EFFECTS OF ELEMENTARY SCHOOL ACCELERATION ON SECONDARY STUDENTS IN A BRITISH COLUMBIA SCHOOL DISTRICT

by

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ABSTRACT

This study examined the performance of students who attended one secondary school in the district of Saanich in British Columbia. The study compared samples drawn from a population of students with superior I.Q. ratings. One sample had been double-promoted in the elementary years and the other had followed the regular promotion pattern. Four areas of accomplishment in secondary school were used as the basis of this comparison. Membership on school representative teams, achievement in Physical Education 11, involvement in extra-curricular activities and grade point averages for subjects in Grades 11 and 12 were compared for the two groups.

Data was gathered from school records and a comparison made of the performance of the accelerates and the non-accelerates. Differences were tested for significance by using Chi Square tests. Significant differences in favour of the non-accelerates were found in Physical Education 11 grades, in extra-curricular involvement, and in grade point averages. While the direction of the difference in membership on athletic teams also favoured the non-accelerates, it was not statistically significant. These results are in contradiction of much that has been written on the effects of acceleration.

The general view in the literature is that accelerates perform better in all aspects of their secondary school education than do non-accelerates.

Examiners: [redacted]

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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

Most educators become aware at an early stage in their careers, of the very great diversity of abilities among children and of the wide range in the degree of each ability from child to child. Assessing these abilities and making provision in the classroom for them is a continuing challenge for the teacher and administrator.

The assessment of ability is in itself a complex matter. Historically, some form of aptitude test has been administered to groups of children and the resulting scores have been translated into Intelligence Quotients (IQ's). Several of these IQ tests are administered during elementary and secondary schooling and the record of them is used as a guide by teachers and administrators. The degree to which IQ forms the basis of important decisions in the educational progress of the child, varies a good deal from school system to school system. In this last decade, the IQ has been frequently challenged as a measure of children's abilities. Witty (1967) identifies this trend when he states:

> Some writers continue to refer to pupils as gifted when ratings on intelligence tests are high; others may designate as "gifted", pupils who demonstrate very high educational attainment and others may include the "creative student" among the gifted. Still other writers are using the term "gifted" to include the "academically talented". (p. 7)

The challenge is increasingly directed at the capability of the IQ to identify the creative youngster. Guilford (1962) was an

early advocate of some other means of identifying giftedness:

> ...selection on the basis of IQ alone will definitely miss many potentially gifted children. If we want to include all the potentially creative children in gifted groups, some very different selection procedures are needed. (p. 204)

Making provision in the classroom for the many different levels of ability is a real concern for the conscientious teacher. The two most common approaches to solving this problem involve changing part or all of the course material to suit the needs of the individual or the group to which he belongs, or, varying the length of time required to complete an established program.

In the case of youngsters of lower ability, these approaches result in their taking special remedial programs or else in their being retarded. For those of high ability, programs are enriched or the youngsters are accelerated. There is a continuing debate over which of these latter approaches is in the best interests of the bright boy or girl. Is it better to keep a gifted student with his own age group on a normal pattern of progress through the grades and challenge his abilities by enriching his program, or is it better to advance him to a higher grade level where the more challenging assignments will more adequately develop his talents ?

The debate over these two approaches has been continuous for more than half a century; it has not been resolved. Supporters of enrichment claim damaging effects when children are advanced to classes of older students. Supporters of acceleration note the

practical difficulties of providing adequate enrichment in the average classroom and claim beneficial effects for acceleration.

The effects of acceleration have indeed formed the basis for a large number of studies and there is a considerable body of literature. While most of the research examines the effects of acceleration on academic performance, a few studies have attempted to assess the effects in such areas as social adjustment, attitudes, and extra-curricular involvement.

Statement of the problem

Since acceleration is still widely practised, a continuing evaluation of its effects is warranted. In considering acceleration as a means of providing a more challenging curriculum, the educator must seek answers to such questions as the following:

1. Does acceleration in any way affect the later academic progress of a student ?
2. When the accelerate reaches secondary school, will his relative youthfulness reduce his opportunities for involvement in extra-curricular activities ?
3. In particular, will the accelerate be at a disadvantage in participating in the athletic program of the secondary school ?
4. Will the accelerate be at a disadvantage when compared to his older classmates in Physical Education ?

Limitations of the Study

The present study is concerned with the secondary school performance of students accelerated in elementary school. It would

have been ideal to have identified the accelerates at the time of their acceleration, established a control group, administered appropriate tests and surveys, and continuously evaluated their progress through to graduation. Since the study is based on records established with no consideration of their possible future use in evaluating acceleration, it suffers from the following limitations:

1. Selection of accelerates was in the hands of teachers and administrators in different elementary schools. There was no district-wide policy providing a common basis for selecting accelerates.
2. The study is limited in scope to one relatively small school district.
3. The IQ scores used as a basis for selecting the group of non-accelerates were derived from tests administered under conditions which may not have been uniform throughout the district.
4. The evaluation of Physical Education is difficult and highly subjective. The Grade 11 standings used in this study, may be vulnerable in this respect.
5. Extra-Curricular involvement is measured by membership in different groups and activities. Such measurement does not reveal the degree of participation or level of accomplishment.

Assumptions

1. It is assumed that there is a relationship between the chronological age of a child and his physical and emotional development.
2. It is assumed that involvement in extra-curricular activities is an important part of a complete education.

3. It is assumed that membership on school teams can be considered as an ambition of most normal boys and girls and further, that such membership constitutes some measure of success.

4. It is assumed that grades in academic subjects and Physical Education which are used in this study have been consistent from subject to subject and from year to year.

Definition of Terms

Acceleration. Any modification of a school program which enables a student to progress more rapidly and to complete a program in less time or at an earlier age than is usual. For the purposes of this study acceleration will mean double-promotion or "grade-skipping" at the elementary school level.

Achievement. In this study, achievement is regarded as the rating assigned by the teacher at the end of the school year, as an evaluation of the work of the whole year. The ratings are on a seven point letter grade scale used throughout the school district in which the study was based. This scale is intended to reflect the distribution of student achievement as follows:

A - top 5%, B - next 20%, C+ - next 15%, C - next 20%, C- - next 15%, D - next 20%, E - bottom 5%.

Physical Education. In British Columbia, Physical and Health Education is a cumpulsory course in all grades up to and including Grade Eleven. When referred to in this study, it will mean the course as offered at the Grade Eleven level. Ratings of student performance are on the same seven point scale used for academic

achievement. Those used in this study were assigned by the teacher in June as an evaluation of the year's achievement in Physical Education.

Extra-Curricular Activities. In its broadest sense, extra-curricular includes all those activities in which a student is involved outside the classroom, whether they be in the school or in the community. They can include such varied pursuits as playing tennis, blowing a tuba, customizing cars, or modelling teen fashions. In this study, extra-curricular will be restricted in its definition to those activities which take place in the Senior Secondary school, where records are on hand in school publications. Only those activities related to the school itself, such as, student government, clubs, dramatics, music, and athletics, were considered.

Extra-Curricular Athletics. The activities of most secondary schools include a program of games in addition to the Physical Education curriculum. These games involve the students in intra-mural contests in which teams within the school are in competition with each other; and extra-mural sports in which teams from one school compete with those from another.

Intra-mural sports serve the very important function of providing athletic opportunity for a large number of students. The school is usually divided into three or four "Houses" which sponsor teams for games at noon hour or after school. These "House Leagues" make it possible for any youngster who is inter-

ested, to play the game of his choice, no matter what his level of ability may be.

Extra-mural sports are more limited in the number of youngsters they serve. The teams here are chosen from among the more able players who represent the school in competition with other schools. There is prestige associated with being selected for these teams, since it is a recognition of athletic prowess.

In this study, extra-curricular athletics will refer to extra-mural sports which indicated that a student had been selected for a school representative team.

Significance of the Study

Acceleration has been the subject of much research and study as one of the more common methods used by educators to provide special learning opportunities for bright children. A review of existing research on acceleration by Thompson and Meyer (1961) and an examination of its use in educating gifted children by Ketcham (1965) are typical studies. The great majority of these studies concern themselves with the effects of acceleration on the academic accomplishments of the accelerates in the years following acceleration. Some research has also been done on other effects such as social adjustment, attitude patterns, career levels, etc. Miller (1957) made such a study and concluded:

> These studies, in toto, seem to point to the conclusion that chronological age is not so important in the academic, social and emotional adjustment of the child as many people think. (p. 262)

Some attention has been directed at the question of the effects of acceleration on student interest and participation in extra-curricular activities, but in most cases only as part of a larger study of effects on academic performance. Mirman (1961) studied the high school performance of students accelerated in the elementary grades of the Los Angeles school system, and Adler, Pass and Wright (1964) reported on a special acceleration program in some high schools of Toronto both included an assessment of extra-curricular participation.

This study had as its principal focus an examination of the extra-curricular involvement in high school, of students accelerated in the elementary school. In particular, extra-curricular athletics has been studied as a measure of this involvement.

