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A Comparative Study Between Department of Education Assigned-Marks and Accredited High Schools' Assigned-Marks in Alberta

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A COMPARATIVE STUDY BETWEEN DEPARTMENT OF EDUCATION ASSIGNED-MARKS AND ACCREDITED HIGH SCHOOLS' ASSIGNED-MARKS IN ALBERTA

by

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Douglas H. Christensen

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF TABLES

ABSTRACT

A Comparative Study Between Department of Education Assigned-Marks and Accredited High Schools' Assigned-Marks in Alberta

by

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The purpose of this study was to determine if there had been a significant change in the academic achievement, as measured by Grade XII grade-point averages, of Alberta's matriculation graduates since the accreditation of Alberta high schools in 1973.

The experimental population consisted of 100, 1971-72 and of 100, 1976-77 matriculation graduates who had graduated from schools in the rural school jurisdictions in Education zone 6; and of 100, 1971-72, and of 100, 1976-77 matriculation graduates who had graduated from schools in the Medicine Hat urban school jurisdication. All of the students in the experimental population had completed their freshman year at the Medicine Hat College the year following their graduation from high school.

The variables analyzed in this study were: (1) Departmental Examination Grade XII grade-point averages, (2) Teacher-assigned

Grade XII grade-point averages, (3) college freshmen grade-point averages, and (4) zones (rural and urban).

Correlation coefficients were calculated between Grade XII grade-point averages and college grade-point averages before and after the accreditation of Alberta high schools. Results indicated that the correlation coefficients ranged from .36 to 50.

The Grade XII grade-point averages which showed the highest correlations with college freshmen grade-point averages were those which had been obtained on Departmental Examinations.

The Fisher's Zr transformation statistical test indicated, at the .05 level of significance, that there was no significant difference between the zones' correlation coefficients before and after accreditation.

The two way analysis of variance test results indicated that there was no significant mean difference between Departmental Examinations Grade XII grade-point averages and teacher-assigned grades. There was, however, a significant difference at the .01 level, between the rural and urban zones' matriculation graduates' Grade XII grade-point averages. The t test showed that there was no significant mean difference between the rural and urban zone's matriculation graduates' Grades XII grade-point averages before accreditation, but after accreditation there was a significant mean difference at the .01 level.

The two-way analysis of variance statistical test results showed no significant mean difference in the Medicine Hat College's freshmen grade-point averages prior to or after accreditation.

(100 pages)

CHAPTER I

INTRODUCTION

Control of Education in Canada

Control of education in Canada is a provincial responsibility, granted under Section 93 of the British North America Act of 1867, which, together with amendments, is the Constitution of Canada. This Act guarantees continuation of all rights and privileges already enjoyed by minority groups prior to the various territories becoming provinces under Confederation (Statues of Canada, 1973).

The Province of Alberta came into existence in 1905 and thus assumed responsibility for educating the children within its borders. Five Acts include the legislation by which this responsibility is defined and regulated. These Acts are:

The Department of Education Act,

The School Act,

The School Taxation Act,

The School Attendance Act, and

The School Grants Act. (Hawkesworth, 1969, p. 1)

The Department of Education Act sets up the Department of Education with wide powers under the oversight of the Minister of Education, the latter elected as a member of the government in power. Under the powers exercised by the Minister of Education are those which permit him to control or prescribe the curriculum of schools, certification of teachers,

textbooks and associated materials, supervisory services, grading and examination procedures, and standards (The Department of Education Act, 1973).

Educational Monitoring and Assessment in Alberta Schools

The Alberta government, since 1905, has had a mandate to provide education for Alberta students and, with this, the responsibility to see that the schools are fulfilling the expectations of the electorate. A system of monitoring education in schools had been deemed necessary to make certain that standards in education were maintained, and that inconsistencies across school systems regarding student achievement evaluations were avoided, thus supposedly enhancing public confidence in the local schools. Until the early 1970's, therefore, when the last compulsory department examinations were eliminated, the legitimization of educational standards was done by government through an extensive system of external examinations and inspections by provicinally appointed school inspectors. When Alberta decided to abandon this system of monitoring, it was the last Canadian province to do so (Rusnack, 1975).

Provincial Examinations

Since 1906, the year after Alberta became a province, hundreds of thousands of Alberta secondary students have taken some form of provincially set and scored examinations. The grade levels of students required to write such examinations have changed several times, and the

tests have involved many formats, including various combinations of essay, short answer, matching, and multiple-choice items.

Broadly speaking, four major purposes have been served by provincial examinations:

- provide a basis for award of diplomas,
- provide a screening device for admission to post-secondary educational institutions,
- provide evidence of changes in school programs,
- provide direction for curriculum review and changes. (Alberta Education, 1973, p. 10)

Accreditation of Schools in Alberta

On February 3, 1973, the then Minister of Education, the Honorable Lou Hyndman, announced the withdrawal of compulsory Grade XII departmental examinations and stated that the teachers would be responsible for assigning final grades in all courses for all students (Alberta Education, 1973). Following this announcement, a number of Department of Education directives were sent out to school boards and school superintendents granting province-wide accreditation with respect to Grade XII student's final marks, provided certain criteria were met by the school. Under this policy of accreditation, school boards were required to employ certified teachers, instruct for minimum required time in a subject, and adhere to the Program of Studies (Alberta Education, 1973).

However, school systems were advised that departmental examinations would continue to be available for the following purposes: (a) for students who wish to apply for certain scholarships where it is

indicated that a department examination is required, (b) for students who are taking high school matriculation subjects through private study, (c) for adults who have no means of obtaining a school mark (Alberta Education, 1973).

Criticism of the Accreditation of Schools in Alberta

Currently, much attention is being paid to the apparent demise of educational standards in Alberta and the concomitant decline of public confidence in the provision and contribution of education to society. This condition obtains from at least two major policy decisions relating to the monitoring and assessment of the provincial educational system. The first of these was the decision to eliminate the inspection of school operations by the Alberta Department of Education in 1971. The second was the decision to phase out compulsory Grade XII department examinations in 1973 (Rusnack, 1975).

Formerly, these functions served, in part, to provide guidelines and benchmarks by which educators and those responsible for education could take stock of the current conditions of their respective operations and take action to meet identified discrepancies in the educative process. Further, these functions served to provide the background data and information necessary to establish and maintain public confidence in the efficacy of the educational system.

Since that time, numerous questions regarding the quality of preparation of the public schools' graduates, the lack of mastery in basic skills areas and the inconsistencies apparent in student

assessment procedures at the provincial level have emanated from various corners of society (Rusnak, 1975).

Proponents for the retention of departmental examinations hold that teachers are more technically qualified to instruct rather than evaluate, they claim that departmental evaluations protect teachers from local pressures to pass undeserving students, and they argue that provincial examinations provide a benchmark for year to year and locale to locale comparisons. They also point out that there is evidence that an individual's departmental examinations scores are useful predictors of continued academic success (Alberta Education, 1973). They further claim, that the deterioration in the academic achievement of the school systems' matriculation graduates is due to the absence of external controls on school evaluation practices which lead to increased leniency in the evaluation of student performance (Alberta Education, 1973).

Statement of the Problem

The Alberta Department of Education and the local school boards are accountable to those who provide the resources they use to carry out educational programs. They are accountable both to other levels of government for the resources such levels have provided, and to the electorate, the ultimate source of all funds.

The problem which is the basis for this study is to determine whether there has been a significant change in the grade-point averages (GPAs) of Alberta's matriculation graduates since the accreditation of Alberta high schools in 1973.

CHAPTER II

REVIEW OF LITERATURE

Purpose and Structure of the Review

The review of literature in this chapter deals with the concept of "evaluation" as used in the assessment of institutions and organizations. Particular emphasis is focused on the term "evaluation" as it applies to school organizations.

A brief history of the accreditation of schools in the United States and Canada is covered, as well as a detailed review of the literature on the accreditation of schools in the Province of Alberta. Problems associated with the accrediting of Alberta schools are also included.

Finally, studies dealing with the evidence of the unreliability of teacher-assigned marks and the factors related to their unreliability have been cited.

Evaluation as Part of the Educational Process

Evaluation is an important and integral part of the formal education process. The term "evaluation" has had different meanings at different times and for differing purposes. In Alberta, evaluation, as the term has been applied to the school as an institution, has been associated with inspection. Inspection, in turn, is a concept

inherited from early colonial beginnings, and relates somewhat to the functions of Her Majesty's Inspectors of the United Kingdom (Hawkesworth, 1969).

In a broader context, evaluation has included the concepts of measurement as used in psychology and education, and gained widespread use in the 30's as a reaction against the relatively narrow emphasis on information and skill testing procedures then current in education. Evaluation is a broad concept, and one subject to varying interpretations.

Hagen and Thorndike (1960) have described evaluation as follows:

> Evaluation in education signifies describing something in terms of selected attributes, and judging the degree of acceptability or suitability of that which has been described. The "something" that is to be described and judged may be any aspect of the educational scene, but is typically (a) a total school program, (b) a curricular procedure, (c) an individual or group of individuals. The process of evaluating involves three distinct aspects: (a) selecting the attributes that are important for judging the specimen to be evaluated, (b) developing and applying procedures that will describe those attributes truly and accurately, and (c) synthesizing the evidence yielding into a final judgement of worth. (Hagen & Thorndike, 1960, p. 494)

Wrightstone (1950) in discussing evaluation indicates that it is a relatively new technical term introduced to evaluate a more comprehensive concept of measurement. He sees the emphasis in evaluation as being upon broad personality changes, and the major objectives of an educational program. Ahmann, Glock and Wardeberg (1960) define evaluation somewhat differently:

> Differentiating between measurement and evaluation is often difficult. The two concepts are related, yet decidedly different. Evaluation is a more inclusive process than measurement. Measurement is only a part of evaluation. It provides the information upon which the evaluation is based. Educational evaluation

> is a process in which information derived from many sources is used in order to arrive at a value judgement. (Ahman, Glock & Wardeberg, 1960, p. 9)

The concept of value judgements as a part of evaluation is an important one for research. Remmers, Gage and Rummel (1965) emphasize that in evaluation one goes beyond the question of "how much?" to the question of "what value?" Thus, evaluation presupposes a definition of goals to be reached and requires that the researcher go beyond the data provided by measurement.

The literature relating to evaluation indicates that the process may refer to individuals or groups of individuals, to curriculum, to buildings, and to resources of every kind. The educational process in all its ramifications is the scope for evaluation. It assumes objectives that can be measured, but it goes beyond the measurement of these objectives to make value judgements concerning predictable outcomes or to indicate trends.

The processes of evaluation take many forms, depending somewhat upon the objectives postulated. Anedcotal records, interviews, questionnaires, case studies, and reports, together with instruments for the purpose of more precise measurement may be used.

Evaluation of high schools and accreditation of high schools have not been closely associated in Canada. Nova Scotia for many years had an accreditation program somewhat attached to the provincial inspection of schools. This accreditation program was abandoned following World War II, when facilities for high school education were greatly expanded and the character of the schools changed (Hawkesworth, 1969).

Accreditation of Schools in the United States

In the United States, with its heritage of little federal governmental interference in state education, an approach to the establishment of basic standards has been made through accreditation. It is due to the influence of the national, regional and state accrediting agencies that secondary school standards have been carefully scrutinized (Millett, 1952). Accreditation originated because of the difficulty that students had in preparing for various institutions of higher education. The following quotation illustrates, in part, this difficulty:

> Each college imposed not only its own entrance examination, but its own set of entrance requirements as well. High schools located in a region where colleges were numerous frequently had the difficult task imposed upon them of preparing students in four or five different sets of entrance requirements, to enable different students to enter as many different colleges. Preparation for one was of no necessity suitable for another. (Monroe, 1919, p. 27)

High school accreditation in the United States began in 1871, when the University of Michigan prepared a list of questions to be answered by high schools whose graduates sought admission to the University. Following Michigan's plan for accrediting high schools, the Indiana State Board of Education, in cooperation with Indiana University, empowered selected superintendents of schools to examine the students as to their fitness to enter the university (Ovard, 1966). Indiana thus became the first state in which accreditation of high schools was conferred upon the State Board of Education (Brown, 1907).

Expansion of similar programs in other midwestern states was rapid and was followed by interstate recognition of graduates.

Michigan and Minnesota agreed to this because of the difficulty of out-of-state visitation (Ovard, 1966). By 1897, 42 state institutions and 150 other colleges and universities were using a similar system of admission (Wardlaw, 1948).

The first decades of accreditation were fostered by the initiative of the state universities (Wright, 1952). Accreditation eventually became the responsibility of regional accrediting associations. The states, too, in cooperation with accrediting associations or acting independently, evaluated and continue to evaluate high schools. Wright's survey showed that in 1955 about four-fifths of the states had the state department of education acting as an accrediting agency (Wright, 1955). Ovard (1966, p. 482) commented, "the states are unlikely ever to abolish their insistence upon the secondary schools meeting certain curriculum, building, and pupil-service standards."

After the Kalamazoo case of 1872, the growth of high schools in the United States was exceedingly rapid. With the growth of these secondary schools, institutions of higher learning began to see the value of promoting closer relationships with them. This relationship has been further promoted by the formation of regional accrediting associations (Brown, 1907).

The Southern Association of Colleges and Secondary Schools is an example of a regional association. It was organized in November 1895 because:

> the laxity of prevailing standards made such an organization imperative. Institutions labelled universities were, in some cases, mere high schools, and, in other cases, second rate colleges . . . to elevate the standards of scholarships and to effect uniformity of entrance requirements (Seldon, 1958, p. 12).

The independent accrediting associations, irrespective of the accrediting functions of the various state department of education, have refined evaluating procedures for high schools in the United States. These associations include the following:

1. The Middle States Association of Colleges and Secondary Schools,
2. The New England Association of Colleges and Secondary Schools,
3. The North Central Association of Colleges and Secondary Schools,
4. The Northwest Association of Secondary and Higher Schools,
5. The Southern Association of Colleges and Secondary Schools, and
6. The Western Association of Schools and Colleges.

