken the same subjects or the same number of subjects.

TABLE VII

COMPARISON OF ACCELERATED AND CONTROL GROUPS ON  
THE BASIS OF GRADE POINT AVERAGES IN GRADE 8

Comparison of Means						
Group	N	Mean	Diff. of Mean	S.D. of Mean	S.E. of Mean	t
Accelerated	20	3.06				
Control	20	3.06	0			

There was no difference in the means of the two groups. The range of scores for the Accelerated Group was 1.7 - 4.0, and for the Control Group 2.1 - 4.0.

TABLE VIII

COMPARISON OF ACCELERATED AND CONTROL GROUPS ON THE  
BASIS OF GRADE POINT AVERAGES IN GRADE 10

Comparison of Means						
Group	N	Mean	Diff. of Mean	S.D. of Mean	S.E. of Mean	t
Accelerated	20	2.76				
Control	20	3.12	.38	.73	.17	2.24



In comparing the Grade Point averages, there was a difference of .38 in the means, with the Accelerated Group attaining a mean of 2.76, and the Control Group a mean of 3.12. The range of scores for the Accelerated Group was 1.4 - 2.0, and for the Control Group 2.0 - 4.0, showing a wider range for the Accelerated Group at the lower end of the scale; both groups reached the perfect score at the top. The critical ratio of 2.24 showed that there was a significant difference at the .05 level in favor of the Control Group. With 19 degrees of freedom, a "t" as large as 2.093 would indicate that the observed difference was real, and not due to chance.

TABLE IX

COMPARISON OF ACCELERATED AND CONTROL GROUPS ON THE  
BASIS OF GRADE POINT AVERAGES IN GRADE 11

Comparison of Means						
Group	N	Mean	Diff. of Mean	S.D. of Mean	S.E. of Mean	t
Accelerated	20	2.83	.24	.83	.19	1.25
Group	20	3.06				

The Accelerated Group had a mean of 2.83, and the Control Group a mean of 3.06; with a difference of .24 between the two groups. There was a range of 1.2 - 4.0 in the Accelerated Group and 2.0 - 4.0 in the Control Group. With a critical ratio of 1.25 there is no statistical significance in the difference between the two means.

TABLE X

COMPARISON OF ACCELERATED AND CONTROL GROUPS ON THE  
BASIS OF GRADE POINT AVERAGES IN GRADE 12

Comparison of Means						
Group	N	Mean	Diff. of Mean	S.D. of Mean	S.E. of Mean	t
Accelerated	20	2.90				
Control	20	3.11	.22	.63	.14	1.49

The Accelerated Group had a mean of 2.90, and the Control Group a mean of 3.11; with a difference of .22 between the two means. There was a range of 1.2 - 3.9 in the Accelerated Group, and 1.6 - 4.0 in the Control Group. The critical ratio of 1.49 indicated no statistical significance in the difference between the two means.

## II. SUMMARY OF FINDINGS

The specific purpose of the study was to determine differences in scholastic achievement, if any, between students who had been accelerated one year in the elementary grades; with a matched group of students who had used the conventional amount of time in the elementary school. The matched groups were set up on the basis of IQ and Iowa Basic Test composite scores at grade six. The null hypothesis was that the scholastic achievement of the Accelerated Class will be equal to the scholastic achievement of the students who spent the regular

amount of time in elementary school.

The groups were compared on scores on various achievement tests from grades four to twelve, and on grade point averages from grades eight to twelve.

The Accelerated Group had somewhat higher means on the Iowa Basic Test at grade four, and on the M.S.A.T. The Control Group had only slightly higher means on the Iowa Basic Test at grades ten and twelve. None of the differences was statistically significant.

On the grade point averages, the Control Group consistently had higher means at all levels, except grade eight, where the means were the same. The difference was significant only at grade ten.

## CHAPTER V

### SUMMARY, CONCLUSION, AND IMPLICATIONS

Part of our American heritage is the precept that all of our citizens have equal rights. Everyone recognizes the fact that individual differences exist among the students in our classrooms. Educators now realize that the same treatment for every child is not giving everyone an equal chance. An equal chance in education is giving every student the opportunity to make the most of whatever abilities he might have. To receive this opportunity, a student must receive the education that will best suit his individual needs.

#### I. SUMMARY

This study dealt specifically with one group of students, the academically gifted. Acceleration, one of the various means of providing for the academically gifted, was the method studied. The study was ex post facto in nature; the acceleration took place in elementary school and the students involved in the study graduated from high school in 1967. Being an ex post facto study, it was possible to make it longitudinal in scope; a period of about nine years was investigated. No IQ's were available for the students from whom the control group was to be selected before grade six. A scatter diagram was used to identify a control group which could be compared to the accelerated group, which had been chosen in 1958, as described in Chapter III.

The two groups were compared to see if this early acceleration

affected the future scholastic achievement of the Accelerated Group. Results in achievement tests and grade point averages at various levels were used as measuring devices of academic progress. The "t" test of significance was applied to the differences between the means of the two groups.

In standardized achievement tests, the accelerated students seemed to do as well as their equally able classmates, who had not been accelerated. It appears then, that they had not missed any of the skills. In academic marks, the accelerants did not do as well. All the differences were in favor of the Control Group, and the Control Group was significantly higher at the .05 level in grade ten. A closer look at the individual grades of the accelerants showed that some had done very poor work. This, however, was also true to a lesser degree, of the non-accelerants. A closer study of these students could prove valuable. In most instances, the accelerants who have poor academic grades in later years, are the ones who, as recalled by the author, were not achieving up to grade level when they entered the class back in 1958.

Several other studies listed in the bibliography, also showed that accelerated students compared favorably in achievement tests, but were lower academically.

## II. CONCLUSIONS

It is difficult to say with any great certainty, just what are the effects of acceleration. Perhaps one of the limitations of the

study is the fact that no control group was set up for students of equal ability, who were not accelerated, and are therefore of comparable age chronologically. It is the opinion of the author that this should have been done at the time the accelerated class was formed, as it is very unlikely that a matched group could have been identified from the remaining group, at the time this study was made. As pointed out in Chapter III, other limitations of the study were: (1) the small number of subjects, only twenty of an original class of thirty-two, (2) only one variable, academic achievement was considered, whereas participation in extra-curricular activities, or emotional and social adjustment might have been of value, (3) lack of availability of records in some areas, (4) lack of comparability of standards used by teachers in grading, and (5) diversity of subjects taken by the students.

Acceleration was certainly justified for some of the students; one was co-valedictorian of his class, as were two of the control group. Five of the accelerants and seven of the control group were in the upper five per cent of the graduating class.

### III. IMPLICATIONS

It would seem that more consideration should be given to academic achievement at the time acceleration begins, than was given to some of the students in this group. Possibly acceleration should be considered on an individual basis, rather than setting up a class as was done with this group. No further classes of an accelerated

nature were set up in Albert Lea. It was decided to wait, at least a year or two, to more adequately evaluate this class' progress before beginning another.

It would certainly seem that acceleration has merit when so many students are able to do as well or better than their older classmates.

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## SCATTER DIAGRAM OF MATCHED PAIRS