Background of the Study

This study was based on an investigation of student records covering the period of the past 20 years in the school district of Saanich. Saanich is a medium-sized district adjacent to the larger metropolitan district of Greater Victoria. Like most school districts in British Columbia, Saanich has grown considerably in 20 years and is losing what was at one time an essentially rural pattern. Table I spans the two decades from 1952 through 1972 and reveals the degree of growth that has occurred in the school population.

TABLE 1

Saanich school enrolments for the years 1952 and 1972

1952		1972	
Secondary Schools		Secondary Schools	
Mt. Newton	227	Mt. Newton	466
North Saanich	241	North Saanich	482
		Royal Oak	552
		Claremont	735
Elementary Schools		Elementary Schools	
Cordova Bay	164	Cordova Bay	377
Deep Cove	59	Deep Cove	236
James Island	40		---
Keating	66	Keating	381
McTavish Rd.	22	McTavish Rd.	144
Patricia Bay	92		---
Prospect Lake	48	Prospect Lake	81
Royal Oak	113	Royal Oak	229
Brentwood	157	Brentwood	285
Saanichton	63	Saanichton	117
Sansbury	25	Sansbury	246
Sidney	195	Sidney	488
		Beaver Lake	126
		Durrance Rd.	93
		Elk Lake	75
		Lochside	220
Total	1512	Total	5333

Source: Public Schools Report, Department of Education, Province of British Columbia, Parliament Buildings, Victoria, B.C. 1952, 1972.

Note: Patricia Bay was discontinued in 1956 and James Island in 1962.

It is this school system which has produced the student population from which the sample to be studied has been drawn. That is, a system with many small elementary schools, three junior secondary schools, and a single senior school.

While it is with the senior secondary education of the student population that this study is concerned, it was in the elementary setting that acceleration took place. These students attended the same school for their Grade 11 and 12 years and the writer was principal of that school for the whole period under study. One factor which has remained substantially the same for this period has been the course content in the senior grades. While courses have been renumbered and graduation requirements reorganized, the graduate of 1972 faced essentially the same academic content as his counterpart in 1962.

A factor that has been constant since the opening of the school in 1961, has been a strong extra-curricular program, especially in athletics. This program has reflected the philosophy that a sound Physical Education program and opportunity for involvement in a broad extra-curricular offering is integral to a school's educational program. As a result, students have been encouraged to become involved in activities outside the classroom.

Perhaps of most importance to a study which uses data recorded over a period of ten years, is the composition of the staff of the school during that period. There has been a high level of stability in staff membership at Claremont since the opening of the school in 1961 (Appendix A). This tends to give a consistency to school operation from year to year, to develop common practices in evaluation and grading,

and to consolidate staff philosophy toward an extra-curricular program. With little change in staff, it is possible to offer each new group of students the same standard of classroom instruction and the same extra-curricular opportunities.

One school function which has benefitted from this stability of staff membership, is student counselling. The senior counsellors have been at Claremont since it opened, giving a consistency in the approach to student problems. It is out of this approach to handling student problems that motivation for the present study developed.

The school administration has been involved in certain aspects of counselling. This "administrative counselling" brings the principal into contact with students, parents, and teachers over a variety of problems. The usual pattern involves a discussion between the counsellor and principal with the school records of the "problem student" supplying valuable information. This discussion is followed by a meeting which may include the principal, the counsellor, parents, teachers, the student, or, any grouping of these which seems advisable. Such meetings frequently have a positive result, since the examination of problems often goes a long way toward solving them.

One problem of this type is that of youngsters who are thinking of leaving school because of unhappiness with life in general and with school life particular. These boys and girls are usually having difficulty with their courses and are frequently disenchanted with their parents, their teachers, and society at large. Although such

adolescent discontent is not unique to the present generation, the number of cases has increased considerably in recent years.

In the preliminary stages of counselling, during the persual of the record files of these boys and girls, one item appeared frequently enough to attract attention. This item showed up in the pattern of progress through the elementary grades. This pattern revealed that a grade had been skipped. The question arose of some relationship between double-promotion in the elementary school and difficulties in high school. This led to a further questioning of the whole process of acceleration.

If acceleration in elementary school does indeed have an effect on a student's high school life, and if this effect is detrimental, then some evidence of this should be available from school records. Since the files at Claremont contain the record of every student who had graduated from the school since its opening, there was an opportunity to seek such evidence. This study has therefore been based on the more than 2500 student records on file at the school.

CHAPTER II

REVIEW OF RELATED LITERATURE

To challenge, or even to investigate the practice of grade-skipping may seem foolhardy in the face of such considered opinion as that of McGrath (1957), a strong proponent of acceleration....

> Students who show superior ability should be accelerated in their schooling. That they can do so without harm has been demonstrated again and again..... An immense amount of nonsense has been propogated to the effect that this speed-up of education has been accomplished by many serious emotional disturbances and maladjustments. But studies show clearly that superior students do not suffer in any respect under acceleration, or do they think they do. (p. 3.)

And McGrath has not been alone in support of acceleration. Over the past fifty years, many educators have recommended it strongly and reported favourably on its results. Terman (1924), Herr (1937), Keys (1938), Pressey (1954), Klausmeier (1962) and King (1967) are representative of supporters of rapid progress through the grades. Ketcham (1965) summarizes the opinions of many educators when he states:

> A substantial literature on educational acceleration provides impressive support for its use in assisting gifted pupils. Early admission to school, grade-skipping and early high school leaving can be used to hasten many gifted pupils entrance to college. (p. 36)

However, there is enough evidence in the literature to support the view that many accelerates are handicapped by their

relative youthfulness in taking full advantage of the academic and extra-curricular life of high school. Thus Alltucker (1924) when she reports the comment of a Grade 10 boy who had been accelerated, "I was too young and too small for athletic activities." (p. 199). Keys (1938) in a comprehensive review of studies related to the college performance of young accelerates notes.

> However in regard to the bearing of early entrance upon student's own personality and health, their social adjustments, and ability to share fully in extra-curricular activities, conclusions are conflicting. (p. 164)

Keys' observations on the effects of acceleration in areas other than academic achievement, are significant. They are all the more so when one finds that writers such as Engles (1938), Pressey (1954), Adler, Pass and Wright (1963), Barnickle (1967) and Swinburne (1970), voice similar reservations. Swinburne's comment on special programs for gifted children bears on the non-academic considerations...

> By all means let us improve the education of the highly intelligent, but the improvement must be measured in social as well as intellectual terms, and must not occur at the expense of the education of the less gifted majority. (p. 272)

Identifying the Gifted

Any study of acceleration must begin with an examination of the question of giftedness, for it is with the intellectually superior child, that the process of acceleration deals. The

literature and research on giftedness are extensive, including at the present time, a number of periodicals devoted entirely to the subject.

Identification of the gifted youngster is commonly related to some measure of his intellectual capacity. While studies made by most researchers reveal that other factors are considered, the common factor in identifying giftedness is an intelligence rating or IQ. Herr (1937) writes about a special program of acceleration in which students selected had an IQ of at least 120. Engles (1938) reports on the progress of a group of children who had been accelerated and notes that their average IQ was 117.1. In making a strong case for acceleration, Keys (1938) makes the following statement:

> ....insisting on regular promotion according to chronological age for pupils with IQ's over 120, is not only of no benefit, but an actual deterrent to their social adjustment and development. (p. 264)

Justman (1954) in reviewing a special program of acceleration carried out in junior high schools of New York, reports that the program grouped youngsters with IQ over 130 to complete a three year programme in two years. In a research project in the Los Angeles area, Merman (1961) found that all the accelerates included in his study had recorded IQ scores over 120. Adler, Pass and Wright (1964) reported on a special program of acceleration carried out

at the high school level in Toronto and note that one of the criteria for student inclusion in the scheme was "a minimum intelligence score of 125." (p. 2)

Witty (1967) not only relates giftedness to IQ, but further refines this definition by identifying three levels of talent based on ranges of IQ scores. The "Academically Talented" are those with IQ's of 116 and above and Witty estimates they make up fifteen to twenty percent of the general school population. The "Gifted" are those with IQ's above 132 and they constitute from two to four percent of the population. The "Highly Gifted" possess intelligence ratings above and beyond 148 and account for only one-tenth of one percent of the population.

Gray and Hollingworth (1931) used IQ as a reference point in deploring the waste of time for bright youngsters in elementary classrooms. They estimated that students with IQ over 140 wasted half their time in class, and that those very bright few with IQ over 170, were wasting all their time. Terman (1947) expressed similar concern and recommended that all students of 135 IQ or higher, be advanced sufficiently to permit college entrance by seventeen or even sixteen.

Special Educational Programmes for Bright Students

The need to provide some modification of the curriculum for children of above average ability, has been recognized for many years. The writings of Terman (1924, 1947, 1954), Keys (1938), Smith (1961) and Mason (1970) are among the many examples of

proposals to modify the education of bright boys and girls. Zilli (1971) presents a strong case for special attention to the problem of educating the capable child. Her research on the underachievement of bright adolescents, has led her to conclude that teachers, parents and counsellors must unite to effect the needed changes in curriculum.

There are three modifications commonly used to provide such curriculum changes: grouping homogeneously, course enrichment, and rapid progress through the grades. Acceleration, as this last practice is commonly called, is most frequently used.