The accrediting associations have had as one of their purposes the maintenance and improvement of education at the elementary, secondary, and college levels, together with the provision of a wide range of consultive services and assistance of various kinds. A typical example is the North Central Association of Colleges and Secondary Schools which developed criteria in the following areas:

a. philosophy and objectives,
b. educational programs,
c. organization, support and control,
d. staff,
e. library,
f. administrative and supervisory services,
g. school plant,

h. school day, school week and year,

i. requirements for graduation,

j. reporting (North Central Association Quarterly, 1966).

Recently the policies and criteria for the approval of secondary schools within the North Central Association of Colleges and Secondary Schools have been revised. These policies and Criteria, Second Edition (1968) contain the following list of areas in which criteria have been developed:

a. institutional purpose,

b. organization, admission and control,

c. instructional program,

d. professional staff,

e. extra-classroom activities,

f. pupil personnel services,

g. institutional adaptability,

h. instructional materials center,

i. financial support,

j. school facilities,

k. evaluation (Proposed Policies and Criteria for the Approval of Secondary Schools, 1968).

The criteria used by the various accreditation associations in the United States have been subject to critical investigation and refinement. Brink (1960) reported that the first Evaluative Criteria were tested in over 200 schools, and subsequent revisions have been tested from time to time.

The findings of such research have varied. Arkansas school administrators reported positive results from their use (Owens, 1952). Cope (1953) studied the results of their use in selected schools in Tennessee, based on the perceptions of teachers in these schools. His study showed:

1. that, in the view of the teacher, the procedures outlined in the Evaluative Criteria can be useful in appraising a school program;
2. that the procedures followed in some 15 schools were not very successful in developing better school-community relations; and
3. that the schools did not follow up the findings that developed in the evaluation.

Brasfield (1956), in a study including 31 Mississippi high schools, supported the findings of Cope. He stated:

> There was very little organized group effort made by the schools to carry out the recommendations of the visiting committees. The schools were more concerned with the self-evaluation study and the evaluation by the visiting committee than major changes in school programs that resulted from recommendations made by visiting committees. The major changes that may have resulted from recommendations were confined to a few schools. (Brasfield, 1956, p. 126)

Morrison (1967) investigated the re-evaluation program conducted in the schools of Colorado. He found all re-evaluated reported changes, and that changes were reported in all evaluated areas. Changes did not occur, however, in all areas with equal frequency. Furthermore, changes involving small expenditures tended to be implemented.

A recurring theme that is found in the current literature on accreditation centers on the changes in emphasis and purpose of accreditation. Sheldon (1962, p. 320) has stated:

> Initially accreditation was developed as a means of facilitating the admission of students to college, or as educators would say today, of improving the articulation between secondary schools and colleges and universities.

Gajewsky and Shore (1973, p. 4) have observed that:

> . . . the emphasis of accreditation has changed to fit the needs of the educational community so that "education articultion" between colleges and high schools is no longer a factor to be considered.
>
> Instead, specialized accreditation has been adopted and "their emphasis . . . is on assuring that the purposes and accomplishments of professional programs meet the needs of society and of the profession."

Seashore (1964) stressed that insofar as organizational evaluation is concerned, the choices of what variables are to be measured and the relative importance they are to have must rest upon the values of the key people in the organization and upon the implicit assumptions about the relationship among these values.

Seashore (1964) goes on to provide a summary of methods for evaluating organizations. This list includes:

1. evaluation of objectives of management,
2. consultative diagnostic assessment,
3. questionnaire survey methods,
4. development of a general conceptual scheme for describing organizational performances, the identification of key variables, and the development of standardized instruments for measuring these key variables.
5. study of recurring problems in organizational management.

Carzo (1967) suggested the following as procedurally sound in assessing organizations:

1. the establishment of a standard of measurement,
2. measurement of performance,
3. comparison of performance against the standard, and
4. corrective action where needed.

These procedures might be useful in a shoe factory, but overlook the complexities already referred to. No satisfactory ideas, much less methods, have been proposed as a typical system for differentiating organizations. Therefore, evaluation of organizations remains incomplete.

Accreditation of Schools in Canada

In Canada the ten provinces control education within their respective boundaries, as guaranteed by the British-North America Act of 1867. The provincial authority in each case takes the form of a Department of Education, usually headed by a Minister of Education. Under the Minister of Education there is a permanent staff of civil servants and the complexity of the administrative structure varies with the size of the province. Under the powers of the Alberta Minister of Education are those which permit him to control or prescribe the curriculum of schools, supervisory services, grading, and examination procedures and standards (The Department of Education Act, 1973).

In charge of the local schools are school boards. The school board's responsibilities are to build schools, engage and pay teachers, and to employ such other personnel and provide such other services

beyond the required minimum as they and their electors think desireable (Alberta School Act, 1970).

Rusnak (1977) points out that between 1870 and 1900, high school entrance examinations, uniform within each of the provinces, were introduced in an attempt to maintain a high academic standing of the students entering high school. Between 1900 and 1954, high school entrance examinations were gradually eliminated, according to Rusnak, in order that pupils of average and less than average ability might gain entrance to high school. In keeping with this policy, most of the other external examinations for high school students were eliminated during the present century (Rusnak, 1977).

Levirs (1958) reports that British Columbia formally introduced accrediting in the secondary schools in 1938. He indicates that a school in order to be accredited had to have at least 25 pupils taking the academic pattern in Grades XI and XII before the school could be considered for accreditation. Levirs (1958) further points out that the accredited schools could recommend pupils in all grades up to and including Grade XII.

Levirs (1958) cites a study which was carried out in 1958 by the counseling office of the University of British Columbia, which supports the British Columbia Accreditation policy. The counseling office carried out a survey in which 241 first-year students in arts and science who had failed Christmas examinations that year. The study indicated that the majority of the students having difficulty were the ones not recommended.

The Royal Commission on Education in Ontario (1950) reports that Ontario had high school accreditation from 1936 until 1945, when public demands for external examinations resulted in accreditation being limited. As a result of its investigations, the 1950 Royal Commission on Education in Ontario questioned the validity of using examination results as the sole criterion for determining the promotion of students. The Commission concluded that estimates based on internal school examinations were quite as valid and useful as those based upon external examinations. Further, the Commission proposed the following recommendation:

a. that, in elementary and secondary schools no system of formal, external examinations be established.

b. that internal examinations or tests be employed in determining progress in elementary and secondary schools.

c. that no general certificate or diploma be established to mark the completion of the elementary school program.

d. that a secondary school graduation diploma be awarded to each student who successfully completes the secondary school program.

e. that the secondary school graduation diploma

   (1) be issued by the local education authority concerned,

   (2) show the name and location of the secondary school attended by the pupil,

   (3) show the nature and type of courses taken and the standing obtained in the final two years of the secondary

> school program. (Royal Commission on Education in Ontario, 1950, pp. 93-94)

After the Royal Commission Report of 1950, accreditation was again allowed in all of the grades except Grade XIII. This was due to the fact that the research presented to the Commission indicated that Grade X, rather than Grade VIII, should be recognized as the end of a definite stage in the school education of a majority of pupils. As a result, the examinations given by the Ontario Department of Education at the end of Grade VIII were cancelled. A new curriculum was set up with external examinations being made available to schools and students at the end of Grade XIII (Ontario Department of Education, 1952).

The province of Saskatchewan, by 1946, had eliminated departmental examinations up to Grade X (Accredited Secondary Schools for Saskatchewan, 1946). Certain schools were allowed to recommend students in Grade XI. After the Regina Teachers' Association committee report on accreditation in 1946, the province of Saskatchewan instituted a new policy whereby certain schools could recommend students throughout the high school program. Under this policy, Grade XI and Grade XII standing in any subject could be granted without a provincial departmental examination to candidates recommended by the school principal (Saskatchewan Department of Education, 1957).

Derby (1968) indicates that the results of several suveys conducted by the Saskatchewan Department of Education reveal that there is very little difference in the distribution of marks of schools that were accredited and those that were not.

For years, provincial departmental examinations in Manitoba were written at the level of Grades XI and XII. However, promotion from Grade XI to Grade XII could be obtained on the recommendation of the school principal under the regulations governing accredited Collegiate Institutes (Manitoba Department of Education, 1967). Students not recommended had to write the Manitoba High School Examination Board's examinations. Accreditation was eventually extended, in the early 70's to all schools, thus cancelling the compulsory nature of provincial examinations (Manitoba Department of Education, 1976).

Rogers (1968) indicates that a study conducted in Manitoba compared the marks obtained by students from non-accredited schools competing for Isbester Scholarships and those who did not compete, and were exempted by schools. The standards in the schools exempted from writing the departmental examinations were as good as the Departmental Examinations of the province of Manitoba.

The University of Manitoba also studied records of accredited school entrants to the University, and was satisfied with their standings (Rogers, 1958).

The validity of using examination results as a sole criterion for determining promotion was also brought out in the Scottish Report on Secondary Education, which states:

> The results of research and the experience of examining bodies show that teachers are, as a rule, very accurate in placing their pupils in an order of merit; indeed, we are satisfied that in this report the teacher's grading is more trustworthy than any other. (Scottish Education Department, 1947, pp. 44-45)

Banks (1955) points out that the Norwood Report criticizes the domination of the curriculum by external examinations. For the benefit

of the large group of students not seeking university entrance, the report recommended that external examinations be eliminated. Those with university in mind could write examinations after the age of 16, a radical departure from the established custom in England.

The increasing volume of literature regarding the topic of testing and evaluation is itself an indication of the continuing increase in all types of testing. Rothney (1955) estimated that over 60 million standardized tests were being administered annually in the United States. Lennon (1961) reported that the number of standardized tests being administered annually had risen to 150 million and even though this growth was partly due to increased enrolments, it also represented a dramatic expansion of testing.

Another indication of the pervasiveness of educational testing is the quantity of different tests available. Buros' Sixth Mental Measurements Yearbook listed 1,219 tests with more than 500 in the category of academic achievement, 196 in personality, 179 in vocational, and 147 in intelligence and multi-aptitude areas (Findley and Masia, 1968).

Angel (1968) conducted a nationwide survey and found that few states had no active part in testing programs carried on within the state, several states required the use of commercial tests statewide; and only Ohio, Washington, New York, California, and Iowa had a program based on unique testing instruments.

Even though external testing programs have experienced phenomenal growth in the past few years, the research is both scarce and inconclusive. Dressel (1964) cited four major uses of external tests:

college admission, scholarship awards, student placement, and acceleration of students. Traxler (1961) reported that even in those schools systems which had no comprehensive district program, the use of external college entrance examinations was common.

The results of research on the "college success" predictive validity of admission tests indicated that except for the Scholastic Aptitude Test (CEEB), predictive validities were poor. Since the predictive capabilities of all the tests were found to be generally low, the use of a cutoff score by college admissions officers is dubious at best. In fact, there is little in the meager research to encourage faith in predictive capabilities of any tests whether it is used for admissions, continued graduate work, or vocational success (Angel, 1968). Further, Angel (1968) indicated that external testing had focused mainly on the "college bound" but the resurgence of vocational and technical education schould lead to new tests programs and research.

Austin (1962) reported a study by Traxler which found that 51 percent of respondents from 625 independent schools, 70 public schools, and 30 colleges felt that external standardized tests influenced what was taught. Seventy-five percent of the public school respondents replied in the affirmative, with half of this group noting the influence as great or considerable. A concomitant concern expressed by Austin was the growing tendency to judge entire school systems based on the number of national scholarship winners.

Teachers, in general, do not seem as concerned about external testing on instruction as Austin. A nationwide survey constructed by the NEA Research Division found that, "46.4 percent of 1,528 respondents said external testing did influence the institutional program, 32.3

percent felt there was no difference, and 21.3 percent were undecided. A surprising 88 percent of those who answered yes stated that the influence was desirable." (Research Report, 1965)

In an opinion poll taken in 1965, 60 percent of the American school superintendent's polled indicated that they were in favor of a national assessment program, however, in an opinion poll taken in 1967, 83 percent of the superintendents indicated that they were not in favor of such a program. Increased concern over federal control of education was the reason most cited for their opposition to a national assessment program (The Nation's Schools, 1967).

Accreditation of Schools in Alberta

> From 1906 through 1911, Alberta did not organize schools according to Grades I through XII system. Instead, the province used the English standards system, wherein Standard V constituted the end of formal education for most students, approximating the province's current Grade VIII level. Standard VIII provided the equivalent of Grade XII. Examinations in the Compulsory academic subjects were administered at the end of Standard V through the provincially developed and scored 'Public School Leaving Examination' (Alberta Education, 1976). Successful completion was presumed to reflect the achievement of a fairly thorough basic education, and permitted interested students to continue into the higher standards. (Alberta Education, 1976, p. 1)

Similarly, diplomas attained upon completion of the examinations for Standards VI, VII and VIII provided entrance to different levels of normal school teacher education programs or to a university. The Standard VIII finals involved a possible total of 15 examination subjects in English, history, mathematics, sciences, and three second languages. However, students did not have to take all subjects. Most students wrote an average of 10 finals (Alberta Education, 1976).

Alberta phased in the Grades I through XII system in 1912 and 1913. Provincially developed and scored examinations were used in the academic courses in Grades VIII through XII, with Grade VIII becoming the level for the "Public School Leaving Examination." The newly established commercial, fine and practical arts programs were assessed by visiting provincial school inspectors rather than by provincial examinations (Alberta Department of Education, 1913).

For a number of years the province awarded regular, technical and commercial diplomas. Few schools offered the latter two types of programs, and these certificates were eventually abandoned (Alberta Department of Education, 1917).