Many large districts where total enrolments are sufficient to generate whole classes of bright students, use homogeneous grouping. Special courses and activities are developed to challenge the capabilities of the children. Justman (1954) describes a successful grouping plan carried out in New York schools, Woolridge (1959) advocates special grouping of children by subjects, and Dyson (1967) examines the practice in terms of its effects on the self-concept of the members of special class groups. Mirman (1961) refers to the practice in New York and Cleveland of grouping bright children in classes for special instruction, while Mason (1970) recommends the institution in England of special schools to give high IQ children an opportunity to develop their talents. There are however, criticisms of grouping, Keys (1938) notes that it is undemocratic and suffers from an aura

of elitism. Swinburne (1970) challenges Mason's proposal for special schools:

> Interaction of children across the whole range of IQ is surely vitally important. Segregation at the age of 11 has led in the past to great gulfs in understanding between people of differing intelligence. How much wider this gulf would be were children separated at a more junior level. (p. 272)

A second approach used by educators to meet the needs of bright children is enrichment of their programme by extended study and assignment beyond that of the rest of the class. Applbaum (1961) and Feir (1961) outline enrichment programmes that are typical. Many modern textbooks have enrichment built into them with graded exercises that enable the teacher to make assignments suited to the ability of each student. However, as Witty (1967) notes, enrichment at the elementary level, where it is most needed, is extremely difficult to accomplish. Classes are usually large, the teacher is responsible for all subjects in the curriculum, and she has difficulty finding the time to develop and supervise special course material for her brighter pupils. On the other hand, the modern secondary school has enrichment incorporated in its programme, by means of variety and range in difficulty of its courses, and the resources of its library.

Keys (1938) maintained that enrichment was more talked about than practised because of the demands it makes on the teacher.

Other writers have noted the possible damaging effects of identifying the bright pupils in a class with different treatment from their classmates and therefore segregating them from their peer group. Another common criticism of enrichment is that too often it simply means more of the same rather than different or more challenging work.

Acceleration is a more commonly used method of dealing with the problem of providing for bright youngsters as Miller (1957) reports in an extensive survey of American school systems:

> Fifty-four percent made provision for individual differences by double-promotion on the basis of tests and teacher judgement. (p. 258)

Because it does not require the special organisation of grouping, or the development of special course materials, needed in enrichment, acceleration is the easiest of the three to administer. The youngster is simply moved into the work of the next higher grade, which will be more of a challenge to his abilities. Wilson (1954) gives strong support to the use of acceleration as advocated by Terman:

> Without favouring the sacrificing of children for dollars, the writer believes that the well-being of gifted children, and some financial savings, will be realised together by adoption of the Terman proposal. (p. 122)

Keys (1938) was an early supporter of acceleration as the best method of providing for able students....

> of the various forms of administrative provision for adapting instruction to the bright, the most readily and universally practicable is acceleration. (p. 259)

Wilson (1954), King (1967) and Stanley (1973) have been more recent supporters of this practice.

Acceleration is a phenomenon which occurs chiefly in the elementary school and takes place in one of three different ways. These are, (1) early admission to primary school, (2) non-graded primary groupings and (3) grade skipping. With regard to early admission, most districts have firmly established policy regarding the age of admission to Grade I. The most common requirement is that the youngster must have reached his sixth birthday by December 31 of the year in which he reports for enrolment in the first grade. However many school districts make provision for early admission of bright children through a program of readiness tests.

Non-graded primary groupings are increasingly common, Barnickle (1967) describes a plan whereby the course content of the first three grades is treated as one unit of work which will be completed by most youngsters over a three year period. Slower pupils may take four years while bright boys and girls may complete in two, or in effect, be accelerated one year. While this type of acceleration occurs almost entirely in the elementary school, there are instances of its use at higher grade levels. Justman (1954) reports on a program in the New

York system in which the three junior high school grades were treated as a unit and completed by a selected group of students in two years, and Adler, Pass and Wright (1964) review a special program in the Toronto schools in which the five year secondary course was completed in four years after it was modified to suit the needs of bright students.

Most acceleration is of the type called grade-skipping in which the pupil is promoted two full years instead of the regular one. This type of acceleration is reported by Klausmeier (1962) ....

> To the extent that enabling students of superior learning abilities to graduate from high school at age seventeen rather than age eighteen, is a worthwhile end, the results of this experiment are interpreted as strongly favouring accelerating older second graders of superior learning abilities to the fourth grade.... (p. 100)

The Effects of Acceleration

It is with the effects of acceleration that the present study is concerned and a considerable body of literature has been devoted to this topic. Terman (1924) began a study in the early Twenties and continued it over the next four decades. His work has greatly influenced the outlook of American education toward the gifted child and more particularly toward acceleration. Pressey (1955) recognized this contribution when he states...

> Terman's notable continuing studies of the gifted child group have added impressive new evidence of the value of rapid progress in school of able youngsters. (p. 12)

Mirman (1961) gives further recognition when he cites Terman's own summary of the effects of accelerating bright pupils...

> Our data show there is a marked tendency for children of very superior IQ to be more mature both socially and physically than children of average ability. The facts obtained in the thirty-year follow-up of our large gifted group prove conclusively that children of 135 IQ or higher who are accelerated one, two or even three years are usually more successful in later life than equally bright children who are held in the lockstep. (p. 42)

The question of the effects of acceleration on the academic performance of the accelerate, is the one which has been most frequently examined. It is also this aspect of the results of acceleration on which there is the most agreement. Alltucker (1924) studied a group of tenth grade students who had been accelerated in the elementary schools of Berkeley and found that the grades they earned in high school were as good or better than those earned by non-accelerates of equal ability. Keys (1938) and Mirman (1961) had similar findings. Witty (1967) in concluding a review of practices in educating the gifted, states...

> As early as 1933, Paul Witty and W. L. Wilkins summarized the literature and recommended moderate amounts of acceleration. This recommendation seems to be in accord with suggestions drawn from genetic studies which show that acceleration in the elementary school up to two full grades, is not associated with undesirable later adjustment in the gifted. (p. 9)

While the evidence of research on the academic value of acceleration is impressive, it becomes much less so when the research explores such areas as personality and emotional adjustment, social behaviour and attitudes, extra-curricular involvement, etc. In fact, many school districts today are wary of the side effects of acceleration and approach it with caution. Metropolitan Los Angeles, while still (1972) using acceleration limit it to no more than two semesters and then use it only after careful research of several factors other than intellectual capacity. In listing some of the disadvantages that educators often identify with acceleration, Mirman (1961) sums up the concern of many...

> It is very important to keep a child with those of his size and social and emotional level. Moving him up to his mental level may aggravate his problem of social adjustment. Intellectual maturity may not go hand in hand with social and emotional maturity when younger students are placed with older ones. This may result in a denial of leadership opportunities to those whose physical or social maturity is less than that of the older students. Separation from his age peers may lead to undesirable social and behaviour patterns. (p. 27)

At a much earlier date, in an evaluation of acceleration, Alltucker (1924) had observed...

> However, a few of the cases studied were successful only in scholastic accomplishment. In these cases there was not the balance that there should have been between each child's mental, pedagogical, physical and social ages. (p. 203)

Engles (1938) in reporting on the progress in high school and college of students accelerated in the elementary school found that while they belonged to more social organizations than non-accelerated controls, the accelerated boys were not as active socially and athletically as the non-accelerated boys. Comments from two of his subjects indicated their reaction to having been accelerated...

> The skipped person gets to high school more or less of a runt physically. Being small handicaps the boy greatly if he has any athletic aspirations and this lowers his self-respect. Also a physical runt is looked down upon by members of the opposite sex and consequently is excluded from social activities. (p. 538)
>
> I was already slightly self-conscious and the advancement made me more so. In high school, I was just too young and too small to enjoy the extra-curricular activities. (p. 538)

Twenty-six years later, Adler, Pass and Wright (1964) made the following observation in a report on their study in Toronto...

> Finally, some thought must be given to whether there are unpleasant consequences accompanying acceleration. If this is the case, then this fact must be weighed against the saving of a year's schooling. (p. 20)

Both Wilson (1954) and Witty (1967) report favourably on all aspects of acceleration, while King (1969) found parent and teacher reaction to rapid advancement generally positive.

Thompson (1961) made an extensive survey of educators to obtain their reaction to double-promotion in the elementary school. He found that respondents divided evenly in their support or non-support of the practice. He reports further, that among those favouring this type of acceleration, college faculty members made up a large percentage. A majority of the public school teachers who responded were opposed to rapid advancement.

In most school districts, parents are involved in decisions regarding the double-promotion of their youngsters. Barnickle and Lindberg (1967) found that they also have a concern over the effects of double-promotion. They report on parental reaction to a plan to promote Grade 2 pupils into Grade 4. While the majority of parents expressed approval a few had doubts and withheld permission for their child to be accelerated...

> They saw Sam in high school as small and young. He could be penalized in athletics by size and in social life by both size and maturity. (p. 42)

Bettelheim and Mott (1965) examined several types of special groupings used by educators to serve the needs of gifted children, including grouping for an accelerated program. One observation made by them identifies some effects of acceleration not very frequently studied by researchers...

> Some years ago I observed what happened to a number of gifted children who were taken out of a highly accelerated, highly competive private school and placed in a public school of good academic standing where by comparison the work was so easy as to be boring.

> Close inspection revealed an interesting and worthwhile development in most of the transplanted youngsters. In the special school for the gifted, these children had shown little ability to use their own critical judgement. Indeed, they had relied heavily on the teacher's direction. In the slower paced school, no longer having to worry about keeping up, these students began to reflect spontaneously on many problems, some of which were not in the school program.
>
> The students acquired on their own, a much deeper appreciation of life, art, literature, and other human beings. No longer exhausted by meeting assigned learning tasks, these youngsters had energy to branch out, broaden their interests, and understand more deeply. (p. 4)

In a study which was similar to the present one, Mirman (1961) examined a number of aspects of the high school life of a group of students enrolled in Grade 12 classes in Los Angeles. Some of the students had been accelerated in elementary school and they were matched with others of similar ability and background, who had progressed on a normal promotion pattern through the early grades. He found that the accelerates had similar scholastic and vocational interests, participated as much in extra-curricular activities and were just as well adjusted socially as the controls. Among his recommendations is one which is not elaborated upon but which hints at the problems faced by some who are accelerated...

> Besides his scholastic ability, teachers counsellors and principals should consider carefully the child's emotional development, his relations with fellow students, and his physical size. This latter seems especially important in the case of boys, whose smaller stature, coupled with a disparity in age, could conceivably cause them considerable difficulty in high school. (p. 141)

Summary

One of the many problems in education which continues to invite new solutions is how to provide for children whose abilities are either well above or well below the average. Both groups have attracted much attention in writing and research. Special attention to pupils of limited ability is an accepted part of the curriculum in most school districts with substantial sums of money assigned for remedial work with them. Special provision for very bright pupils has not received the same attention, with many districts that do have special programs for their low ability youngsters providing nothing at all in the way of modified instruction for their very able students.

There appear to be two major problem areas related to special education for bright boys and girls. The first of these is how to identify them and the second is what to do with them once they have been identified.

The second problem, that of how to provide for able students within the framework of the school system, has in the past and is presently being answered in several ways. The three most common answers involve either program enrichment, or special grouping, or more rapid progress through the grades. The last of these, usually referred to as acceleration is the most frequently used means of solving the problem.

There is an extensive literature on acceleration and on its effects. Most writers report favourably on its use and many have conducted research projects to determine its effects. The sum of the reactions of educators, parents and accelerated students themselves, is favourable. Subsequent achievement in academic areas appears not to suffer from acceleration and in many reports there are claims that it improves.

It is when the effects of acceleration in areas other than the academic are reported that evidence appears which raises questions as to its use. (1) Are the younger accelerates as socially mature, do they become as (2) involved in the activities that are an important part of school life outside the classroom, can they (3) benefit as fully from the school's athletic program? These and other questions which grow out of a situation that places accelerated students in the high school environment younger than their classmates are not satisfactorily answered in the literature. While the majority of writers claim there are no serious side effects from acceleration, a substantial minority have noted the concerns of educators, parents, and the accelerates themselves.

CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

In this study research has focused on a group of students which was considered on the basis of school records to be of high ability. Some members of the group had been accelerated during their elementary schooling, the others had not. From their permanent records, data regarding their academic performance, their achievement in Physical Educaiton, their involvement in extra-curricular activities, and their participation in athletics, was gathered. A comparison of performance in each of these areas was made to determine if the accelerates as a group, have a record that is different from that of the non-accelerates.

Populations and Samples

The school population from which the samples were drawn included all those students enrolled in Grade 12 classes at Claremont Secondary School for each school year from 1962 through 1972. This population included 2560 boys and girls who attended Grade 12 during this period. The permanent records for each of these students is on file at the school and provided information for identification of the sample and for dividing the sample into accelerates and non-accelerates.

The first criterion used as a basis for sample selection was the presence on the permanent record card of at least two IQ ratings of 120 or higher. This criterion was used to identify the bright students in the population. The search of the records on this basis

produced a sample which included 85 boys and 135 girls. Further examination of the permanent record cards revealed that several in the sample had attended elementary school in districts other than Saanich. The sample was reduced to 199 by removing the records of these students who had not had their entire education within the same school district. This refining of the sample was undertaken to yield a group which had received all its education in the Saanich district.

Within this sample, those who had been double-promoted in elementary school were identified to form an accelerate group. There were 59 in this group; 35 girls and 24 boys. In the entire population, only one student who was double-promoted did not record the criterion IQ score, this record was not included in the study. With identification of this accelerate group of 59, there remained a group of 140 non-accelerates, 87 girls and 53 boys. Table II shows the sample in relation to the population in which it was identified and the number of accelerates and non-accelerates in each Grade 12 class.

Examination of this table reveals a decline in the number of accelerates in recent years. This trend is more clearly identified in Table III where the population has been divided approximately in half in terms of Grade 12 enrolment and the numbers from the sample falling in each half are shown as a proportion of the population. This division shows that while the proportion of students identified

TABLE II

Grade 12 enrolment and distribution of Sample Group, Accelerates, and Non-Accelerates, according to year of graduation from Claremont Senior Secondary School 1962 - 1972.

Year of Graduation	Grade 12 Enrolment	Sample Students	Accelerates	Non-Accelerates
1962	76	2	1	1
1963	106	11	5	6
1964	131	11	5	6
1965	160	12	3	9
1966	235	22	12	10
1967	227	23	12	11
1968	282	18	6	12
1969	320	16	7	9
1970	326	16	2	14
1971	363	40	4	36
1972	334	28	2	26
Totals	2560	199	59	140

TABLE III

Total Grade 12 population for the period 1962-1972 divided into two groupings to show the change in the proportion of students accelerated between the periods 1962-68 and 1969-72.

	1962 - 68	1969 - 72	Total
Number of Grade 12	1217	1343	2560
Number in selected sample	99	100	199
Sample as percent of population	8.13	7.45	7.77
Number in sample accelerated	44	15	59
Accelerates as percent of sample	44.4	15.0	29.7
Accelerates as percent of population	3.6	1.1	2.3

for inclusion in the sample has remained substantially the same, the proportion accelerated has dropped considerably.

Two other characteristics of the sample group are identified in Table IV. Division on the basis of sex is shown and reveals that girls make up three-fifths of both the accelerate and non-accelerate groups. Of more relevance to this study is the age difference which shows the accelerates were an average of ten months younger than the non-accelerates at the end of June of their Grade 12 year.

Another pertinent statistic is the average IQ of the members of the sample group and of the sub-groups within it. Table V shows the mean IQ of the boys and girls in both the accelerate and non-accelerate groups.

These means were calculated on the basis of the two higher IQ scores from each student record. The accelerates as a group show a slightly higher rating on this measure.

In summary, the samples studied can be described as being composed of bright boys and girls, drawn from a school population of Grade 12 students. These boys and girls attended elementary school, junior high school, and senior high school, in the same district and all attended Grades 11 and 12 in the same senior secondary school over the period 1962 - 1972. Over one-fourth had been accelerated during their elementary schooling and were nearly a year younger at graduation than others in the sample. Girls formed the larger proportion of the accelerated group which

TABLE IV

Distribution by age and sex of accelerated and non-accelerated students from sample

Age in June of Grade 12 year. (in months)	Accelerated Students			Non-Accelerated Students			Total Students in Sample		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
198		1	1					1	1
199	1	3	4				1	3	4
200									
201	1	1	2				1	1	2
202	3	1	4				3	1	4
203	1	1	2				1	1	2
204(17 yrs.)	1	6	7				1	6	7
205	4	4	8	1	1	2	5	5	10
206	2	3	5				2	3	5
207	4	5	9	1		1	5	5	10
208	3	4	7				3	4	7
209	3	3	6	1	2	3	4	5	9
210				7	4	11	7	4	11
211	1		1	2	3	5	3	3	6
212		1	1	3	9	12	3	10	13
213		1	1	4	6	10	4	7	11
214				4	6	10	4	6	10
215				6	8	14	6	8	14
216(18 yrs.)				4	15	19	4	15	19
217				6	9	15	6	9	15
218				4	10	14	4	10	14
219				1	4	5	1	4	5
220		1	1	4	4	8	4	5	9
221				2	3	5	2	3	5
222					2	2		2	2
223					1	1		1	1
224				1		1	1		1
225									
226				1		1	1		1
227									
228(19 yrs.)				1		1	1		1
Totals	24	35	59	53	87	140	77	122	199
Mean Age in Months	205.6	205.7	205.7	215.2	215.4	215.3	210.4	210.5	210.5

TABLE V

Mean IQ of student groups in sample

Group	Mean IQ
Accelerated Girls	132.7
Accelerated Boys	135.4
Accelerated Boys and Girls	133.8
Non-Accelerated Girls	130.3
Non-Accelerated Boys	132.4
Non-Accelerated Boys and Girls	131.1

as a group had a higher mean IQ than those in the sample who had not been accelerated.

Sources of Data

Two sources provided the data for this study, the student permanent record cards on file in Claremont school, and the school annuals from 1962 through 1972.