Accreditation above Grade VII first appeared on the Alberta scene in 1917, when arrangements were made by which students from Grades VIII to XII could be liberated for work on the farms to contribute in the work of food production. Students of Grades IX and X who went to work on the farms were promoted on the certificate of the principal without being required to pass a departmental examination (Alberta Department of Education, 1918). Evenson (1952) indicates that in 1919 teacher recommendations for promotion and diplomas replaced departmental examinations for Grade IX students exhibiting outstanding achievement. Teacher recommendations expanded into Grades VIII and X the following year. In 1921 the province discontinued the Grade IX examination and all promotions to high school depended upon the recommendation from the teacher (Alberta Education, 1922).

Dissatisfaction with the lack of a standard was one of the main reasons why a new program came into effect in 1924. The province in

194 shifted to promotion by individual subjects in Grades IX through XI rather than by whole grade. The policy of Grade IX departmental examinations were reinstituted for all Grade IX students, with Grade X following suit in 1925. Grades VIII and IX and Grade X English examinations were supplanted by teacher recommendations in 1931. Grade VII examinations were never reinstated (Alberta Education, 1976).

Thus from 1931, candidates in Grade VIII were passed on the recommendation of the teacher or principal, while those in Grades IX and XI were passed by writing the departmental examinations in whatever subjects they needed (Alberta Department of Education, 1932). Little criticism of this policy can be found in the annual reports of the Alberta Department of Education, while the exception of the following comment in 1927 by E. L. Fuller, Inspection of high schools:

> During the year 1927 I heard a number of criticisms of the standard of the Grade VIII examination; these coming almost altogether from teachers. It is my opinion commonly expressed by those engaged in the work of the classroom that with the present standard a great many successful candidates are not in a position to do successful work in Grade IX. (Alberta Department of Education, 1928, p. 13).

From 1906 to 1923 a student required an "aggregate" grade score of 50% with no subject test mark below 38% to pass. Under the "unit system" employed from 1924 through 1938, the student was required only to achieve the passing mark designated for each subject. A student's marks were no longer aggregated and averaged to determine a grade standing. In both the aggregate system of 1906-1923 and the unit system of 1924-1938, the student was required to obtain the minimum percentage designated as the passing mark in each subject. However, under the 1906-1923 aggregate system there was a number of

instances where the percentages obtained by the students as a group were arbitrarily adjusted by the examiners in order to compensate for particularly difficult departmental examinations. Consequently from earliest times, some attention was paid to the relative difficulty of tests as demonstrated by the relationship between the number of students taking the examination and the number scoring above a certain percentage. A higher passing mark in a subject was required during the period of 1924-1938 than in 1906-1923 (Alberta Education, 1976).

In 1936 the General Committee on High School Programs organized a revised scheme for departmental examinations and set up the present system of grouping grades into three main sections: Grades I through VI were designated as elementary, Grades VII through IX became junior high, and Grades X through XII became senior high grades. Diplomas were issued after completion of Grade IX and Grade XII, with the junior high school diploma a prerequisite for entry into senior high school. Provincial departmental examinations were reinstated and completion of Grade IX became the termination point for basic education. The high school diploma, along with completion of various and changing course prerequisites, remained the key to university entrance (Alberta Department of Education, 1937).

Rusnack (1975) reports that:

> during the 1937-1940 period, Grades X and XI provincial tests were dropped and the province phased in the high school credit system. After 1937 there were two critical points, Grades IX and XII, and mandatory departmental examinations were given to all students wishing to earn the respective diplomas. No departmental examinations were given at any other grade level. (Rusnak, 1975, p. 25)

From 1936 on, Grade XII students' raw scores were scaled in order to provide a definite proportion of passes and failures. That is:

> the student's mark in each course depended upon the relative position of the student's score in comparison with the scores of all other students taking the same test. The scaling system was used for Grade IX tests also, but at that level the student's scores on the separate examinations were aggregated and averages to produce a passing or failing mark for the grade as a whole. (Alberta Education, 1976, p. 3)

Rusnak (1975) points out that under the scaling system the provincial High School and Junior High School Examinations Board's predetermined the proportion of H, A, B, C, and D grades to be awarded. Students' raw scores were converted to scaled scores between 0 and 100, maintaining the relative position of each student's score along the scale. Letter grades were awarded according to slightly different formulae for Grade IX than for Grade XII.

According to Dumont (1977) after 1937 the emphasis on general education rather than university preparation meant that the high schools offered broader programs which retained students who otherwise would have withdrawn. Reduced employment opportunities for the unskilled, and increased public expectations for school continuation, were two of the main reasons for public interest in expanding high school programs beyond university preparation areas. The expansion required, however, that there be a separation between diploma and matriculation requirements. The province provided a diploma route offering less academically oriented courses and requiring a pass standard lower than that for matriculation.

Throughout the 1940-1960 period there was little change in the structure of the provincial examinations and the administrative

authority which commissioned them. From 1916 to 173 the High School and University Matriculation Examinations Board supervised the operation of the Grade XII examination program, and after 1936 the Junior High School Examinations Board performed a similar service for the Grade IX Departmental Examinations (Alberta Education, 1976).

In February 1952, Mr. A. B. Evenson, Chairman of the High School and University Matriculation Examinations Board, conducted a comprehensive survey relating to the possible revision of the examinations policy for Grade IX students. Evenson indicated that the teachers' grading in Grade IX were reasonably reliable, and that readjustments of gradings by the Department of Education were few in numbers. From this observation, it was questioned whether the time and money expended on Grade IX examinations could be justified. It was further pointed out that examinations, in many cases, restricted teaching techniques, thus hindering the best instruction possible. Provincial examinations, it was noted, could not be regarded as being a valid and reliable measurement in subjects where objectives were broad (Evenson, 1952).

The Department of Education in 1953 initiated a program of allowing the teachers' mark in social studies and science in Grade IX to be included in the granting of the final grading that was assigned to the candidates for the Grade IX Diploma (Alberta Department of Education, 1954). Provincial departmental examinations at the Grade IX level were discontinued in 1970. The teachers and the principal at the school were granted complete authority to assign marks to students writing for the Grade IX Diploma (Alberta Department of Education, 1971).

Over the years, the High School and University Matriculation Examinations Board have varied the Grade XII subjects examined, but have always included Enlish, mathematics, science, social studies and second languages. The content and format of the examinations, the methods for scoring them, the number of examination subjects required for matriculation or diploma purposes, the number of writing times each year, have changed considerably.

Rusnak's (1975) report on "Evaluating Education in Alberta's Schools" notes that since the early history of education in Alberta, the government had established centralized power and authority regarding the evaluation of students and schools, but in the late 1960's and early 1970's much support for more local autonomy in matters of student evaluation was growing in educational circles in Alberta. In support of this statement, Rusnak (1977, p. 8) makes the following pertinent observations:

> Recommendations from the Cameron Commission Report of 1959 favored a system of accreditation by school systems for Grades I to XI. The report further supported the ideas of those school systems in Alberta which qualify for accreditation status being granted local autonomy in matters of course curriculum and student evaluation. When it came to the Grade XII matriculation level subjects, the Cameron Commission Report still favored the retention of external departmental examinations in all schools. In 1960 the Alberta Teachers' Association (ATA) favored a system of accreditation and favored it being phased in over a number of years. The ATA task force also favored examinations at Grade XII level and further favored local autonomy in course curriculum and student evaluation throughout Grade I to XI.
>
> In 1963 the Alberta government announced legislation of the Accredited School Districts Act. This Act allowed a board of trustees of a city school district with a 10,000 plus student population to apply for accreditation status. Local autonomy was granted to acceptable school districts for curriculum, tests, and evaluation.

> The High School and University Matriculation Examinations Board also favored accreditation as seen by policies which allowed teachers more freedom and say in students' final grades. For example, in 1970, English 30 teachers' school marks accounted for approximately one-quarter of the students' final grade. Eventually, and effective June 1971, teachers' school marks constituted approximately 50% of the student's final grade in all Grade XII matriculation subjects.

The 1960's brought an expansion in the number of universities in Alberta. The various faculties and departments of the three universities sought to alter entrance requirements to suit their local concerns. Common matriculation requirements were reduced to five examination subjects, and later to four, plus one non-examination subject (Alberta Education, 1968).

In 1969 the Alberta Minister of Education approved the High School and University Matriculation Examinations Board's recommendation to allow the teacher's evaluation to comprise 25% of the final mark in English 30 and Biology 30. Teacher marks were converted, scaled, and combined with the examination mark to provide a composite mark for the particular subject. By 1971 all examination subjects combined the teacher's mark with the departmental examination mark on a 50/50 basis (Alberta Education, 1972). By the 1970's the province has also permitted a few school jurisdictions to conduct experimental programs involving curricular and timetable changes which by the nature of the program and scheduling exempted students from provincial examinations. Hundreds of students in several schools in Lethbridge, Calgary, and Camrose obtained diplomas and matriculation standing through this special program (Alberta Education, 1976).

The province's Commission on Educational Planning in Alberta added another voice to the call for accreditation when the 1972 report, "A Choice of Futures" recommended termination of the Grade XII departmental examinations (Worth, 1972).

As the number of schools on split-year plans increased rapidly in the 1960's a major problem arose in trying to accommodate end of semester and trimester testing for many students in the mid-year periods of school operation. A question of credibility was generated when some teacher marks were sufficiently different from departmental examination results to bias the final mark. These problems continued until February 1973, when the Minister of Education, the Honorable Lou Hyndman, terminated the mandatory nature of the Grade XII departmental examinations (Alberta Education, 1973).

In this announcement on accreditation, the Minister of Education cited a number of factors influencing his decision:

> the recommendations of the High School and University Matriculation Examination Board, the Commission on Educational Planning, and the Alberta Teachers' Assocation;
>
> successful experience with the several previously accredited high schools, including acceptance of graduates by post-secondary educational institutions;
>
> the superiority of local teacher evaluations based on many tests and projects, as compared with the one-shot nature of provincial examinations. (Calgary Herald, 1973, February 7)

Resulting from the elimination of the provincial Departmental Examinations were:

a. the loss of provincial consistency in assessing student achievement, and

b. the universities were forced into setting their entrance requirements based on school assessment rather than departmental examination grades. In the past, there was a major emphasis on departmental examinations for screening students entering universities. With the expansion of programs in the schools and at colleges and technical institutions, the emphasis on teaching for university was diminished. (Dumont, 1977, p. 9)

In October of 1976 the Minister's Advisory Committee on Student Achievement (MACOSA) was established in response to the public's growing concern about the level of student achievement in Alberta. The Minister's Advisory Committee on Student Achievement was charged with studying the elements of student achievement, including definition, purposes, principles underlying achievement, consideration of ways and means to assess, maintain and improve student achievement, and to make recommendations based on its findings (Dumont, 1977).

Historically, marks of students have increased when teachers gained autonomy in marking practices. Concerned groups and individuals have often regarded this increase in marks as undesirable "inflation" rather than a reflection of greater accuracy in reporting the results of local adaptations of provincial curricula. Periodic returns to a province-wide examination system have been used to block this perceived tendency toward inflation (Alberta Education, 1976).

In May 1978 the Minister of Education announced that school boards could apply to have their schools deaccredited and that the Department of Education would make departmental examinations available to those school jurisdictions whose schools had been deaccredited (Alberta Education, 1978). To date only the County of Vulcan had applied to the Minister of Education to have its schools deaccredited

The Minister of Education approved the deaccreditation of the County of Vulcan's schools, and as such, departmental examinations were re-introduced into the county's schools in January 1979 (Alberta Education, 1979).

MACOSA Handed down its report in May, 1979. It made the following recommendations:

- that the proposed assessment program test curricular objectives from all areas, not just the most easily tested areas;
- that MACOSA continue to work in assessing activities and values involved in social studies;
- that a computerized test item bank be established;
- that regional officers of Alberta Education provide school jurisdictions with consultation services;
- that a student evaluation policies board be created;
- that mandatory Grade XII departmental examinations for the purpose of awarding final marks not be reinstituted (MACOSA, 1979, pp. 66-76.

The Alberta Teachers' Association's (ATA) brief to the Minister of Education commended the minister's advisory committee for the procedures used to monitor student achievement and for its work in developing procedures to assess listening and speaking skills and to assess attitudes and values (ATA News, 1979, October). The brief indicated that "the most important measage of the report is related to the recommendations on departmental examinations and that the ATA agrees that departmental examinations should not be reinstituted" (ATA News, 1979 October, p. 1).

ATA staff officer William Brooks stated, "that MACOSA should have studied the success of student's following graduation and that such a study would have provided information on the kind of knowledge and skills which should be considered basic for the student leaving school" (ATA News, 1979, October, p. 1).

The Minister of Education, David King, in June, 1979 assigned Dr. Gordon Mowat the task of conducting the public hearings and to summarize the public's responses to the MACOSA report (Alberta Education, 1979, June 10).