A British Columbia Permanent Record Card (P.R. Card) is maintained for every student educated in the province. It is initiated when a pupil registers in Grade 1, and follows him through the grades. After completion of his public education, these cards are stored at the school last attended by the pupil. They contain such vital statistics are birthdate, place of birth, parent's names, etc. The name, location, and period of attendance for each school in which a pupils enrolls, is also recorded.

The chief function of these cards is to maintain an academic record of each child. This record concerns two aspects of the child's progress through school. One part of the card is set aside for recording the results of standardized tests, given at various stages of elementary and secondary schooling. The test scores, grade placement, date administered, etc. are shown on the Permanent Record for each aptitude or achievement test. Information from this section was used in indentifying the sample to be studied.

The major portion of the Permanent Record card is reserved for a grade by grade recording of achievement in school subjects. From Grade 1 through Grade 12, a rating which summarizes the year's performance in each subject, is assigned to the pupil and placed on the permanent record. The grades assigned were on the seven

point letter grade system defined earlier. This portion of the card provided data for assessing performance in Physical Education and a basis for measuring academic achievement. A completed Permanent Record card does in fact provide a comprehensive report on the twelve years of a youngster's public education. (see Appendix B)

The second source of data was the student yearbook or annual. The format of this book follows a traditional pattern; there are individual photographs of each of the graduates with an accompanying write-up. There is a section devoted to clubs and student organizations such as Drama Club and Student's Council. A separate section is set aside for athletic activities. Both these extra-curricular sections feature pictures of the group concerned, a resume of the year's activities, and a listing of names of members of the group. The yearbook is the product of a team of students under the guidance and direction of a staff sponsor. It is from the extra-curricular sections of the school annuals over the period 1962 - 1972 that data for the assessment of involvement in athletics and extra-curricular activities has been obtained.

The data gathered from these two sources has been subject to the influence of a large number of variables. The IQ scores used as a basis for identifying members of the sample were recorded over a period of several years and resulted from tests given under conditions that varied from school to school. The teacher gradings in Physical Education 11 used to compare performance of the accelerates

and non-accelerates in this subject can be highly subjective, and are therefore subject to variations in the teacher's estimate of the student.

Two factors tend to reduce variability of achievement grading used to assess performance in academic subjects; the first is the stability of staff membership already referred to and summarized in Appendix B. The second is related to the fact that the school has been accredited since it first opened. Accreditation of a high school in British Columbia indicates recognition of a satisfactory level of performance by students of the school on various survey tests and examinations conducted by the provincial department of education. It further indicates that the qualifications of the staff are adequate to present the curriculum of the school. Evaluation policies and grading systems within the school, have therefore been related, over the whole study, to standards set for the province.

The data obtained from the school annuals has been subject to influence by all those variables at play when a number of people attempt to coordinate and organize the production of a school publication. There is a tendency to include everyone associated with a school activity, regardless of their level of contribution to it. Team lists and club memberships tend to be just that, rather than an indication of performance. However, this is precisely what activity at school is generally assumed to be, membership in activity groups.

Hypotheses to be Tested

The sequence of events which occurred frequently enough to reveal a pattern, to lead to questioning and then to speculation, had the following elements:

1. A student appeared at the counselling office on his own volition or at the request of a teacher.
2. The student related troubles with his courses or with his teachers and suggested withdrawal from the course or from school.
3. The counsellor took the problem and the student record file to the principal for discussion.
4. The student record indicated superior ratings on standardized tests, including high IQ scores.
5. The promotion pattern in the elementary grades showed that a double-promotion had occurred.
6. Birthdate information showed the student to be approximately one year younger than was usual for the grade.
7. Discussion with the student revealed a general lack of interest in the school's educational program and no interest at all in its extra-curricular activities.

The question which this recurring pattern of events raised, was one of the possible relationship between acceleration in the elementary school, and difficulties in high school. Were these boys and girls too young to cope with the academic challenge of the senior grades ? Were they too immature to benefit from the extra-curricular

opportunities, particularly the opportunities in athletics ? Although research on the effects of acceleration generally indicates that the answers to these questions are negative, there are numerous examples given in the literature that support the position that some students when accelertated are handicapped in later years by their youthfulness. Barnickle and Lindberg (1967) in reporting on a parent's reaction to the acceleration of her son through a non-graded primary grouping, provide such an example.

> He finished the accelerated primary block with good mastery of basic skills; but during the year when the accelerates were placed with children a year older, he became an onlooker. Because he was not sure that he would be accepted, he watched at recess instead of entering in; and he was afraid of the competition in gym.
> Allen's parents looked ahead to his college years with misgivings, because Allen would always be competing with older students. (p. 43)

These observations and the questions they raised have led the writer to propose the following : STUDENTS WHO ARE ACCELERATED IN ELEMENTARY SCHOOL ARE AT A DISADVANTAGE IN HIGH SCHOOL IN RELATION TO THEIR OLDER CLASSMATES, BOTH IN THE CLASSROOM AND OUTSIDE IT. The following hypotheses have been developed to test this proposition. They are stated in the null form and rejection will require a significance level of $p < .05$.

H_1 Involvement in high school extra-curricular athletics of students who were accelerated in elementary school will not differ significantly from that of students of similar ability who were not accelerated.

H_2 Achievement in high school Physical Education of students who were accelerated in elementary school will not differ significantly from that of students of similar ability who were not accelerated.

H_3 Involvement in high school in extra-curricular activities other than athletics of students who were accelerated in elementary school will not differ significantly from that of students of similar ability who were not accelerated.

H_4 Academic achievement in high school of students who were accelerated in elementary school will not differ significantly from that of students of similar ability who were not accelerated.

CHAPTER IV

RESULTS

To determine the relative involvement in extra-curricular athletics of the accelerates a summary was made of the number of athletic teams of which the accelerates and non-accelerates were members. Table VI is a summary of the information provided from school yearbooks.

When Table VI is examined in terms of number of students who were involved in extra-curricular athletics as members of extra-mural school teams, the following points emerge:

1. Of the 122 girls in the sample, there were 49 or 40.1% on one or more school teams. Accelerated girls made up 11 of the team members which was 31.5% of that group. The non-accelerated girls had 38 who were team members or 43.7% of their number.

2. Of the 77 boys in the sample, 39 or 50.6% played on one or more school teams. Of the accelerated boys, 12 were team members or 50% of the 24 in that group. Of the 53 non-accelerated boys, 27 or 51% were involved.

3. Of the 199 boys and girls in the entire sample, 88 or 44.2% played on school teams. 23 accelerates or 38.9% of that group and 65 or 46.4% of the non-accelerates participated on teams.

TABLE VI

Summary of membership on school representative teams of Accelerates and Non-Accelerates attending Claremont school 1962 - 1972.

		Number of Memberships					
	No.	0	1	2	3	4	5
Accelerated Girls	35	24	5	2	4		
Non-Accelerated Girls	87	49	24	7	3	3	1
Total Girls	122	73	29	9	7	3	1
Accelerated Boys	24	12	8	1	2		1
Non-Accelerated Boys	53	26	9	6	10	2	
Total Boys	77	38	17	7	12	2	1
Accelerated Boys and Girls	59	36	13	3	6		1
Non-Accelerated Boys and Girls	140	75	33	13	13	5	1
Total Girls and Boys	199	111	46	16	19	5	2

A chi square test was used on each of the team membership categories examined above to determine whether there was a significant difference in the involvement of accelerates as compared to non-accelerates. The test results showed no significant difference thus supporting the first hypothesis.

A further inspection of Table VI involves the actual number of team activities in which students participated. This is the product of the number of students in a membership category and the number of team memberships represented by that category. For example the 10 non-accelerated boys listed under membership category 3 represent a total of thirty team memberships. When examined in this way Table VI yields the following information:

1. The 49 girls who were on school teams accounted for a total of 85 team memberships. The accelerates who represented 28.7% of the girls held a total of 21 memberships or 24.7% of total memberships. The non-accelerates who were 71.3% of all the girls had 64 memberships or 75.3% of the total memberships held by the girls.

2. A total of 80 team memberships were held by the 39 boys involved in athletics. Accelerated boys who were 31.2% of the male group held 21 memberships or 26.2% of memberships. The non-accelerated boys held 59 memberships which was 73.7% of all the memberships while they represented 68.8% of the boys in the sample.

3. The 88 boys and girls in the sample who played on one or more school teams, held a total of 165 team memberships. Those who had been accelerated held 42, which was 25.4% of total membership although they represented 29.6% of the sample. Those who had not been accelerated and who made up 70.4% of the sample, held 123 places on teams which was 74.6% of all team memberships.

The differences in athletic involvement and in team membership are not large. They are however, consistently in favour of the students who were not accelerated. While the difference in involvement between the accelerates and non-accelerates has been shown to be not significant, there is some indication that the younger, accelerated students have not participated to the same extent in the athletic program of the school.

To test the second hypothesis regarding achievement in Physical Education 11, year-end grades in this subject were obtained from the P. R. cards of each student in the sample. A summary of the grades of each of the groups within the sample is presented in Table VII. Frequencies of grades have been combined to show the proportion of each group earning grades of C or lower and the proportion earning grades above C.

It is important to bear in mind when inspecting Table VII that the students whose grades are summarized, all belong to a group with above average ability. In fact, they represent the top 8% of the students in a population of 2500. Letter grade distributions from their records will therefore not reflect a normal distribution.

TABLE VII

Summary of grades earned in Physical Education 11 by accelerated and non-accelerated students from Claremont School 1962 - 1972.

Groups	Number in Group	Letter grade categories and frequencies						
		E	D	C-	C	C+	B	A
Accelerated Girls	35			2	16	8	8	1
			18 or 51.4%			17 or 48.5%		
Non-Accelerated Girls	87	1		1	33	38	19	5
			25 or 28.7%			62 or 71.3%		
Accelerated Boys	24				13	6	4	1
			13 or 54.2%			11 or 45.8%		
Non-Accelerated Boys	53		1	3	18	14	13	4
			22 or 41.5%			31 or 58.5%		
Total Accelerated	59			2	29	14	12	2
			31 or 52.5%			28 or 47.5%		
Total Non-Accelerated	140	1	1	4	41	52	32	9
			47 or 33.6%			93 or 66.4%		

Examination of Table VII shows that a larger proportion of non-accelerates earned grades above C. This is particularly true of the non-accelerated girls when compared to the girls who had been accelerated. While there is not such a marked difference between the two groups of boys, it is again in favour of those boys who were not accelerated in elementary school.

A chi square test was applied to the grades earned by members of each of the sub-groups. Total grades above C and total grades of C and lower were used in the test to determine if there was significance in the differences observed in Table VII. In the female group, the difference which favoured the non-accelerated girls, was significant $p < .02$. For the boys, although the difference was in favour of the of the non-accelerates it was not sufficient to be significant $p < .30$. Results were significant $p < .02$ when the grades of all the accelerates and non-accelerates were tested with chi square. The second hypothesis is therefore rejected since a probability of chance occurrence of $p < .02$ is beyond the level of significance established ($p < .05$).

To provide data for testing H_3 a summary of the involvement of the members of the sample in extra-curricular activities related to clubs, student government, etc. was made. Those individuals who did participate were grouped according to the number of memberships in such activities. For example, a girl who was a member of the Annual Club, the Drama Club, and the Student's Council was placed in membership category 3, while a boy who was

a member of the Choir only, would be recorded in Category 1. Table VIII is a summary of this data.

When the information in Table VIII is examined on the basis of the number of students who were not involved in any activity and the total numbers involved in one or more activities, the following comparisons can be made:

1. Of the 122 girls in the sample, 82 or 67.2% participated in one or more extra-curricular activities. Of the accelerated group, 16 or 45.7% were active, while from among the 87 non-accelerated girls, 66 or 75.9% took part in the extra-curricular life of the school.

2. The boys did not participate to the same extent as the girls. Of the 77 in the sample, 38 or 49.3% were members of extra-curricular organizations. From the accelerates, 8 or 33.3% were involved while 30 or 56.4% of the non-accelerates were listed as members of various non-athletic extra-curricular organizations.

3. When the accelerated group of 59 boys and girls is compared with the 140 non-accelerates, the non-accelerates show considerably more membership in extra-curriculat activities. The 24 accelerates who were members represent 40.7% of that group, while the 96 non-accelerates who were involved made up 68.6% of their part of the sample. Of the entire sample of 199 boys and girls, 120 or 60.3% were recognized in the school yearbook for their involvement in extra-curricular activities.

A chi square test was employed to determine whether this difference in the numbers of each of the sub-groups was significant. When the girls were compared on the basis of the number who did not

TABLE VIII

Summary of membership in extra-curricular activities other than athletics of a sample of accelerated and non-accelerated pupils attending Claremont School 1962 - 1972.

Sub-groups	Numbers in Group	Membership Categories					
		0	1	2	3	4	5
Accelerated Girls	35	19	6	8	2		
Non-Accelerated Girls	87	21	30	21	10	4	1
Total Girls	122	40	36	29	12	4	1
Accelerated Boys	24	16	5	1	1	1	
Non-Accelerated Boys	53	23	16	6	8		
Total Boys	77	39	21	7	9	1	
Accelerated Girls + Boys	59	35	11	9	3	1	
Non-Accel. Girls + Boys	140	44	46	27	18	4	1
Total Girls and Boys	199	79	57	36	21	5	1

participate at all and the number who were members of one or more student organizations, a significant difference, $p < .01$, was found. The difference in the numbers of boys involved and not involved from the accelerated and non-accelerated groups was not significant, but the chi square value obtainted, ($p < .10$), was close to that required for significance at the .05 level.

Significant differences were obtained when the involvement of the accelerated boys and girls was compared with that of the boys and girls who had not been accelerated. A significance level of $p. < .001$ resulted from the chi square test of this comparison. On the basis of the level of significance of these differences H_3 was rejected.

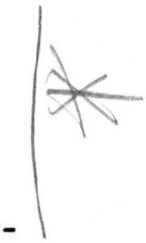
When Table VIII is examined in terms of the number of activities in which each of the groups was involved, the difference in the degree of involvement becomes even more apparent. This total membership is calculated by multiplying the number of students in each category by the number of activities represented by that category.

1. A total of 151 memberships were held by the 82 girls taking part in activities. Although the girls who had been accelerated accounted for 28.7% of the girls in the sample, they held only 28 of the memberships or 18.5%. On the other hand, the non-accelerated girls held 123 or 81.5% of the memberships although they made up only 71.3% of the girls.

2. There was a total of 66 memberships held by the 38 boys in the sample. The accelerated boys, who accounted for 31.2% of the boys held 14 or 21.2% of these memberships. On the other hand, the non-accelerated boys who made up 66 memberships which was 78.8% of male membership, accounted for only 68.8% of the boys in the sample.

3. The total membership of the 199 boys and girls in the sample was 217. Those who had been accelerated, held 42 of these memberships or 19.3% of the total, however these accelerates represented 29.6% of the whole group. Those who had not been accelerated accounted for 175 memberships which is 80.7% of the memberships although they made up only 70.4% of the sample.

Both in terms of proportions of each group involved, and in terms of memberships held, the non-accelerated students in the sample had a substantially greater involvement in the non-athletic opportunities at Claremont.



The fourth hypothesis, related to academic achievement of accelerated students as compared to the non-accelerates, was examined by summarizing grade point averages assigned to each student in the sample. Student marks recorded on the permanent record card for grades 11 and 12 were assigned values and the mean of these values was calculated. The ratings used were those assigned by teachers as an evaluation of the year's work and the seven point scale previously described in the definition of Achievement.

This seven point scale is in general use in British Columbia public schools and is designed to show a student's accomplishment as related to what might be expected in a distribution of marks along a normal curve.

When an A grade is assigned by a teacher, it signifies that the student earning that grade is in the top 5% of the students being evaluated in that subject. A grade of B identifies the accomplishment of the student as falling within the next 20% of a normal distribution, and so on. Points were assigned to each letter grade in terms of these distributional values, so that an A was considered to be at the mid-point of the top 5%, a B at the mid-point of the next 20%, etc. The following table shows the values used as grade scores.

A	Top 5%	95 - 100	9.75 points
B	Next 20%	75 - 95	8.50 points
C+	Next 15%	60 - 75	6.75 points
C	Next 20%	40 - 60	5.00 points
C-	Next 15%	25 - 40	3.25 points
D	Next 20%	5 - 25	1.50 points
E	Low 5%	0 - 5	.25 points

Students in each group were then assigned to grade point categories and frequencies were established for each category. Table IX shows this distribution. These grade point category frequencies were then combined in three frequency distributions to show numbers of each group achieving at these levels.

Examination of Table IX with the high capability of the members of the sample considered, shows that the non-accelerates as a group had a larger proportion of high grades. Using the frequencies above a grade point average of 6.0 as a basis for comparison, the non-accelerated girls had 70 of their number or 80.5% with grade point averages at the C+ level or above, while the accelerated girls had 19 at this level, which is 54.3% of their number. Among the boys, the non-accelerated

TABLE IX

Frequency of grade point averages of accelerated and non-accelerated boys and girls in sample of students attending Claremont School 1962 - 72.

Group	Number in Group	Grade point categories and frequency of scores												
		3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	5.0 - 5.5	5.5 - 6.0	6.0 - 6.5	6.5 - 7.0	7.0 - 7.5	7.5 - 8.0	8.0 - 8.5	8.5 - 9.0	9.0 - 9.5	9.5 - 10.0
Accelerated Girls	35	3	2	2	5	4	5	2	2	3	6	1		
				16				12				7		
Non-Accelerated Girls	87			2	3	12	7	6	15	9	13	16	3	1
				17				37				33		
Accelerated Boys	24	1	1		3	1	5	2	4	5	2			
				6				16				2		
Non-Accelerated Boys	53	4	4	3	3	4	2	7	5	7	5	5	3	1
				18				21				14		
Total Accelerates	59	4	3	2	8	5	10	4	6	8	8	1		
				22				28				9		
Total Non-Accelerates	140	4	4	5	6	16	9	13	20	16	18	21	6	2
				35				58				47		

group had 35 members at 6.0 grade point average or above. This was 66.0% of that group. The accelerated boys had 18 at this grade point level which was 75% of their number.