The Leduc ATA Local was the first group to react on the MACOSA report to Dr. Mowat. The Leduc brief which had been endorsed by the Leduc school board, listed eight goals for Alberta education set by the Alberta Department of Education which cannot be tested by departmental examinations:

- intellectual curiosity and a desire for lifelong learning;
- the ability to get along with people of varying backgrounds, beliefs, and lifestyles;
- an appreciation for tradition and the ability to understand change;
- an appreciation of the role of the family;
- an interest in cultural and recreational pursuits;
- a committment to the preservation of the natural environment;
- ethical and spiritual values. (Leduc ATA Local, 1979, October 1, pp. 2-3)

The Leduc ATA Local claimed, "that departmental examinations encourage teachers to teach to the tests and students learn for

examinations only, leading to excessive rate learning. (Leduc ATA Local, 1979, October, p. 3) ATA staff officer William Brooks stated:

> that a return to departmental examinations will have the effect of the testing tail wag the curriculum dog. That departmental examinations have a detrimental effect on curriculum, infringe on board and teacher autonomy, are unfair to students and inadequate for determining graduation or university entrance, and provide no positive motivation for students. (ATA News, 1979, November, p. 1)

The ATA News reported that the major criticism levelled by the ATA was that "departmental examinations are inadequate for determining achievement of skills necessary for either graduation or university entrance. The two decisions hinge on different criterion, and a single test, particularly one similar to the old departmental examination cannot accurately measure either student attainment or potential. (ATA News, 1979, November, p. 1) B. T. Keeler, Executive Secretary for the ATA, indicated, "that if universities want uniform entrance exams then they should prepare and administer those exams on their own." (Keller, 1979, p. 3) ATA Vice-President, Kevan Rhead stated, "that only 8 to 10 percent of the students are affected by university quotas or scholarship assessments and that the concern of that small minority should not dictate education conditions for all students." (Rhead, 1979, p. 1)

Commenting on reports of grade inflation ATA President K. M. Kryzanowski stated that, "if there has been any increase in student achievement it most likely indicates only that students are being more accurately tested on areas they have actually studied." (ATA News, 1979 November, p. 7) Dr. Sillito, former co-ordinator of professional development with the ATA was quoted as saying that, "departmental

examinations are past and should remain in the past. Departmentals were not equitable, and the inequities now are fewer than in the past." (ATA News, 1979, November, p. 4)

Student Achievement in Alberta

Clark et al. (1977) carried out achievement studies at the Grade III level in reading, language and arithemetic in order to carry out inferential comparisons, where possible and tenable, between 1977 achievement and the norms of the mid-1950's. To make these comparisons the researchers used the results of a companion study, The Edmonton Grade 3 Achievement Study. The researchers used data from the following commercial standardized tests, gathered first in 1956 (The Edmonton Grade III Achievement Study) and again, using the latest variation of its tests, in 1977: Gates MacGinitie Reading, Vocabulary and Comprehension, and California Achievement Tests of Reading, Mathematics and Languages. They found that student scores were similar on tests administered in 1977 in four large urban districts, including Edmonton Public. The average scores on this metropolitan group were generally equal to or slightly below those of the non-urbon groups in counties, divisions and rural districts. Clark and other (1977) pointed out that scores on the California Test of Mental Maturity averaged over four points higher in 1977 than in 1956. All scores exceeded the publishers' norms, which were based on samples from United States student populations between 1942 and 1970. The Edmonton Public District group exceeded the publishers' norms in both 1956 and 1977, and other Alberta groups did so in 1977.

The Canadian Institute for Research in the Behavioral and Social Sciences reported that the findings of its study correlated in 1979 on the level of achievement of reading and writing of Alberta students in grades III, VI, IX and XII. It indicated that performance in reading was generally satisfactory for all four grade levels. The grade 3 performance in phonics was judged to be particularily satisfactory. The study pointed out that there was considerable evidence of improvement or at least maintenance of skills as students progress through the grades. Performance levels in using content to obtain meanings of words are stable across all four grades. Performance in comprehension of clear and direct statements of main ideas were considered to be satisfactory (Canadian Institute for Research in the Behavioral and Social Sciences, 1979).

Studies conducted on the writing skills of Alberta students in Grades III, VI, IX and XII report that the writing skills of the students at the Grade III level to be satisfactory, the writing skills of the Grade VI students to be marginal, the writing skills of the Grade IX students to be satisfactory and the writing skills of the Grade XII students to be unsatisfactory (Canadian Institute for Research in the Behavioral and Social Sciences, 1979).

Olson et al. (1979) carried out a study to provide information about current levels of achievement in mathematics and knowledge among students in Alberta schools in Grades III, VI, IX and XII. Their findings rated the students', in these grades, knowledge of number facts and skills in computation (addition, subtraction, multiplication and division) as satisfactory and judged performances in problem

solving, geometry, measurement, and consumer mathematics to be generally unsatisfactory. Treasure (1977) conducted studies on the current levels of student achievement and knowledge in science in Alberta at the Grades III, VI, IX and XII levels. The findings of this study judged the performance levels in science to be generally satisfactory. The following weak areas were identified: method of science investigation in Grade III; physical science in Grades III, VI and XII; and earth/space science and knowledge of science as a human endeavor in Grades IX and XII. Relative strengths across all four grade levels in biological and life sciences, and in Grade III, IX and XII for methods of science investigation.

In 1978 Lopatka examined the level of achievement in social studies among students in Alberta schools in Grades X, XI and XII. The conclusions reached in the study was that the performance levels of the students were judged to be unsatisfactory on the Social Studies 30 - level items but satisfactory on Social Studies 10 and 20 0 -level items. Noting that performances by Social Studies 30 students were generally higher than those of 10 - and 20 - level students it was concluded that Social Studies 30 students had built upon the knowledge and skills learned at earlier course levels, including in particular the knowledge related to Canadian content, which appears primarily in the Social Studies 10 curriculum.

Teacher-Assigned Marks

Rothney (1955) and Englehart (1964) favor well-constructed teacher-made objective tests over nationally standardized examinations. The basis for their view lies in the need for greater relevance of the test to the teaching and variables inherent in establishing a "norm" which make the norm meaningless to a specific circumstance. They hold that standardized examinations are more appropriate to the administrative uses of tests rather than the instructional ones. Harris (1960) claims that the requirement of continuity and relevance to instructional procedures casts into doubt the practice of relying solely or heavily on external final examinations.

Perhaps the work of Starch and Elliott (1913) can be credited with beginning the study of the reliability of marks. Nearly every article on the topic mentions their work. They prepared copies of a student's answer papers in English, geometry and history, and had each one marked by more than 100 teachers. The range of marks that resulted was startling. The degree of spread being from about 30% to 90% in each case. They found that the geometry marks had the greatest variability. Since mathematics was supposed to be a more exact subject than either history or English, the opposite case had seemed more probable.

Rugg (1915) investigated the degree of consistency when a teacher marked the same examination twice with an interval of time between markings. He found that the mean variation was almost never less than 5%.

Hulten (1925) reported on 28 teachers who marked the same English papers with a time interval between markings. He concluded that teachers were not consistent in giving either high or low grades, and that their marks varied greatly on the two markings. He also showed that a teacher with a university degree and several years of experience was just as variable in assigning marks as were teachers with less training and experience.

Douglas (1935) investigated the relationship between a previous year's mark in mathematics and a current year's mark, and found a low relationship. He found five other factors which had a more positive relationship than did the previous year's mark in mathematics.

Douglas also listed about 225 studies in which correlation coefficients were calculated between mathematics marks and various other factors, such as intelligence quotients, ability test results, and achievement test results. The highest correlation coefficient reported was .88, which occurred between marks in Grade IX mathematics and Robert's Mathematics Ability Test. The lowest correlation coefficient reported was .01. The mean of all these correlation coefficients was .47, and their standard deviation was .16. Since many of these correlation coefficients were calculated between sets of mathematics marks, they have indicated, to some degree, the relationship between various mathematics marks assigned to students.

Black (1960) reported a study in which the final marks assigned to Alberta students in Grades X and XI were compared to their final marks in Grade XII, many of which were determined by a final Departmental Examination. He found evidence that there was a general

tendency for teachers in small high schools to assign final marks which were too high, when these marks were compared with the results of the departmental examinations and other final marks assigned at the end of Grade XII.

Perhaps this evidence on the unreliability of marks can best be summarized by relating a situation reported by Burton (1952). He described a case where a teacher constructed a model answer paper to assist him in marking a series of papers which were being evaluated by a number of teachers. The model answer paper was accidently mixed with other papers, and as a result was marked by other teachers. The mark assigned to it ranged from 40 to 90%.

Factors on the General Causal Factors on Unreliability

Wrinkle (1944) suggested that the unreliability of marks came from two main factors: (1) a mark may represent an almost unlimited number of factors; and (2) a mark is often based on class achievement, and therefore the basis of the mark changes as the composition of the class changes. Starch (1913) agreed with these, and also added that when a teacher was marking some papers, differences resulted due to the pure inability of the teacher to distinguish between closely related degrees of merit. He suggested that this reason was probably the most significant one in accounting for differences in marks.

Rugg (1915), Wrightstone (1946), and Vredevoe (1953) all suggested that marks varied because of differences among teachers in terms of (1) the specific objective or characteristic that was being rated, (2) the

lack of a common standard of value, and (3) the absence of clear definitions of what specific marks mean.

Many studies have been done to determine the relationship between student achievement and teacher training. The evidence from these studies was inconclusive as to whether more training produced higher achievement by the students.

Rogers (1924) administered the Monroe Silent Reading Tests to 166 classes of third, fourth, and fifth grade students. He found that higher reading comprehension generally accompanied increased teacher training.

Another study was that of Hughes (1925), which involved high school physics teachers and their students. The teachers were grouped according to the number of years of university which they had completed and the students were grouped on the basis of intelligence. Three tests were given to measure the achievement of the students, and Hughes reported the following results:

> In every test, the pupils who were taught by teachers who had majored in physics made average scores above the mean score of all pupils taking the test. In every test, the pupils who were taught by teachers who had not majored in physics made average scores less than the mean score of all pupils taking the test (Hughes, 1925).

Davis (1934) investigated the relationship between teacher training and student success on the Minnesota State Board Tests of Pupil Achievement. Altogether 796 teachers and 13,460 students were included in their study. Only in chemistry did Davis find that greater teacher training correlated positively with higher student achievement.

Stephens and Lichenstein (1946) conducted a study of 86 teachers and their fifth grade arithmetic classes in Baltimore. Only teachers who taught the same class throughout the term and only students who had been in attendance continuously during the term were included in the study. The class achievement was determined in relation to mental age and expressed as a class efficiency score, denoted C. E. Stephens and Lichenstein reported that the C. E. scores correlated negatively with the teachers' knowledge of arithmetic.

A study was conducted by Schunert during 1947-48 to determine the relationship between the mathematical achievement of some students and the professional training of their teachers. The sample consisted of 100 secondary schools out of a total of 522 public secondary schools in Minnesota. The schools were classified according to size and type of organization.

They study involved 94 teachers of plane geometry and 102 teachers of elementary algebra. There were 3,919 students included in the study. Schunert found no significant relationship between the mathematics achievement of the students and the amount of university mathematics studied by their teachers (Schunert, 1951).

Lindstedt (1960) investigated the competence of Grade IX mathematics teachers who were teaching in the schools of Alberta in May, 1958. He sought to determine the relationship among four teacher characteristics (professional training, professional experience, number of university-level mathematics courses taken, and subject preference for teaching) and student achievement as determined by the Departmental Examinations administered in June 1958. He found no

significant relationship between either the amount of professional training of the teacher or the number of university-level mathematics courses taken by the teacher, and the mathematics achievement of the Grade XI students.

Coleman (1964) believes that non-school based influences are much more significant to student achievement than are school based factors. The findings of his study indicated that within broad geographic regions, and for each social and ethnic group there was a difference in the academic achievement of student's and that the physical and economic resources going into a school had very little relationship to the achievements coming out of it. Rosenthall and Jacobson (1968) in their controversial "Pygmalion" findings: that is, that teacher expectations strongly influence student achievement. Rosenthal and Jacobson claim not only that the Pygmalion effect exists, but also that it applies to expectations in relation to many student characteristics including sex, ethnic background and socio-economic status as well as aptitude. Teachers' different expectations of boys over girls serve to perpetuate cultural sex differences, and the cycle of low socio-economic status, low ability, low teacher expectations and low achievement continues to maintain social stratification.

Ebel (1972) claims that the democratic relationship procedures and positive influences in the school influences the academic achievement of students and that one cannot expect children to be imaginative, affectionate and creative if they feel continuously under pressure to compete for grades. Fedigan (1979) points to studies carried out by Lerner and Lerner which found that student achievement was related to

the physical appearance of the students. Those students who had an attractive physical appearance received the best grades and the highest ratings from teachers and classmates. Gay (1979) in a study reports that a study conducted at Boston University found that the best way to tell what students came up with the best grades was to look at the students who had received the highest grades in the past.

Black (1960) found that the best predictors of freshmen success at the University of Alberta were their Grade XII departmental examination grades. Mach (1963) supported Black's findings that the best single predictor of freshmen success at the University of Alberta was the students' Grade XII average.

Jex (1966) reported that the best indication of probable success at post-secondary institutions in the state of Utah was the student's high school average and that the student's first term averages predict more accurately than does any combination of high school data the possibility of the student graduating from a post-secondary institution.

The studies on the reliability of marks reviewed have indicated that teacher-assigned marks were unreliable because (1) teachers differed from each other, (2) students differed from each other, and (3) a teacher's ability to judge a student's work to assign him a mark fluctuated. Ayer (1933, p. 202) commented that ". . . the same evidence of lack of reliability of teachers' marks appears, regardless of the subject matter."

CHAPTER III

PURPOSES AND PROCEDURES

Purpose of the Study

In the early 1970's declining achievement scores among students in the United States, Great Britain and elsewhere received a great deal of publicity. The American College Entrance Examination Board reported in 1976 that on the Scholastic Apptitude Test both verbal and mathematical scores had fallen steadily since 1963. A number of Albertans felt that the same situation existed in this province, and various interest groups discussed that possibility. Some staff members of alberta universities and colleges claimed that high school graduates' academic skills were below acceptable levels, some parents expressed doubts about their children's mastery of basic skills, and various media reported on apparent decline in educational standards and a lack of a common approach to evaluation techniques (MACOSA, 1979).

Many Albertans became even more concerned after Minister of Education Honorable L. D. Hyndman's February 1973 announcement of the withdrawal of compulsory grade XII departmental examinations. This decision, which shifted the responsibility for grade XII student evaluation from the provincial to the local level, terminated an evaluation practice used for over 60 years (MACOSA, 1979).

Public debates on student achievement and evaluation procedures, as they applied to all levels, occurred more and more frequently but produced more heat than light because of the absence of reliable practical solutions (Rusnak, 1975). In the midst of the controversy over educational standards and practices Honorable Junian Koziak, Minister of Education, established the Minister's Advisory Council on Student Achievement in October 1976. MACOSA was charged with studying the elements of student achievement, including definition, consideration of ways and means to assess, maintain and improve student achievement, and to make recommendations based on its findings (Dumont, 1977, p. 1).

As a special assignment from the Legislative Assembly of Alberta, one of MACOSA's first projects was a study to "assess the effects of the non-compulsory nature of grade XII departmental examinations on student achievement in Alberta." (Dumont, 1977, p. 1)

In view of the general decline in public confidence in student achievement in Alberta, and the continuing need for the improvement in the quality of education, it was considered appropriate that information regarding student achievement should be obtained. The purpose of this study was to determine if there had been a significant change in the GPAs of Alberta's matriculation graduates since the accreditation of Alberta high schools in 1973.

Objectives

In order to accomplish the stated purpose of the study, the following objectives were set:

1. To determine the relationship between the GPAs of the matriculation graduates from the rural school jurisdictions in Alberta Education Zone Six and their GPAs during their freshman year at the Medicine Hat College, before the accreditation of Alberta high schools.
2. To determine the relationship between the GPAs of the matriculation graduates from the Medicine Hat urban school jurisdiction in Alberta Education Zone Six and their GPAs during their freshman year at the Medicine Hat College, before the accreditation of Alberta high schools.
3. To determine the relationship between the GPAs of the matriculation graduates from the rural school jurisdictions in Alberta Education Zone Six and their GPAs during their freshman year at the Medicine Hat College, after the accreditation of Alberta high schools.
4. To determine the relationship between the GPAs of the matriculation graduates from the Medicine Hat urban school jurisdiction in Alberta Education Zone Six and their GPAs during their freshman year at the Medicine Hat College, after the accreditation of Alberta high schools.
5. To determine if there is a difference in the GPAs of the matriculation graduates from the rural school jurisdictions

and the Medicine Hat urban school jurisdiction in Alberta Education Zone Six before accreditation, and the GPAs of the matriculation graduates from the rural school jurisdictions and the Medicine Hat urban school jurisdiction in Education Zone Six, after the accreditation of Alberta high schools.

6. To determine if there is a difference in the GPAs of the Medicine Hat college freshmen before accreditation of the matriculation graduates from the rural school jurisdictions and the Medicine Hat urban school jurisdiction in Alberta Education Zone Six, and the GPAs of the Medicine Hat college freshmen after accreditation of the matriculation graduates from the rural school jurisdictions and the Medicine Hat urban school jurisdiction in Alberta Education Zone Six.

Hypotheses

As was noted in Chapter I and II, there was reason to believe that there would be a relationship between Alberta departmental examination GPAs and GPAs. There was also reason to believe that there would be no relationship between teacher-assigned GPAs and college GPAs. The following null hypotheses were formulated:

1. There is no significant correlation between the rural zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs before the accreditation of Alberta high schools.
2. There is no significant correlation between the Medicine Hat urban zone's matriculation graduates' Grade XII GPAs and

Table 1

Correlation Between Grade XII GPAs and the Medicine Hat College

Freshmen GPAs for Hypotheses One Through Four

	1971-72 Rural Students Grade XII GPAs Before Accreditation	1976-77 Rural Student GPAs After Accreditation	1971-72 Urban Grade XII GPAs Before Accreditation	1976-77 Urban Student Grade XII Grades After Accreditation
1972-73 College GPAs Before Accreditation	H_1		H_2	
1977-78 College GPAs After Accreditation		H_3		H_4

their college freshmen GPAs before the accreditation of Alberta high schools.

3. There is no significant correlation between the rural zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs after the accreditation of Alberta high schools.
4. There is no significant correlation between the Medicine Hat urban zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs after the accreditation of Alberta high schools.
5. There is no significant mean difference between the matriculation graduates' Grade XII GPAs before the accreditation of Alberta high schools, and the matriculation graduates' Grade XII GPAs after the accreditation of Alberta high schools.
6. There is no significant mean difference between the Medicine Hat College's freshmen GPAs before the accreditation of Alberta high schools, and the Medicine Hat College's freshmen GPAs after the accreditation of Alberta high schools.

Limitation of the Study

When analyzing Grade XII student achievement, a number of variables could be considered. Among these are the nature and ability of the student sample, the professional training and teaching experience of the teachers, and the promotion policies for students in Grades X and XI in the different schools. These variables were not analyzed in this study to determine their impact on the GPAs of the Grade XII matriculant.

Definition of Terms

The following terms are defined as they are to be interpreted in this study.

Academic Achievement: As measured by the student's gradepoint average.

Accreditation: The Alberta Department of Education's delegation of its role in student evaluation to school boards which employ certified teachers, instruct for minimum required time in a subject, and adhere to the Alberta Program of Studies.

Departmental-Assigned Subject Mark: The student's mark on a subject 30 provincial final examination as reported to the student by the Department of Education, Province of Alberta.

Education Zones: The Province of Alberta has been divided into various regions by the Department of Education for ease of administration.

Matriculant: One who has completed English 30 and at least four other Grade XII matriculation subjects with a minimum mark of 50% in each subject, and with an average of 60% in five subjects.

Matriculation Subject: Refers to those Grade XII subjects in which the Department of Education, Province of Alberta, administered provincial examinations.

Teacher-assigned Subject Mark: The student's final mark in each matriculation subject which was sent to the Department of Education, Province of Alberta, by the principal of each high school.

University Entrance Requirements: As defined by a matriculant.

Procedure

Population and Sample

The population for this study consisted of 553 of the 1971-72 and 607 of the 1976-77 matriculation graduates who had graduated from the rural zone and 235 of the 1971-72 and of 267 of the 1976-77 matriculation graduates who had graduated from high schools located in the Medicine Hat urban zone.

Nature of the Sample

Four stratified random samples of 100 Alberta matriculation graduates who had completed their freshman year at the Medicine Hat College were used for the study. The first group consisted of 100 matriculation graduates who graduated from the 1971-72 school year from schools in the rural school jurisdictions in Alberta Education Zone Six and who had completed their freshman year at the Medicine Hat College during the 1972-73 college year. The second group consisted of 100 matriculation graduates who had graduated from schools located in the Medicine Hat urban school jurisdiction in Alberta Education Zone during the 1971-72 school year and who had completed their freshman year at the Medicine Hat College during the 1972-73 college year.

The third group consisted of 100 matriculation graduates who had graduated from schools in the rural school jurisdiction in Alberta Education Zone Six during the 1976-77 school year and who had completed their freshman year at the Medicine Hat College during the 1977-78 college year. The last group consisted of 100 matriculation graduates

who had graduated during the 1976-77 school year from schools in the Medicine Hat urban school jurisdiction in Alberta Education Zone Six and who had completed their freshman year at the Medicine Hat College during the 1977-78 college year.

Data and Instrumentation

The instruments used in this study were: (1) Grade XII departmental examinations, (2) Medicine Hat College examinations, and (3) teacher examinations.

The data required to carry out the study was obtained from the Data Processing Branch of the Alberta Department of Education and from the Medicine Hat College.

As the purpose of this study was to determine if there had been a significant change in the GPAs of the high schools' matriculation graduates in Alberta since the accreditation of high schools in 1973, it was necessary to obtain the high schools' academic achievement records for the matriculation students who had graduated from high school prior to accreditation. It was also necessary to obtain the high schools' academic achievement records for the matriculation students who had graduated from high school after accreditation. Further, it was necessary to obtain the Medicine Hat College's freshman academic record for these same matriculation students who were included in the study.

The 1971-72 school year was the last year that high school matriculation graduates were required to write compulsory departmental examinations. Therefore, it was desirable to draw samples from the matriculation graduates who had graduated from high school during the 1971-72 school year.

The 1977-78 college year was the most recent year in which complete college academic achievement records were available at the time of the study. Therefore, in order to use the most recent data available samples were drawn on the 1971-72 matriculation graduates who had completed their college freshman year during 1972-73, and on the 1976-77 matriculation graduates who had completed their college freshman year during 1977-78.

The President and Registrar of the Medicine Hat College were contacted in October 1977, in order to obtain their permission for the researcher to use the college's data on their students' academic achievement. Permission was granted, and the clerical staff of the registar's office was employed in the collection of the required data in October 1978.

The transcript copies provided did not contain the names of the students, as these had been deleted from the transcript during the Xerox copying process. The college transcripts contained the following information which was appropriate for the study: the student's Grade XII high school subjects, and the numerical grade assigned to each subject. The transcript listed the college courses taken, the letter grade assigned to each course, and the student's cumulative grade-point average.

Because the student's Grade XII course grades were expressed in numerical numbers and the student's college grades were expressed in letter grades, it was necessary to convert the student's Grade XII course grades into letter grades, and then to convert the letter grades into grade-point averages in order to carry out the study.

Grade XII subject numerical scores were converted into letter grades by assigning the letter grade "A" to those numerical scores which ranged between 80 and 100; assigning the letter grade "B" to those numerical scores between 65-79, assigning a "C" letter grade to those numerical scores between 50-64, assigning a "D" letter grade to the numerical scores between 40-49, and an "F" letter grade to the numerical scores 39 and below.

This procedure was considered appropriate as it followed the same scale the Medicine Hat College used in assigning letter grades to courses, and it is also the same scale used by the Alberta Department of Education in assigning letter grades to high school courses.

The letter grades which had been assigned to the student's Grade XII matriculation courses were then weighted in order to compute the student's Grade XII GPA. This was done by assigning the same weighting factor to each letter grade as that used by the Medicine Hat College in the computing of its students' comulative GPA.

A weighting factor of 4 was assigned to all "A" letter grades, a weighting factor of 3 was assigned to all "B" letter grades, a weighting factor of 2 to all "C" letter grades, a weighting factor of 1 to all "D" letter grades, and a weighting factor of 0 to all "F" letter grades. The weighting factor assigned to each matriculation course was then multiplied by the credit value for that course. The total points for the matriculation courses, used for admission to college, was then computed and this total was then divided by the total credit value of the student's Grade XII matriculation courses. This produced the student's

Grade XII GPA. Each student's Grade XII GPA was then matched with his college freshman's GPA.

Design and Analysis

The Pearson product moment correlation (r) was used to test the following four hypotheses: (1) There is no significant correlation between the rural zone's matriculation graduates' Grade XII GPA's and their college freshman GPAs before the accreditation of Alberta high schools. (2) There is no significant correlation between the Medicine Hat urban zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs before the accreditation of Alberta high schools. (3) There is no significant correlation between the rural zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs after the accreditation of Alberta high schools. (4) There is no significant correlation between the Medicine Hat urban zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs after the accreditation of Alberta high schools.

Null hypotheses 5 and 6 were tested with the two-way analysis of variance statistical test. Hypotheses 5 and 6 are: (5) There is no significant mean difference between the matriculation graduates' Grade XII GPAs before the accreditation of Alberta high schools, and the matriculation graduates' Grade XII GPAs after the accreditation of Alberta high schools. (6) There is no significant mean difference between the Medicine Hat College's freshmen GPAs before the accreditation of Alberta high schools, and the Medicine Hat College's freshmen GPAs after the accreditation of Alberta high schools.

CHAPTER IV

ANALYSIS OF DATA

The variables analyzed in this study were: (1) Grade XII GPAs for 200 Alberta matriculation graduates who had received their grades through teacher assigned scores, (2) Grade XII GPAs for 200 Alberta matriculation graduates who had received their GPAs by means of scores obtained by writing Alberta Departmental Examinations, (3) Medicine Hat College freshmen GPAs, and (4) zones (urban, rural) from which the matriculation graduates received their Grade XII GPAs.

The matriculation graduates' Grade XII GPAs and their college freshmen GPAs were processed by the computer to provide the following information:

Table 2

The Rural Zone's Matriculation Graduates' Grade XII and College Freshmen Mean Grade-Point Averages Before and After the Accreditation of Alberta High Schools

	School	Mean GPA	SD	SE
Before Accreditation	High School	2.927	0.554	0.055
	College	2.881	0.776	0.078
After Accreditation	High School	2.865	0.510	0.052
	College	2.763	0.791	0.079

Table 3

The Medicine Hat Urban Zone's Matriculation Graduates' Grade XII and College Freshmen GPAs Before and After the Accreditation of Alberta High Schools

	School	Mean GPAs	SD	SE
Before Accreditation	High School	2.988	0.554	0.055
	College	2.916	0.669	0.067
After Accreditation	High School	3.063	0.502	0.050
	College	2.879	0.776	0.078

The purpose of the study was to determine if there had been a significant change in the academic achievement as measured by GPA's of Alberta's matriculation graduates since the accreditation of Alberta high schools in 1973. Six major objectives were generated for the study. These served as the basis for the null hypotheses which were tested in the analysis. The hypothesis is stated in each case, and it is followed by the relevant analyses and interpretations.

Correlational Analysis

The Pearson product moment correlation (r) was used to test Hypotheses 1 through 4.

Hypothesis 1. There is no significant correlation between the rural zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs before the accreditation of Alberta high schools.

The correlation coefficient (r) between the rural zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs was .50 which was significant at the .05 level. In interpreting the coorelation coefficient in terms of variance (r^2), the two measures have only 25% of their variance in common. That is, knowledge of the student's Grade XII GPA provides only 25% of what we would have to know in order to make a perfect prediction of the student's college freshman GPA. The null hypothesis was rejected because the Pearson product moment correlation coefficient (r) did show that a significant correlation existed between the Grade XII GPAs for the matriculation students from the rural school zone and their college freshmen GPAs before the accreditation of Alberta's high schools.

Hypothesis 2. There is no significant correlation between the Medicine Hat urban zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs before the accreditation of Alberta high schools.

The correlation coefficient (r) between the urban zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs was .47, which was significant at the .05 level. In interpreting the correlation coefficient in terms of variance (r^2), the two measures have only 23% of their variance in common. That is knowledge of the student's Grade XII GPA provides only 23% of what we would have to know in order to make a perfect prediction of the student's college freshman GPA.

The null hypothesis was rejected because a significant correlation existed between the Medicine Hat urban zone's matriculation graduates'

Grade XII GPAs and their college freshmen GPAs before the accreditation of Alberta high schools.

Hypothesis 3. There is no significant correlation between the rural zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs after the accreditation of Alberta high schools.