When the frequencies for the accelerates as a group are compared to those of the non-accelerates, the latter show 105 of the 140 in their group, or 75% with grade point averages of C+ or better. The accelerates on the other hand had 37 of their 59 members with grades of that level. This represented 62.7% of the accelerated girls and boys.

A chi square test was used to determine if the differences in the three combined frequencies shown for the girls, the boys, and the total groups were significant. For the girls, there was a significant difference, $p < .01$, but not for the boys. Since the difference between the total groups was significant, $p < .05$, H_4 was rejected.

In summary, the data presented in this study have supported the proposition put forward regarding the possible lesser involvement and accomplishment of accelerated children when they reach high school. Statistically significant differences were discovered in the areas of extra-curricular activities, performance in Physical Education 11, and academic achievement.

CHAPTER V

CONCLUSIONS AND DISCUSSION

This study has had the purpose of examining the high school accomplishments of students who had been accelerated in the elementary school. It attempted to determine if boys and girls who arrived in the senior high school younger than their classmates, were at a disadvantage. To determine if there was a difference in the performance of accelerates, when compared to that of non-accelerates, the study focused on four areas of their secondary schooling; athletic team membership, achievement in physical education, involvement in extra-curricular activities, and academic achievement.

The comparison of team membership was in favour of the non-accelerates, but not significantly so, while analysis of achievement in Physical Education 11 revealed a higher achievement by non-accelerates, particularly the girls, which proved to be of statistical significance. This comparison in Physical Education was a particularly important one, for in this area it must be assumed that the younger accelerates would be at some disadvantage because of smaller size and less physical development.

In the other two areas studied, extra-curricular involvement and academic achievement, statistical analysis revealed significant differences in favour of the non-accelerates. This was particularly

so in the comparison of participation in extra-curricular activities, where the test of data yielded a significance level beyond $p < .001$. While this result was surprising in the light of other research which generally reports comparisons favourable to the accelerates, it is in the comparison of academic achievement that this study produced the most interesting results. The weight of the literature on the effects of acceleration indicates that the accelerate does as well or better than the non-accelerate. However, the accelerates in this sample did not earn grade point averages of the same high level as did the non-accelerates.

The difference in favour of the non-accelerates was true for both boys and girls. While more than one third of the non-accelerates earned grades that might be considered commensurate with their ability, less than one-sixth of the accelerates did so. This difference in academic accomplishment proved to be statistically significant.

Reasons for this difference, and the apparent disagreement with other findings, are not evident in the intelligence ratings of the two groups. As Table V indicates, the non-accelerates actually have a slightly lower average IQ than the accelerates. Once again, one is attracted to the obvious reason of difference in age, and the presumed difference in maturity. The non-accelerates were older, had spent a year longer at their schooling, and should have benefited from the extra maturity and experience that this implies. But it is difficult

to accept this age-maturity reason as affecting the difference in achievement of accelerates and non-accelerates at Claremont when it has been present in so many other studies in which the findings have been in favour of the accelerates.

A plausible explanation of the way in which the results of this study appear to contradict other research may lie in the approach taken at Claremont to Physical Education and to the higher grades earned by non-accelerates in this subject. It seems possible that this superior accomplishment by the non-accelerates in a subject given special recognition in the school, could well have affected both their attitudes and those of the accelerates.

As a group the non-accelerates performed at a higher level than the accelerates and received recognition from their teachers in the form of higher grades. It seems reasonable to assume that there would be some transfer of the student relationship established in the gymnasium to other classrooms and to other school activities.

The amount of acceleration in Saanich has been moderate when compared to that recorded in many studies and would indicate that Saanich practice has been similar to that of large school districts like Los Angeles, where moderate amounts of acceleration up to two full semesters, or ten months, are allowed. However, even with what appears to have been a conservative approach, those youngsters who were accelerated in Saanich elementary schools, do not appear to have enjoyed as much success in high school as did non-accelerates.

While the influence of factors such as socio-economic background, size of elementary school attended, changes in teacher evaluation criteria, etc. has not been considered in evaluating the data, it appears that even without this consideration the comparison of accelerates and non-accelerates points to an advantage for those who were promoted on a regular pattern in the elementary school.

In looking for reasons to explain apparent departure from results in other studies on the effects of acceleration the following considerations may obtain:

1. Many of the statistics on the effects of acceleration are derived from questionnaires directed to the accelerates themselves. It is difficult to conceive of an adolescent who has been accelerated, finding fault with a process which has identified him as superior in intellectual capability. In short, can such questionnaires be answered objectively by the very people with whom the questions deal ? What does an accelerate respond when asked, "Do you consider acceleration has been advantageous or disadvantageous to you ?"

2. Similarly, when parents are asked to answer a questionnaire about their child's acceleration, they can hardly be expected to be objective about a practice which has flattered them by identifying their child as being gifted.

3. Most comparisons of the school performance of accelerates to that of other bright children, is done in one of two ways. The researcher compares the accelerated youngsters with others in the same grade who were not accelerated or he compares them with the bright youngsters

with whom they started school, but who are a grade behind them because they were not double-promoted. Frequently the youngsters studied in such comparisons are carefully matched for IQ, economic background, etc. In spite of such matching, it seems fair to assume that studies based on this type of comparison will be affected by the close relationships that will exist between the groups being compared. The present study, on the other hand, has not attempted to match accelerates and non-accelerates who were in a particular grade together or who were separated because of double-promotion. It has instead examined the performance of a group of accelerates who attended Claremont at different times over a period of several years, and compared that performance to the accomplishments of a group of non-accelerates who attended during the same period.

longitudinal study

4. Most school districts studied in other reports have a policy which outlines policies and procedures regarding acceleration. There was no such district-wide policy in Saanich during the period when the subjects of this study were accelerated. Since individual principals and teachers made decisions on acceleration, it is possible that considerable discrepancy existed between schools on the basis of selection of youngsters for acceleration.

5. During the time when the students in the sample studied here, were attending elementary school, these schools in Saanich were relatively small. Many classes contained more than one grade. Under these circumstances, acceleration is a simple and attractive procedure for dealing with the problem of what to do for the bright

boy or girl. They were simply moved on to the work of the next grade while remaining with their peers in the same classroom. The suggestion here is that the multi-graded classroom encourages acceleration because there are no apparent disadvantages in this setting.

The results of this study do not agree with those reported in much of the research on the effects of acceleration. It has been suggested that this disagreement arises out of two basic differences between this study and others like it. The first of these differences is in the manner of assessment of the effects of acceleration. Most other research has relied on the responses of accelerates and their parents to questionnaires, the present study has made use of ratings recorded on school records. The second difference is in the elementary school background of the Saanich students, and that of the subjects of other studies. The lack of a consistent district policy regarding acceleration plus the relatively large number of small schools with multi-graded classrooms, do not compare with elementary school situations in most of the studies on the effects of acceleration.

Implications for Future Research

As this study has progressed, many areas tangential to it have emerged as appearing to warrant investigation.

The present study has assumed that involvement in the extra-curricular life of the school is a valuable part of the total educ-

ation of any youngster and that lack of such involvement deprives a boy or girl of an important aspect of their schooling. A study to determine just how important such activities are in the full development of the high school student would be a valuable contribution. Some valuable research has been done at the junior high school level by Garside (1973) on the relationship between athletic team participation and success in other aspects of school life. A strong positive relationship was discovered.

A study to determine if there is any relationship between age and outstanding performance in any field of activity associated with the school, would be informative to educators and to parents of bright children who are being considered for rapid advancement. What are the ages of the top scholarship winners, how old are the youngsters who win honour performance in drama festivals, what are the ages of the provincial champions in basketball and track ? Should the answers to such questions show that younger high school students seldom reach high levels of performance, then school authorities and parents would indeed need to re-examine the merits of accelerated programs.

Numerous writers have expressed concern at the lack of special programmes for gifted children. A survey of such programs in the province of British Columbia might highlight the need for more attention to the problems of educating bright boys and girls. Most school districts offer special programmes for the retarded, the emotionally disturbed, and other disadvantaged children. All these programmes receive financial support from the provincial Department

of Education and from individual school districts. The lack of similar special treatment and economic consideration for it, for children at the other end of the ability range, might be brought to the attention of school districts and the Department of Education, if the present situation in the province were surveyed.

Practical Recommendations

The major conclusion to be drawn from this study is that students who were promoted on a regular pattern in the elementary schools of the Saanich district had a more rewarding experience during their years in senior high school. This conclusion points to a need for examination of promotion policies at the elementary level and to the subsequent development of a district-wide procedure. It would seem reasonable to include representation from the secondary schools in any discussions in the formulation of such a policy.

Those bright young accelerates who dropped out of their secondary education, leaving an incomplete record at Claremont, could provide invaluable data for any study of promotion policies. There has not been in the Saanich district or at Claremont school a well defined policy regarding a follow-up procedure on these youngsters. It seems that considerable benefit might derive from a continuing communication between the school counselling service and these boys and girls, with a view to assisting them and encouraging their later return to the school environment. The records of such communications might well throw some light on the effects of acceleration on their decision to withdraw from school.