The correlation coefficient between the rural zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs after the accreditation of Alberta high schools was .36, which was significant at the .05 level. This correlation coefficient, when interpreted in terms of variance (r^2), indicates that the two measures have only 13% of their variance in common. That is knowledge of the student's Grade XII GPA provides only 13% of what we would have to know in order to make a perfect prediction of the student's college freshman GPA.

The null hypothesis was rejected because there was a significant correlation between the rural zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs after the accreditation of Alberta high schools.

Hypothesis 4. There is no significant correlation between the Medicine Hat urban zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs after the accreditation of Alberta high schools.

The correlation coefficient (r) between the Medicine Hat urban zone's matriculation graduates' Grade XII GPAs after the accreditation of Alberta high schools was .45, which was significant at the .05 level. In interpreting the correlationship coefficient in terms of variance (r^2), the two measures have only 20% of their variance in common. That

is, knowledge of the student's Grade XII grade-point average provides only 20% of what we would have to know in order to make a perfect prediction of the student's college freshman GPA.

The null hypothesis was rejected because there was a significant correlation between the Medicine Hat urban zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs after the accreditation of Alberta high schools.

Fisher's Zr Transformation

The Fisher's Zr transformation statistical test was used to test whether there was a significant difference in the correlation coefficients which were obtained for hypotheses 1-4.

Before accreditation the correlation coefficient (r) between the rural zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs was .50. After accreditation this same comparison produced a .36 correlation coefficient.

The .50 correlation coefficient produced a Zr of .549 and the .36 correlation coefficient produced a Zr of .377. The standard error of the difference between these two Zr's was calculated to be .144. The .172 difference between the two Zr's when divided by the standard error of the difference between the two Zr's produced a 1.19 Z value. The obtained 1.19 Z value was less than the required Z value of $\pm$ 1.96 in order to be significant at the .05 level. The data indicated that there was no significant difference between the two correlation coefficients .50 and .36.

Before accreditation the correlation coefficient (r) between the urban zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs was .47. After accreditation the correlation coefficient was .45 for this same comparison. These two correlation coefficients, .47 and .45, yielded Zr's of .510 and .485 respectifully. The standard error of the difference between the two Zr's was calculated to be .144. The .025 difference between the two Zr's when divided by the standard error produced a Z value of .174. The obtained 1.74 Z value was less than the required Z value of $\pm$ 1.96 in order to be significant at the .05 level. The data indicated that there was no significant difference between the two correlation coefficients .47 and .45.

Before accreditation the correlation coefficients (r) between the rural zone's matriculation graduates Grade XII GPAs and their college freshmen GPAs was .50. The urban zone's correlation coefficient for this same comparison was .47. The .50 correlation coefficient produced a .549 Zr while the .47 correlation coefficient produced a .510 Zr. The standard error of the difference between the two Zr's was calculated to be .144 and the obtained Z value was .270. This obtained .270 Z value was less than the required Z value of $\pm$ 1.96 in order to be significant at the .05 level. The Fisher's Zr transformation test indicated that there was no significant difference between the two correlation coefficients .50 and .47.

After accreditation the correlation coefficient (r) between the rural zones matriculation graduates Grade XII GPAs and their college freshmen GPAs was .36 and the urban zone's correlation coefficient was .45. These converted to Zr's of .377 and .485 respectfully. The

standard error of the difference between the two correlation coefficients was calculated to be .144 and the obtained Z value was .75. The data indicated that there was no significant difference between the two correlation coefficients .36 and .45.

A two-way analysis of variance was used to test Hypotheses 5 and 6.

Hypothesis 5. There is no significant mean difference between the matriculation graduates' Grade XII GPAs prior to and after the accreditation of Alberta high schools.

Table 4

Analysis of Variance for the Matriculation Graduates' Grade XII Grade-Point Averages by Method of Assignment and by Zones

Source	SS	df	MS	F	Sig. of F
Main Effects	1.688	2	0.844	3.009	0.050*
Method	0.000	1	0.000	0.001	0.972
Zone	1.687	1	1.687	6.016	0.015**
2-Way Interactions	0.487	1	0.487	1.738	0.188
Explained	2.175	3	0.725	2.585	0.053*
Residual	111.063	396	0.280		

* Significant at .05
** Significant at .01

The data in Table 4 show that there was a significant mean difference at the .05 level in the main effects. This indicates that it cannot be assumed that the different groups were drawn from populations with the same mean.

The data in Table 4 indicated that there was no significant mean difference between the Grade XII GPAs which were obtained by writing departmental examinations and those which were obtained through teacher-assigned grades. There was a significant difference, at the .01 level, between the rural and urban zones in the assignment of Grade XII GPAs. The two-way interaction effect of method over zones indicated that the interaction effect was not significant but that the between groups' variation was significant at the .05 level.

Because there was a significant difference, at the .01 level, between the rural and urban zones' matriculation graduates' Grade XII GPAs it was considered appropriate to determine where this difference occurred.

The t test was used to test for the difference between the means of the rural and urban zones' matriculation graduates' Grade XII GPAs prior to and after accreditation.

Before accreditation the rural zone's matriculation graduates' Grade XII mean GPA was 2.927, while the Medicine Hat urban zone's matriculation graduates' mean Grade XII GPA average was 2.988. A t value of .77 was obtained from this data. A t value of 1.96 was required in order to be significant, at the .05 level, and 396 df. The obtained t value .77 was less than 1.96 therefore, it was concluded that there was

no significant difference, at the .05 level, between the rural and urban zone's matriculation graduates' Grade XII GPAs before accreditation.

After accreditation the rural zone's matriculation graduates' mean Grade XII GPA was 2.865, while the Medicine Hat urban zone's matriculation graduates' mean Grade XII GPA was 3.063. A t value of 2.77 was obtained from this data. A t value of 1.96 was required in order to be significant at the .05 level and 396 df. The obtained t value of 2.77 was greater than 1.96 therefore it was concluded that the difference between the rural and urban zones' matriculation graduates' Grade XII GPAs after accreditation, was significant at the .05 level.

Hypothesis 5 was rejected because there was a significant mean difference at the .05 level, between the rural and urban zones' matriculation graduates' Grade XII GPAs.

Hypothesis 6. There is no significant mean difference between the Medicine Hat College's freshmen GPAs prior to and after the accreditation of Alberta high schools.

The data in Table 5 indicates that there was no significant mean difference in the population means. There was no significant mean difference in the college freshmen GPAs between the high school matriculation graduates who had obtained their GPAs through teacher-assigned grades and those matriculation graduates who had obtained their Grade XII GPAs by writing Alberta departmental examinations. There was no significant mean difference between the college freshmen GPAs prior to and after accreditation, for the matriculation graduates from the rural and urban zones.

Table 5

Analysis of Variance for College Freshmen Grade-Point Averages by Zone and by Method of Assignment of Grade-Point Averages

Source	SS	df	MS	F	Sig. of F
Main Effects	1.172	2	0.586	1.029	0.358
Method	0.609	1	0.609	1.069	0.302
Zone	0.563	1	0.563	0.988	0.321
2-Way Interaction	0.160	1	0.160	0.280	0.597
Explained	1.332	3	0.444	0.779	0.506
Residual	225.614	396	0.570		

Hypothesis 6 was accepted as being true because there was no significant mean difference between the Medicine Hat College's freshmen GPAs prior to and after the accreditation of Alberta high schools.

CHAPTER V

SUMMARY, FINDINGS AND RECOMMENDATIONS

Summary

The literature that has been summarized supports the premise that an organization should make provision for evaluation of its organizational life. While innovation and improvement in education are not synonymous, evaluation may well be integral to the successful attainment of both.

Accreditation in the United States has been used to provide for the establishment of certain basic standards in education. Accreditation serves the purpose of instituting some measure of control over the high schools by institutions of high learning, and promoting greater liaison between the two bodies. The first decades of accreditation in the United States were fostered by the initiative of the state universities. With the rapid growth of secondary schools in the United States, the authority for accrediting schools has been taken over by State Departments of Education or accrediting associations consisting of representatives of State Departments of Education, public school systems, and of universities.

In Canada, provincial governments have dominated education. Ministries of Education have established the requirement for education and in this manner created standards for the educational institutions.

There are no non-governmental organizations which establish requirements. Accrediting of schools in Canada has meant the relinquishing of a measure of the almost complete control over education that provincial Departments of Education have maintained.

Research in the field of teacher-assigned marks, which indicate student achievement, reveal that there is conflicting evidence as to their reliability. Several factors seem to be related to the assignment of marks to students. Related factors are: differences among teachers, differences among students, and the teacher's ability to judge a student's work to assign a mark fluctuates.

The purpose of this study was to determine whether there had been a significant change in the GPAs of Alberta's matriculation graduates since the accreditation of Alberta high schools in 1973.

The population for this study consisted of 553 of the 1971-72, and of 607 of the 1976-77 matriculation graduates who had graduates from schools located in the rural school jurisdictions in Alberta Education Zone 6; and of 235 of the 1971-72, and of 267 of the 1976-77 matriculation graduates who had graduated from high schools located in the Medicine Hat urban zone.

The random stratified sample consisted of four groups each of which consisted of 100 students. The sample was stratified to include equal numbers of students as to zone, as to year from graduation from high school, and as to the year they completed their freshman year at the Medicine Hat College.

In order to accomplish the stated purpose of the study, six objectives were set which formed the basis for the six null hypotheses

tested in the study. The six null hypotheses were:

1. There is no significant correlation between the rural zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs before the accreditation of Alberta high schools.
2. There is no significant correlation between the Medicine Hat urban zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs before the accreditation of Alberta high schools.
3. There is no significant correlation between the rural zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs after the accreditation of Alberta high schools.
4. There is no significant correlation between the Medicine Hat urban zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs after the accreditation of Alberta high schools.
5. There is no significant mean difference between the matriculation graduates' Grade XII GPAs before the accreditation of Alberta high schools, and the matriculation graduates' Grade XII GPAs after the accreditation of Alberta high schools.
6. There is no significant mean difference between the Medicine Hat College's freshmen GPAs before the accreditation of Alberta high schools, and the Medicine Hat College's freshmen GPAs after the accreditation of Alberta high schools.

The Pearson product moment correlation (r) was used to test hypotheses one through four.

The correlation coefficients for the rural and urban zones' matriculation graduates' Grade XII GPAs and their Medicine Hat college freshmen GPAs ranged from .36 to .50. These findings compare favorably with the findings of Evenson and Smith (1957) in their study "matriculation in Alberta." They found that the correlation between Grade XII GPAs and university freshmen GPAs at the University of Alberta ranged from a correlation coefficient (r) of .24 to a correlation coefficient (4) of .58.

The correlation on Hypotheses one through four indicate that the highest correlation coefficient (r) .50 was between the rural zone's matriculation graduates' Grade XII GPAs, which were obtained by writing department examinations, before accreditation and their college freshmen GPAs. The smallest correlation coefficient (r) .36 was between the rural matriculation graduates' Grade XII GPAs, obtained through teacher-assigned grades, after accreditation, and their college freshmen GPAs.

The Medicine Hat urban zone's matriculation graduates' Grade XII GPAs, obtained by writing department examinations, before accreditation when correlated with their college freshmen GPAs, yielded a correlation coefficient of .47. After the accreditation of Alberta high schools, the Medicine Hat urban zone's matriculation graduates' GPAs, obtained through teacher-assigned grades, after accreditation, when correlated with their college freshmen GPAs yielded a correlation coefficient of .45.

The data indicated that the highest correlation coefficient .50 and .47, were obtained by the rural and urban matriculation students

who had obtained their GPAs, by writing departmental examinations, before accreditation.

The Fisher's Zr transformation statistical test was used to test the correlation coefficients, to determine if there was a significant mean difference between the rural and urban zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs prior to and after accreditation.

The results of Fisher's Zr transformation statistical test indicated that at the .05 level there was no significnat difference between the correlation coefficients .50 and .36 for the rural zones' matriculation graduates' Grade XII GPAs and their college freshmen GPAs before and after accreditation. There was no significant difference, at the .05 level, between the correlation coefficients, .47 and .45, for the Medicine Hat urban zone's matriculation graduates' Grade XII GPAs and their college freshmen GPAs before and after accreditation.

Before accreditation the correlation coefficient between the rural zones matriculation graduates Grade XII GPAs and their college GPAs was .50. The urban zone's correlation coefficient for this same comparison was .47. The Fisher's Zr statistical test indicated at the .05 level that there was no significant difference between the correlation coefficients .50 and .47. After accreditation the correlation coefficient between the rural zone's matriculation graduates Grade XII GPAs and their college GPAs was .36. The urban zone's correlation coefficient for this same comparison

was .45. The Fisher's Zr statistical test indicated at the .05 level that there was no significant difference between the correlation coefficients .36 and .45.

The two way analysis of variance was used to determine whether there was a significant mean difference between the matriculation graduates' Grade XII GPAs prior to and after accreditation.

The data produced by the two-way analysis of variance statistical test indicated that there was a significant mean difference, at the .01 level, between the rural and urban zones' matriculation graduates' Grade XII GPAs.

The t test revealed that there was no significant mean difference between the two zone's matriculation graduates' Grade XII GPAs which were obtained by writing departmental examinations before accreditation, however, there was a significant mean difference, at the .01 level, between the rural and urban zones' matriculation graduates' Grade XII GPAs which were obtained through teacher-assigned grades after accreditation.

The two-way analysis of variance statistical test was used to determine if there was a significant mean difference in the academic achievement of the Medicine Hat College's freshmen before and after accreditation.

The results showed that there was no significant mean difference between the Medicine Hat College's freshmen GPAs prior to or after accreditation. This indicated that there was no significant mean difference in the college's freshmen GPAs for the matriculation graduates who had obtained their Grade XII GPAs by writing

departmental examinations and those matriculation graduates' who had obtained their Grade XII GPAs through teacher-assigned grades. It further indicated that there was no significant mean difference between the college's freshmen GPAs for the rural zone's matriculation graduates and the Medicine Hat urban zone's matriculation graduates prior to or after accreditation.

Findings

The findings reached as a result of the study are:

- There has not been a significant change in the GPAs of the matriculation graduates from the rural zone since the accreditation of Alberta high schools in 1973.
- There has not been a significant change in the GPAs of the matriculation graduates from schools in the Medicine Hat urban zone since the accreditation of Alberta high schools in 1973.
- There was not a significant difference in the GPAs of the matriculation graduates from the rural zone and the GPAs of the matriculation graduates from the Medicine Hat urban zone prior to the accreditation of Alberta high schools in 1973.
- There was a significant difference in the GPAs of the matriculation graduates from the rural zone and the GPAs of the matriculation graduates from the Medicine Hat urban zone after the accreditation of Alberta high schools in 1973.
- There was no significant difference in the Medicine Hat College freshmen GPAs of the matriculation graduates from

the rural zone and the matriculation graduates from the Medicine Hat urban zone prior to the accreditation of Alberta high schools in 1973.

- There was no significant difference in the Medicine Hat College freshmen GPAs of the matriculation graduates from the rural zone and the matriculation graduates from the Medicine Hat urban zone after the accreditation of Alberta high schools in 1973.
- There was no significant change in the Medicine Hat College freshmen GPAs since the accreditation of Alberta high schools in 1973.

Recommendations

After having gathered considerable information, including the study's findings, test results, reviews of research, and based on a knowledge of the educational science in Alberta the following recommendations are made:

- That mandatory Grade XII departmental examinations for the purpose of awarding final marks not be reinstituted.

  Based on the evidence produced by this study and by the other studies cited in the literature, student achievement is as good now as it was before accreditation. There is no need to assess student achievement with compulsory departmental examinations. The principal responsibility for evaluation of student achievement for promotion through the grade levels and

for the awarding of diplomas should continue to reside with the local school systems.

- That Grade XII departmental examinations be made available to school systems for use at their own discretion.

Evaluation of students for purposes of promotion should continue to be primarily the responsibility of local school systems. Departmental examinations should remain available, however, for the school jurisdictions not wishing to exercise that responsibility.

- That Grade XII departmental examinations be made available to students as appeal examinations.

Appeal examinations are still useful for special cases involving individual students, such as those requiring external criteria for scholarships, candidates for adult diplomas, and students who wish to challenge teacher-assigned marks.

- That Alberta education establish a Student Evaluations Policies Board to advise the Minister of Education on student achievement.

Public input is vital to effective and responsive policy decisions and actions on provincial student evaluation. It is considered important to attempt to keep educational decisions free from political decisions as much as possible.

- That a testing service to schools be established and maintained by the Alberta Department of Education.

Provincial norms on student achievement could be established against which local school systems could compare their students' achievement. Many school systems do not have the resources or personnel to develop, and produce valid and reliable tests whereas the Alberta Department of Education has the resources and personnel to provide such services to those school jurisdictions requesting it.

- That the Regional Offices of Alberta Education provide school jurisdictions with consultative services regarding student assessment programs.

The Regional Offices are an appropriate agency for providing support services regarding evaluation techniques. Personnel from these offices could assist in improving instruction and in developing the expertise of teachers in evaluation practices. Many school jurisdictions lack the resources and personnel to carry out these essential services. The Alberta Department of Education has the resources and personnel to assist those school jurisdictions requesting such services.

- That the Alberta Department of Education formulate and administer policies and procedures for the accreditation and de-accreditation of schools.

At the present time such policies and procedures are practically non-existent. It is essential that clearly defined criteria be established for the accreditation and de-accreditation of schools. Such policies are required if

uniform and consistent policies on the accreditation and de-accreditation of schools is to be practiced equitably for all schools in the province of Alberta.

- That the accreditation and de-accreditation of schools become the responsibility of the Field Services Branch of the Alberta Department of Education.

The Field Services Branch has Regional Offices of Education located in many centers in Alberta. Their personnel are familiar with the local school jurisdictions' problems and needs and they therefore, are in an excellent position to assess and evaluate schools in regards to their being accredited and de-accredited. Local school boards already have too many separate corporate bodies with which to deal and the establishment of yet another corporate body would only compound the bureacratic red tape with which local school boards must deal.

- That high school matriculation graduates not be required to write university entrance examinations for admittance to universities and colleges in Alberta.

The evidence provided by this study indicates that there was no significant mean difference in the GPAs of college freshmen prior to and after accreditation. Teacher-assigned grades are therefore accurate predictors of college success. University entrance exams could have the effect of dictating the high school curriculum in the public schools. If this

were to happen, it would be better to reinstitute compulsory Grade XII departmental examinations as this would allow the public school system to hold the majority of control over the high school curriculum.

REFERENCES

Ahmann, S. J., Slack, M. D., & Wardeberg, H. L. Evaluating elementary school pupils. Boston: Allyn and Bacon, Inc., 1960.

Alberta Department of Education Act. Edmonton: Queen's Printer, 1973.

Alberta Department of Education. Seventh annual report. Edmonton: King's Printer, 1913.

Alberta Department of Education. Eleventh annual report. Edmonton: King's Printer, 1917.

Alberta Department of Education. Twelfth annual report. Edmonton: King's Printer, 1918.

Alberta Department of Education. Fourteenth annual report. Edmonton: King's Printer, 1920.

Alberta Department of Education. Sixteenth annual report. Edmonton: King's Printer, 1922.

Alberta Department of Education. Eighteenth annual report. Edmonton: King's Printer, 1924.

Alberta Department of Education. Twenty-second annual report. Edmonton: King's Printer, 1928.

Alberta Department of Education. Twenty-sixth annual report. Edmonton: King's Printer, 1932.

Alberta Department of Education. Forty-eighth annual report. Edmonton: Queen's Printer, 1954.

Alberta Department of Education. Sixty-second annual report. Edmonton: Queen's Printer, 1968.

Alberta Department of Education. Sixty-fifth annual report. Edmonton: Queen's Printer, 1971.

Alberta Education. Sixty-seventh annual report. Edmonton: Queen's Printer, 1973.

Alberta Education. Seventieth annual report. Edmonton: Queen's Printer, 1976.

Alberta Education. Roles in student evaluation and research. Unpublished manuscript. 1976.

Alberta Education. Seventy-first annual report. Edmonton: Queen's Printer, 1977.

Alberta Education. Information bulletin #18. Communications, March 1973.

Alberta Education. Information bulletin #18. Communications, June 1978.

Alberta Education. Information bulletin #21. Communications, June 1979.

Alberta School Act. Edmonton: Queen's Printer, 1970.

Alberta Teachers' Association. A brief precedent to the minister's task force on the MACOSA report. Unpublished manuscript. Alberta Teachers Association, Edmonton: 1979.

Angel, James L. National, state, and other external testing programs. Review of Educational Research. 1968, 38 (1) 85-91.

ATA News. MACOSA report: ATA agrees in general. Edmonton: Alberta Teachers' Association, October 1979.

ATA News. Leave departmentals on the shelf: ATA. Edmonton: Alberta Teachers' Association, November 1979.

Austin, F. C. School marks. Review of Educational Research. 1966, 46, February.

Ayer, F. C. School marks. Review of Educational Research, 1933, 3, 201-204.

Banks, O. Parity and prestige in English secondary education. London: Routledge & Kegan, 1955.

Black, D. D. The distribution of final marks in nine course areas in Alberta senior high schools. The Alberta Journal of Educational Research, 1960, 6, 137-152.

Brasfield, S. A. A study of the changes in school programs that may have resulted from visiting committees that applied evaluation criteria to 31 Mississippi high schools. Unpublished doctoral dissertation. University of Mississippi, Oxford, Mississippi, 1956.

Brink, W. S. Secondary education programs. Encyclopedia of Educational Research, 3rd Ed., New York: Macmillan Company, 1960, 1259-1270.

Brown, E. E. The making of our middle schools. New York: Longmans, Green & Co., 1907.

Burton, W. H. The guidance of learning activities. New York: Appleton-Century-Crofts, Inc., 1952.

Calgary Herald, February 3, 1973.

Canadian Institute for Research in the Behavioral Sciences. Alberta language arts achievement study. Edmonton: Alberta Education, 1979.

Carzo, R. Formal organization, a systems approach. Homewood, Ill.: R. D. Irwin, 1967.

Clark, S. C. T., Nyberg, U., and Worth, W. H. Alberta grade 3 achievement study. Edmonton: Alberta Education, 1978.

Coleman, J. Equality in education opportunity. Washington, D.C.: U.S. Document Printing Office, 1966.

Cope, Q. E. After evaluation--How much improvement? The Clearing House, 1953, 27 (8), 451-453.

Davis, H. M. The use of state high school examinations as an instrument for judging the work of teachers. Teacher's College Contributions to Education, No. 611, New York: Columbia University, 1934.

Derby, A. M. Report of the Director of Examinations and Registrar. Victoria, British Columbia: British Columbia Department of Education, 1958.

Douglas, H. R. The prediction of success in high school mathematics. The Mathematics Teacher. 1935, 28, 489-504.

Dressel, Paul. The role of external testing in education. Educational Review. 1964. 45: 16 - 6.

Dumont, F. S. Alberta grade 12 examination study. Edmonton: Alberta Education, 1977.

Ebel, R. L. Essentials in education measurement. Englewood Cliffs, New Jersey, Prentice-Hall, 1972.

Englehart, Max D. What research says to the teacher: improving classroom testing. Washington, D.C.: The National Education Association, 1964.

Evenson, A. B. Grade IX examinations. Edmonton: Curriculum Branch Circular (mimeographed), 1952.

Evenson, A. B., & Smith, D. E. Matriculation in Alberta. Alberta Journal of Education Research. University of Alberta. 1957, 3, 62-71.

Findley, Warren G., & Marcia B. Overview of the research on educational and psychological testing. Review of Educational Research, 1968, 38 (1) 5-11).

Fedigan, L. School-based elements related to achievement: a review of the literature. Alberta Education, 1979.

Gay, G. Elements related to student success in schooling and education: a review of the literature. Alberta Education, 1979.

Gajewsky, S., & Shore, B. M. Accreditation: Review of the literature and selected annotated bibliography. Montreal: McGill University, 1973.

Hagen, E. R., & Thorndike, R. L. Evaluation. Encyclopedia of Educational Research. 3rd Ed., New York: Macmillan Co., 1960.

Harris, Chester, W. Ed. Cultural differences. Encyclopedia of Educational Research. 3rd Ed., New York: Macmillan Co., 1960.

Hawkesworth, E. S. Initiating change in Alberta high schools through team evaluation. Unpublished doctoral dissertation. University of Colorado, Boulder, Colorado, 1969.

Hughes, J. M. A study of intelligence and of the training of teachers as factors conditioning the achievement of pupils. School Review, March-April 1925. 33, 191-200.

Hulten, E. C. The personal element in teachers' marks. Journal of Educational Research, 1925, XII, 49-55.

Jex, Frank B. Predicting academic success beyond high school. Salt Lake City: University of Utah, 1966.

Keller, B. S. A brief presented to the minister's task force on the MACOSA report. Unpublished manuscript. Edmonton: 1979.

Leduc ATA Local. A brief presented to the minister's task force on the MACOSA report. Unpublished manuscript. Leduc ATA Local, October, 1979.

Lennon, Roger T. Selection and provision of testing materials. Test Service Bulletin, New York: Hancourt, Brace, and World Inc., 1961.

Levirs, F. F. Report of the chief inspector of schools. Victoria, British Columbia: Queen's Printer, 1958.

Lindstedt, S. A. Teacher qualifications and grade XI mathematics achievment. Unpublished master's thesis, The University of Alberta, Edmonton, Alberta, 1960.

Lopatka, R. Report on the development and administration of the high school social studies achievement test. Edmonton: Alberta Education, 1978.

Mach, Lawrence L. Efficiency of predictors at the University of Alberta. Alberta Journal of Educational Research. 1963. 9 (2) 100-110.

MACOSA. Student Achievement in Alberta. Edmonton: Alberta Education, 1979.

Manitoba Department of Education. Annual Report. Winnipeg: Queen's Printer, 1967.

Manitoba Department of Education. Annual Report. Queen's Printer, 1976.

Millett, John, P. Financing Higher Education in the United States. New York: Columbia University Press. 1952.

Monroe, P. (Ed.). A cyclopedia of education. New York: The Macmillan Company, 1919.

Morrison, A. B. Report of the director of curriculum and research. Nova Scotia Department of Education. Halifax, Nova Scotia: Queen's Printer, 1958.

Morrison, B. A. The effects of the evaluative process in Colorado secondary schools. Unpublished master's thesis., University of Colorado, Boulder, Colorado, 1967.

North Central Association of Colleges and Secondary Schools. Proposed policies and criteria for the approval of secondary schools, 2nd ed. Chicago: 1968.

Olson, A., Sawada, D. & Sigurdson, G. Alberta assessment of mathematics. Edmonton: Alberta Education, 1979.

Ontario Department of Education. Annual Report. Toronto, Queen's Printer, 1952.

Owens, M. R. Report on the use of the evaluative criteria. The North Central Association Quarterly, 1952. 27 (2), 234-235.

Ovard, G. P. Administration of the changing secondary school. New York: Macmillan Company, 1966.

Putman, J. H., & Weir, G. H. Recommendations given in the survey of the school system. Victoria, British Columbia: King's Printer, 1926.

Research Report. The National Education Association Journal. 1965, 54 (3).

Rhead, Kevan. A brief presented to the ministers task force on the MACOSA report. Unpublished manuscript. Edmonton: 1979.

Rogers, C. K. Report of the registrar, Department of Education, Manitoba. Winnipeg: Queen's Printer, 1958.

Rogers, D. C. The effect of experience and training on improvement in silent reading comprehension. Chicago Schools Journal, 1924, 6, 329-31.

Rosenthal, R. & Jacobson, L. Pygmalion in the classroom: teacher expectations and pupils intellectual development. New York: Holt, Rhenchart, and Winston, 1968.