The Saanich district has won recognition for the achievements of its students in two areas of extra-curricular activity. The district's choirs and athletic teams have for several years won recognition in competition at the provincial level. It would be possible in this district to examine the relationship between age and outstanding performance of choristers and athletes. It would seem fair to assume that those physical qualities that produce a fine voice continue to develop with each year of physical growth, and that given the same vocal training, an eighteen year old high school student should be a superior singer to a seventeen year old. Similarly, it seems logical that a young lad of seventeen who is devoted to track may perform well in Grade 11, but surely will improve on that performance in Grade 12 when he is eighteen.

It is this question of the age-performance relationship which has been at the heart of this study. A continuing study in the Saanich district with reference to the two areas of performance suggested above would make a valuable contribution to the whole question of the relationship between chronological age and grade placement.

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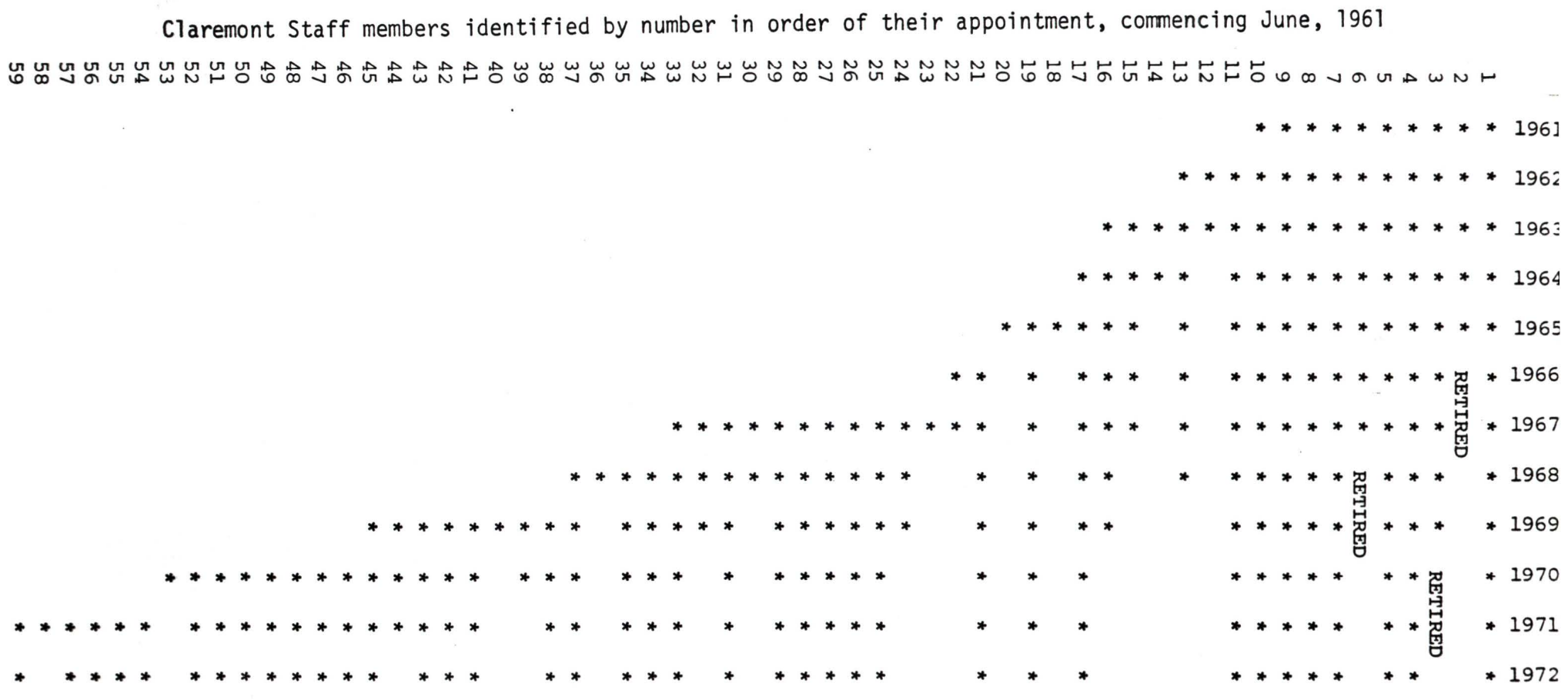

Appendix A - Retention of Staff at Claremont School

1961 - 1971

BRITISH COLUMBIA PERMANENT SCHOOL RECORD

Name _____ Phone _____

Sex _____ Birthplace _____ Date of birth _____ Day _____ Mo. _____ Year _____

Parent or Guardian _____ Verified by _____ Year _____

Pupil's address _____ Initials

ENTERED FROM	DATE	G.PL.

SCHOOL	No. AND DISTRICT	Entry Date		G.PL.	Tr'sfer Date		G.PL.	WITHDRAWAL DATE AND REASON

Kindergarten: _____

Special class: _____

Remedial work: _____

SCHOLASTIC APTITUDE TESTS

Name of Test	Form	G.Pl.	Date of Test		C.A.		M.A.	I.Q.	B.C.L.G.

Appendix B

British Columbia Permanent Record Card

BRITISH COLUMBIA PERMANENT SCHOOL RECORD

Name _____ Phone _____

Sex _____ Birthplace _____ Date of birth _____ Day _____ Mo. _____ Year _____

Parent or Guardian _____ Verified by _____ Year _____

Pupil's address _____ Initials _____

ENTERED FROM	DATE	G.PL.	

SCHOOL	No. AND DISTRICT	Entry Date	G.PL.	Tr'sfer Date	G.PL.	WITHDRAWAL DATE AND REASON

Kindergarten: _____

Special class: _____

Remedial work: _____

SCHOLASTIC APTITUDE TESTS

Name of Test	Form	G.Pl.	Date of Test	C.A.	M.A.	I.Q.	B.C.L.G.

Subjects:	Grade / Sch. Yr.	ELEMENTARY GRADES I	II	III	IV	V	VI	VII
Language Arts								
Reading								
Language								
Handwriting								
Social Studies								
Arith./Math.								
Science								
Phys. Ed.								
Art								
Music								
Days absent								

Subjects:	Prog. Yr. / Sch. Yr.	OCCUPATIONAL PROG. 1	2	3	
English					
Civics & Citizen.					
Arithmetic					
Science					
Phys. & Health Ed.					
Dom. & Related Sk.					
Shop Work Skills					
Agriculture					
Basic Business					
Music					
Art					

ACHIEVEMENT TESTS

Name of Test	Form	Date	G.Pl.	RAW SCORES Norm	BCMd	Score	BCLG	G.Eq.

ACHIEVEMENT TESTS

Name of Test	Form	Date	G.Pl.	RAW SCORES Norm	BCMd	Score	BCLG	G.Eq.

NAME _____

SECONDARY GRADES VIII–XIII

Name _____ Number _____

Address _____ Date of birth _____ Day Mo. Year

ENROLLED ON SR. PROGRAMME SPECIALTY

SCHOOL	JUNIOR SECONDARY						SCHOOL	SENIOR SECONDARY						GRADE XIII		
	Gr. VIII		IX		X			Gr. XI		XII						
	19 19		19 19		19 19			19 19		19 19		19 19		19 19		
Subjects	Course	L.G.	Course	L.G.	Course	L.G.	Subjects							Course		
English							English									
Soc. Studies																
Phys. & Health Ed.							Soc. Studies									
Guidance																
							Phys.&HealthEd.									
Mathematics							Guidance									
Science							Mathematics									
Language							Science									
							Language									
Agriculture																
							Agriculture									
Commerce							Commerce									
Fine Arts																
							Fine Arts									
Home Economics														COMPLETED DATE		
							Industrial							Occ. Prog.		
														Jr. Sec.		
Ind. Education														Sr. Sec.		
							Service									
														SENIOR ELECTIVES		
														Completed	Yes	No
Days absent							Days absent									

Completed qualifications for entrance to Senior Secondary:		Graduated from Senior Secondary School:		
Programme	DATE	PROGRAMME	SPECIALTY	DATE

Citizenship: _____ Remarks: _____

NAME

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L.G.—LETTER-GRADE RATING. C.—CREDITS.

Appendix B

British Columbia Permanent Record Card

VITA

Surname: LOTT Given Names: JOSEPH WILLIAM

Place of Birth: VICTORIA, B.C. Date of Birth: Feb. 4, 1923

Educational Institutions Attended, with Dates of Entering and Leaving:

VICTORIA COLLEGE	1940	to	1941
PROVINCIAL NORMAL SCHOOL, VICTORIA, B.C.	1941	to	1942
VICTORIA COLLEGE	1943	to	1944
UNIVERSITY OF BRITISH COLUMBIA	1944	to	1946

Degrees, Diplomas, Etc., Awarded, with Dates and Names of Institutions:

ELEMENTARY		
TEACHING CERTIFICATE	1942	PROVINCIAL NORMAL SCHOOL, VICTORIA, B.C.
BACHELOR OF COMMERCE	1946	UNIVERSITY OF BRITISH COLUMBIA

Honors and Awards:

Publications:

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EFFECTS OF ELEMENTARY

SCHOOL ACCELERATION ON

SECONDARY STUDENTS IN

A BRITISH COLUMBIA SCHOOL

DISTRICT

Author [redacted]

Signature

Joseph W. Lott

Name

September, 1973

Date