Rothney, John W. M. What research says to the teacher: evaluating and reporting pupil progress. Washington, D.C.: The National Education Association, 1955.

Rugg, H. O. Teachers' marks and marking system. Educational Amini-stration and Supervision, 1915, 1, 117-142.

Rusnak, T. A. Evaluating education in Alberta schools. Unpublished manuscript, Alberta Education, 1975.

Rusnak, T. A. Accreditation in Alberta education. Unpublished doctoral dissertation, University of Calgary, 1977.

Royal Commission of Education. Report. Toronto: King's Printer, 1950.

Saskatchewan Department of Education. Accredited secondary schools for Saskatchewan. Queen's Printer: Regina: 1946.

Saskatchewan Department of Education. Annual Report. Queen's Printer Regina: 1957.

Schunert, Jim. The association of mathematical achievement with certain factors resident in the teacher, in the teaching, in the pupil, and in the school. Journal of Experimental Education. 19:219-238, March, 1951.

Scottish Education Department. Secondary education. Edinburgh: His Majesty's Stationary Office, 1947.

Seashore, S. E. Assessing organizational performance with behavior measurements. Ann Arbor, Michigan: Braun & Brumfield, 1964. (lithoprinted).

Seldon, W. K. Background of accrediting. Washington, D.C.: Catholic University of America, 1958.

Sheldon, W. K. The relative unimportance of regional accreditation. Journal of Teacher Education, 1962, 13 (2), 319-325.

Starch, O., & Elliott, E. C. Reliability of the grading of high school work in English, mathematics, and history. School Review, 1913. 20, 442-57.

Stephens, J. M. & Lichenstein, A. Factors associated with success in teaching grade 5 arithmetic. Journal of Educational Research, 1947, 40, 683-94.

Statutes of Canada. British North American Act. Ottawa, Queen's Printer, 1867.

Traxler, Arthur E. Fundamental of testing for parents, schools and teachers. Test Service Notebook, Tarrytown, New York: Harcourt, Bruce, and World Inc., 1961.

Treasure, M. Alberta science achievement study. Edmonton: Alberta Education, 1979.

Tyler, Ralph W. A program of national assessment, national education assessment: pro and con. The American Association of School Administrators, Washington, D.C.: The National Education Association, 1966.

Wardlaw, P. H. A proposed plan of classification and accreditation of Missouri public schools. University of Missouri, Columbia, 1948.

Worth Commission on Educational Planning. A choice of futures. Edmonton: Queen's Printer, 1972.

Wright, Grace S. State Accreditation of High Schools. U.S. Department of Health, Education and Welfare, Bulletin No. 5, 1955. Washington, D.C.: Government Printing Office, 1955.

Wrightstone, J. W. Improving the methods of assigning school marks. High Points, 1946, 28, 27-33.

Wrightstone, W. J. Evaluation. Encyclopedia of Education Research 2nd ed., New York: Macmillan Company, 1950. pp. 403-406.

Wrinkle, W. L. Improving marking and reporting practices in elementary and secondary schools. New York: Rhinehart & Co., 1947.

Vredevoe, L. E. How may we make the recording and reporting of pupil achievement more meaningful? National Association of Secondary School Principals, April 1953, 37, 179-82.

APPENDIXES

Appendix A

The Rural Zone's Matriculation Graduates' Grade XII and College Freshmen Grade-Point Averages Before the Accreditation of Alberta High Schools

Student Number	High School Grade-Point Average	College Grade-Point Average
1	3.2	4
2	3	4
3	2.6	2.6
4	3.6	3.1
5	2.8	2
6	2.2	3.7
7	4	4
8	4	4
9	2.2	.9
10	2.8	2.3
11	24	3.5
12	2.8	3
13	2.6	2.5
14	2	1.8
15	2.8	2.4
16	4	4
17	2.8	2.9
18	2.4	.8
19	3	3
20	3.2	3.2
21	3.2	3.1
22	2.6	2.7
23	3.2	3.3
24	2.4	2.1
25	3.6	3.2
26	2.8	2.2
27	2.8	3.6
28	3.4	2.6

Appendix A (Continued)

Student Number	High School Grade-Point Average	College Grade Point Average
29	2.4	3.3
30	3.2	3.1
31	2.4	3.3
32	2.4	2.1
33	2.6	2
34	3.2	2.6
35	2.4	2.3
36	2.6	3.2
37	4	3.8
38	2.2	1.2
39	2.8	2.8
40	3.2	2.1
41	2.6	3.2
42	2.4	3.3
43	3	3.1
44	2.4	2.9
45	2.4	2.9
46	2.4	2.1
47	3	2.1
48	2.8	2.3
49	2.8	1.5
50	2.4	2.4
51	2.4	2.4
52	4	4
53	3.8	3.8
54	2.4	2.7
55	3.6	3.9
56	3.6	3.9
57	2.4	3.6
58	2.4	3.5
59	2.4	3.3
60	2.6	3.1
61	3	3.2
62	2.8	2.5
63	3	1.8
64	3.2	1.5
65	2.8	3.4
66	3.6	3.8

Appendix A (Continued)

Student Number	High School Grade-Point Average	College Grade-Point Average
67	3.8	3.7
68	3	2.8
69	2.8	1.6
70	3.4	3
71	3.2	4
72	2.6	2.6
73	2.2	3.7
74	4	4
75	2.2	.9
76	4	3.5
77	3.6	2.5
78	2.8	2.4
79	4	4
80	2.4	3.8
81	3.2	3.2
82	2.6	2.7
83	2.4	2.1
84	2.8	2.2
85	3.4	2.6
86	3.2	3.1
87	2.4	2.1
88	3.2	2.6
89	2.6	3.2
90	2.2	1.2
91	3.2	2.1
92	2.4	3.3
93	2.4	2.9
94	2.6	2.1
95	2.8	2.3
96	2.4	2.4
97	4	4
98	2.4	2.7
99	3.6	3.9
100	2.4	3.5

Appendix B

The Medicine Hat Urban Zone's Matriculation Graduates' Grade XII Grade-Point Averages and College Freshmen Grade-Point Averages Before the Accrediation of Alberta High Schools

Student Number	High School Grade-Point Averages	College Grade-Point Averages
1	2.8	2.4
2	4	3.8
3	3.2	3
4	2.6	2.1
5	3.6	3.2
6	3	3.2
7	2	2.9
8	2.2	2.7
9	2.4	2.9
10	2.6	3.5
11	2.4	1.8
12	2.8	2.8
13	2.6	3.6
14	2.4	2.6
15	2.2	2
16	2.6	2.8
17	3.2	3.6
18	2.6	2.8
19	3.4	3.1
20	3	3.5
21	2	1.7
22	2.8	3.4
23	4	3.8
24	3.2	3.2
25	3	2.7
26	2.4	3
27	3.8	3.7

Appendix B (Continued

Student Number	High School Grade-Point Averages	College Grade-Point Averages
28	3.6	1.8
29	3.4	2.8
30	3.2	3.7
31	3.2	3.1
32	3.2	3
33	2.4	2.9
34	4	4
35	2.8	2.6
36	3.2	4
37	3.8	2.9
38	3.4	3
39	3	2.5
40	3.4	2.3
41	3.8	3.7
42	3.8	3.6
43	3	2.5
44	3.6	4
45	2.4	2.7
46	3.6	2.6
47	3.2	2.3
48	3	2.8
49	2.4	0
50	2.2	2.8
51	2.2	2.3
52	2.8	2.7
53	3	2.8
54	3.6	3.3
55	2.6	3.2
56	2.8	2.6
57	3.2	2.3
58	3.8	4
59	3.4	3.5
60	2.4	3.2
61	2.4	2.2
62	2.6	3.9
63	2.8	2.5
64	2.6	2.5
65	3	2.7
66	2.8	2.5

Appendix B (Continued)

Student Number	High School Grade-Point Averages	College Grade Point Averages
67	2.8	2.7
68	4	3.8
69	2.6	2.1
70	3	3.2
71	2.2	2.7
72	2.4	2.9
73	2.6	3.5
74	2.8	2.8
75	2.4	2.6
76	2.6	2.8
77	2.6	2.8
78	3	3.5
79	2	1.7
80	4	3.8
81	3	2.7
82	2.4	3
83	3.6	1.3
84	3.2	3.7
85	3.2	3
86	4	4
87	3.2	4
88	3.4	3
89	3.4	2.3
90	4	3.6
91	3.6	4
92	3.6	2.6
93	3.2	2.3
94	3	2.8
95	2.2	2.8
96	2.2	2.3
97	3	2.8
98	2.6	3.2
99	3.2	2.3
100	3.4	3.5

Appendix C

The Rural Zone's Matriculation Graduates' Grade XII and College Freshmen Grade-Point Averages After the Accrediation of Alberta High Schools

Student Number	High School Grade-Point Averages	College Grade-Point Averages
1	2.8	2.7
2	2.8	2.8
3	2.4	1.8
4	2.4	2.4
5	2.2	2.1
6	3.4	2.2
7	2.2	3.2
8	3	3.4
9	3.4	3
10	2.8	2.7
11	2.6	.7
12	2.8	2.6
13	3.2	3.7
14	3.2	2.5
15	2	2.5
16	2.8	2.3
17	3.6	3.5
18	2.8	3.2
19	2.2	3.1
20	2.6	2.1
21	2.4	.5
22	2.8	.2
23	3.8	2.9
24	2.2	2.4
25	3	3.2
26	3	2.3
27	3.4	3.5
28	2.4	3.6
29	3.2	2.7
30	2.4	2.5

Appendix C (Continued)

Student Number	High School Grade-Point Averages	College Grade-Point Averages
31	3.2	2
32	3.4	3
33	3.2	1
34	3.8	3.6
35	3.2	3.1
36	2.8	3
37	2.4	3.2
38	2.2	.2
39	2.4	3.1
40	2.4	2.9
41	2.4	2.7
42	2.8	3
43	3.8	3.9
44	2.4	2.4
45	2.2	3
46	3.4	3.7
47	3.8	3.9
48	2.4	2.7
49	2.8	1.3
50	2	3.5
51	3.2	2
52	3.8	3.8
53	2.2	2.8
54	2.6	3.3
55	2.4	2.9
56	3.2	1.9
57	3	3.3
58	2.4	2.5
59	2.6	3.2
60	2.8	1.5
61	3	1.6
62	3	2.8
63	3	3.5
64	2.8	3.1
65	3.6	3.3
66	2.8	2.3
67	3	3
68	3.2	2.5
69	4	3.9

Appendix C (Continued)

Student Number	High School Grade-Point Averages	College Grade-Point Averages
70	3.8	3.9
71	2.2	2.4
72	2.8	2.2
73	3	2.9
74	3.2	3.2
75	2.4	3
76	4	2.8
77	3.2	2.3
78	2.8	2.7
79	3.6	4
80	2.4	3.3
81	3	3.3
82	3.8	4
83	2.4	2.6
84	2.2	2.1
85	2.8	2.7
86	3	2.5
87	2.6	2.1
88	3	3.1
89	2.4	2.5
90	3.2	3.1
91	2.4	2.9
92	2.2	3
93	2	3.5
94	2.4	2.9
95	2.8	1.4
96	3.6	3.2
97	3.8	3.9
98	2.4	2.9
99	2.4	3.3
100	2.4	3

Appendix D

The Medicine Hat Urban Zone's Matriculation Graduates' Grade XII and College Freshmen Grade-Point Averages After the Accreditation of Alberta High Schools

Student Number	High School Grade-Point Averages	College Grade-Point Averages
1	2.4	2.3
2	2.5	3.5
3	2.4	2.5
4	2.8	2.2
5	3.8	3.5
6	2.4	2.8
7	2.6	2.4
8	3.6	2.9
9	2.8	1.3
10	4	4
11	2.8	3
12	2.4	2.4
13	2.6	2.6
14	2.4	1.4
15	2.6	2.6
16	2.6	2.5
17	3.6	3.4
18	2.8	2.8
19	2.6	2.8
20	3.8	3.7
21	3.4	2.9
22	2.4	1.7
23	2	2.7
24	2.8	2.8
25	2.8	3.5
26	2.8	3.1
27	2.6	3.4
28	2.8	3.2
29	2.8	2.2

Appendix D (Continued)

Student Number	High School Grade-Point Averages	College Grade-Point Averages
30	2.8	4
31	3.8	3.2
32	3.4	2
33	2.8	3.6
34	3.6	4
35	3.4	3.6
36	3	3.3
37	2.8	3.6
38	3.8	3.4
39	2.8	.2
40	3.4	1.3
41	2.6	3.1
42	2.4	1.2
43	3	3.5
44	3	3.8
45	3	2.3
46	3.4	3.2
47	3.2	2.8
48	2.4	3.1
49	3.6	3.8
50	3.6	3.5
51	4	3.9
52	3	2.7
53	3.8	3.4
54	3.8	3.7
55	3.2	3.1
56	3.2	3.6
57	3.6	2.5
58	3.2	2.1
59	3	1.5
60	3	1.9
61	3	2.3
62	3	2.8
63	4	3.6
64	2.4	2.3
65	2.4	2.5
66	3.8	3.5
67	2.6	2.4
68	3.6	2.9

Appendix D (Continued)

Student Number	High School Grade-Point Averages	College Grade-Point Averages
69	4	4
70	3	2.4
71	2.8	2.6
72	2.6	2.6
73	3.6	3.4
74	2.8	2.8
75	3.4	2.9
76	2	2.7
77	2.8	3.5
78	2.6	3.4
79	2.8	2.2
80	3.8	3.2
81	2.8	3.6
82	3.4	3.6
83	2.8	3.6
84	2.8	.3
85	2.6	3.1
86	3	3.5
87	3	2.3
88	3.2	2.8
89	3.6	3.8
90	4	3.9
91	3	2.7
92	3.8	3.7
93	3.2	3.6
94	3.2	2.1
95	3	1.9
96	3	2.3
97	4	3.6
98	2.5	3.5
99	2.8	2.2
100	2.4	2.8

VITA

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